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# A review on L2 models of reading theories and reading teaching strategy

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## ABSTRACT

L2 reading instruction has tended to focus on the explicit teaching of reading strategies on the grounds that a strong grasp of reading strategies would lead to better reading comprehension skills. We argue that such teaching practice is very much anchored in the cognitive-psychological based theory of reading that have characterized the field of SLA over the years. In light of this, we seek to present a summary of various theories, research findings and arguments around the nature of reading in SLA. The data were collected through electronic database such as Eric, Google Scholar, Proquest and Wiley Online Library. We discuss three major reading models: bottom-up, top-down, and interactive model, alongside metacognition theory, extensive and intensive reading as well as reading assessment. We believe that a sound understanding of these cognitive based processes underlying reading activity could serve as the basis for improvement in reading instruction. However, there is an inherent need to consider sociocultural aspects of reading in order to help students sustain reading engagement over an extended period of time toward the formation of reading habit. We conclude the discussion by suggesting that as reading activity becomes increasingly digitized, more qualitative research studies exploring student's individual experience are highly recommended, in complimentary to the cognitive-psychological based theory of reading.



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## 1. Introduction

The significance of the capacity to read cannot be more emphasized because it is the key to acquiring knowledge, broadening horizons and building self-capacity. Reading provides exposures to a whole range of new and rich information as well as different perspectives of the world which may not be accessible through actual personal encounters. Through reading, individuals have the chance to experience the life of others, and to interact with different ideas and experiences in ways that would enhance their knowledge and awareness about different aspects of life, thereby allowing multiple perspectives to develop. The benefit of reading may also include the acquisition of different reading skills and cognitive strategies as individuals build and develop positive reading habits over time. As such, the ability to process information through reading becomes critically important for individual development, as well as for social, economic and civic life [1]. For example, several studies have revealed that reading increases general knowledge [2], a better understanding of other cultures [3], community participation [4], a greater insight into human nature and decision making [5]. The benefits of reading may also extend to the ability to understand and sympathize with others' emotions, cognitions and motivation, known as *social understanding* [6]. A substantial number of research studies have also investigated different knowledge and skills involved in reading such as high-level and low-level text processing, [7], strategy use and text comprehension [8]–[10], word recognition in reading comprehension, [11], use of metacognitive reading strategies [12], L2 reading strategy instruction [13], and appropriateness of strategy use [14].

While these studies may provide invaluable insights into the nature of reading, there is a paucity of research that seeks to look beyond the micro level process of reading. From theoretical perspectives, there is also a need to theorize how individuals make a decision as to what to read and why they read. This is even more important in the wake of increasing digitisation of texts characterized by the transition of reading from paper to screens. It is worth questioning as to how digitisation affects reading engagement and text processing and how this would impact the way we approach teaching reading skills. Hence, we seek to illuminate such a gap by revisiting a host of theories, perspectives and assumptions underlying reading in second language and reading strategy teaching and in doing so attempt to contribute to the ongoing discussion on the nature of reading and reading strategy teaching. The first section of the review will present a detailed description of three major theories of reading: the structural linguistics approach [15], with its bottom-up model of reading processes, the psycholinguistic model [16] with its top-down model and the cognitive psycholinguistic approach characterized by schema theory which produced the interactive reading model [17]. Additionally, the issue of reading comprehension assessment is also discussed as it also shapes the way reading strategy teaching is approached.

## 2. Method

The review models of L2 reading theories was conducted following Perry & Hammond that a qualitative approach in a systematic review is used to synthesize (summarize) research results that are qualitative descriptive. This method of synthesizing or summarizing the results of qualitative research is called 'meta-synthesis'. By definition meta synthesis is techniques to perform data integration to obtain new theory or concept and deeper and more comprehensive understanding. To this end, several procedures were followed to ensure a high-quality review of the literature. First, a comprehensive search of peer-reviewed journals as a primary source of data was completed by using key terms such as reading strategy, L2 reading comprehension, and reading instruction. This was done through a number of electronic data bases including Pro-Quest, Academic Search Premiere, EBSCOhost, ERIC, Google Scholar, and Wiley Online Library. Relevant research results were also selected either from individual research highlighting its findings. Second, the reference section for each article found was searched in order to find additional articles. Third, by applying narrative technique or meta-synthesis, analyzing, synthesizing, and critically evaluating all the sources were administered to find clear picture of the state of reading theories. We began the data analysis by applying an initial reading of the collected articles. We first examined the abstracts at the beginning of the paper to decide whether the paper was worthy of further reading [18]. The next stage involves identification of relevant theories and research findings across the research articles collected and synthesizing them into general themes. To help this process, a synthesis matrix was used to organize the sources and to identify commonalities and differences across the collected articles [19]. The use of the synthesis matrix allowed us to capture the dialogic interaction among ideas, concepts and theories across the research articles. We subsequently organized the data into different columns in the matrix. In the first column, we list author and date of publication for each study. In the rest of the columns, we identify the purpose of the research, method used in the study, major findings of the study, the main ideas or themes distilled from the findings, and how the findings confirm or differ from those of other studies.

## 3. Results and Discussion

The purpose of this study is to present a review of reading theories and research studies in the field of Second Language Acquisition (SLA) that focus on issues around L2 reading strategies and reading strategy teaching. We bring together different theorization, perspectives and assumptions underlying reading and show just where they converge and diverge. We argue that a strong understanding of these issues may allow us to not only recognize the contribution that has been made to the reading scholarship but also to help us map out current and future direction of both theory and research in the area of reading in second language.

### 3.1 The Nature of Reading

Reading is often defined in simple statements much like the following: "reading is the process of receiving and interpreting information encoded in language form via the medium of print" [20], and "comprehension occurs when the reader extracts and integrates various information from the text and

combines it with what is already known” [21]. Reading is also understood as a complex combination of processes: a rapid process, an efficient process, a comprehending process, an interactive process, a strategic process, a flexible process, a purposeful process, an evaluative process, a learning process and a linguistic process. The complexity of reading processes stated by Grabe above implies complex cognitive processes as well, and they provide hints for a good definition of reading. In the same way, Day & Bamford reassures us that reading in general is a complex cognitive skill, involving many sub skills, processes, and knowledge sources ranging from the basic lower-level visual processes involved in decoding the print to higher level skills involving syntax, semantics, and discourse, and even to skills of text representation and integration of ideas with the reader’s global knowledge. Reading is the construction of meaning from a printed or written message [22].

The essential skill in reading is obtaining meaning from a text. In many ways this is similar to gaining meaning from a spoken message, but there are differences, because the cues are different. Spoken messages contain cues that are not evident in printed messages, and conversely. Carrol (as cited in [23]) described the reading process as moving together our eyes in a swift and well-ordinated way, making a series of fixations, jumping from place to place on the page of print [24]. In defining the nature of reading, propose five important elements as prerequisites to fluent reading. These are the (1) purpose of reading; (2) the skills, processes and knowledge bases involved; (3) the cognitive process that operates under intense time constraints; (4) the ability to draw and interpret meaning from the text, and; (5) the social context in which reading takes place. Similarly, Alderson classifies reading into its process and the result of that process, the product [25]. What he means by process is the ‘reading’ proper: the interaction between a reader and the text. During that process, presumably, many things are happening, for example, the reader is looking at print, deciphering in some sense the marks on the page, deciding their meaning, relating them to each other, etc. This process is also likely to be dynamic, variable and different from the same reader on the same text at a different time or with a different purpose in reading. What he means by ‘product’ is the understanding of the text. Different readers may engage in different reading processes, but they should end up with similar understandings.

### 3.2. How Reading Works

In discussing how reading works, it is essential to recognize the two reading processes: lower-level processes and higher-level processes [26], as these two reading processes are closely related [25] with the research project which is to describe the subjects’ cognitive processes in the context of L2 reading. Lower-level processes (word recognition, segmentation and selection, recognition and lexical access) include word recognition, syntactic parsing, and meaning encoding as propositions (more formally, semantic-proposition encoding) and higher-level processes include text-model formation (what the text is about), situation-model building (how we decide to interpret the text), inference, executive-control processing (how we direct our attention), and strategic processing [26], [27]. The listing of these lower-level processes does not mean that they are simple and undemanding; rather, they form a group of skills that have the potential to become strongly automatized and this automatizing of lower skills is a requirement for fluent reading [28]. Word recognition is the key to comprehension. Perfetti stated that comprehension depends on successful word reading [29]. Skill differences in comprehension can arise from skill differences in word reading. In children, word reading and reading comprehension are highly related; correlations fall within the range of 0.35 to 0.83 [30]. Reading comprehension is not possible without rapid and automatic word recognition of a large vocabulary, and without activating links between the graphic form and phonological information, without activating appropriate semantic and syntactic resources, without recognizing morphological affixation in more complex word forms, and accessing her or his mental lexicon. These sub-skills represent a standard way to describe word-recognition skills [26]. The larger children’s vocabularies are, the better their comprehension [31].

The importance of word recognition for reading is hard to overestimate. When we read, we actually focus visually on almost all of the content words that we read and about 50 per cent of the small function words [29]. A fluent reader must be able to recognize word forms on the page very rapidly. Perfetti have similarly described these processes as “constituent” of word recognition; that is, word recognition involves the interaction of activated orthographic, phonological and semantic and syntactic processes. In cases of word recognition difficulty or encounters with unknown words, the impact of contextual information plays an important role in word recognition. In short, every study of reading achievement points to the importance of vocabulary knowledge [31]. Fluent readers need a

massive receptive vocabulary that is rapidly, accurately and automatically accessed. The lack of such vocabulary may be the greatest single impediment to fluent reading by ESL students [32]. Even in the case of L1 readers reading native language text, their comprehension can break down if they encounter many unfamiliar words that are key words. For example, most readers would have some difficulty reading an article from a medical journal, written by a doctor for doctors, explaining how the hypothalamus functions [33].

As one of the key successes in the reading process, orthographic processing involves the visual recognition of word forms in the text. The forms include letters, letter groups, visual word shapes, and key shapes that are letter parts (like the long vertical line in “l” or “b”, or the right-hand curve in “b”, or “o” or “p”). According to connectionist theories of word recognition, all of this information is processed simultaneously in word group rather than in letter-by-letter fashion. However, there is a direct correspondence between time needed for visual processing and the length of a word; the longer the word, the longer the word-recognition time. Similarly, Urquhart et al. stated that letters are not processed serially. If they were, then the time taken to recognize a word would be longer than the time needed to recognize a single letter, and the longer a word, the longer it would take to recognize. In addition, orthographic processing involves larger letter groups that are consistent (e.g., in English, -ake, -ight, -ogy), and even more complex words with one or more morphological affixes (e.g., unconscious-ness). Knowing how words are put together to form derived words contributes directly to vocabulary growth and indirectly to reading comprehension abilities. In the majority of words which are processed while reading, phonological activation of the form plays an important role. This process appears to be a universal aspect of reading. Phonological processing skills are essential early predictors of reading development. As readers become fluent, they develop strong phonological abilities. Grabe asserts that phonological processing is a key aspect of word recognition which will later contribute to the semantic and syntactic processing [26].

### 3.3 Reading Theory

As stated previously, reading can be clearly viewed as a cognitive activity as it largely takes place in the mind, and the physical manifestation of the activity such as eye movements, sub-vocalization, etc., are comparatively superficial [34]. As a cognitive activity, reading has been of major interest to cognitive psychologists since the 1960s. And the theory invented by the cognitive psychologists with which most teachers of reading are already familiar is Fries’ bottom-up model, which was then replaced by Goodman’s top-down model, which in turn was replaced by Rumelhart’s interactive model. The interactive model was then developed by Stanovich with his interactive compensatory model. The two models, bottom-up and top-down, have inspired recognizable methodological approaches. The latter is very attractive and has received a great deal of support [34]. In this research study, the researcher is focusing on these three theories as they are the most related to the present study, (1) the bottom-up model; (2) the top-down model and; (3) the interactive compensatory model. They will be utilized to explain the mental processes of the subjects recalling the L2 text. The linguistic variable, according to Bernhardt consists of knowledge of words, lexicon, and syntax [10]. In L1 studies, learners’ proficiency is progressing in parallel with their speed of word recognition. This skill enables them to process holistically the word shape and its configuration. In the area of lexicon (word meaning), Bernhardt share the same idea that it is quite difficult to determine whether reading ability is dependent upon vocabulary or vice versa. Vocabulary is both a prerequisite to and a consequence of reading [35]. In the L2 setting, Stanovich argues that there is a reciprocal causal relation between reading and vocabulary [11]. Vocabulary mastery improves reading comprehension, and the more reading, the more vocabulary acquired. Similarly, Alderson, Verhoeven and both agree that there are strong relations between vocabulary knowledge and reading abilities [25],[36].

The very close interconnection between vocabulary and reading comprehension has led to an idea that in the context of teaching L2 reading, no direct instruction is needed for vocabulary, because vocabulary will be acquired automatically through context reading [37]. However, this idea was criticized as it is not clear yet how learners acquire vocabulary from the reading process [38]. “Vocabulary learning needs to be developed from a combination of direct vocabulary instruction, vocabulary-learning strategies, extensive reading and word learning from context, heightened student awareness of new words, and motivation to use and collect words” [39]. Understanding the meaning of words is a crucial skill in reading. Incomplete understanding may result in difficulty of comprehending a text. Understanding the meaning of words means that the learners are able to use them in many different contexts. In L2 reading contexts, many learners know an English word as a

single, fixed meaning so that they have difficulty when the word is used in different contexts [40]. Related to word meaning, syntactical knowledge of the language is also paramount. Adams (1990) stated that as syntax is an element of sentence-building and is the primary means to specify the intended relations among words and defining new relations among them, it must be provided with appropriate help [41]. Bernhardt (1993) suggests that all readers have a linguistic task, that is, they have to make word recognition as well as the lexical and the syntactic systems all work automatically and simultaneously [10]. It is not possible to read without recognizing the words to be read and the structural phrases organizing the words, and without having a reasonable store of linguistic knowledge of the language of the text [39].

Literacy variables comprise operational knowledge of how to approach and decode a text [42]. It has something to do with reading strategies and reading skill, both of which have a connected differentiation. A skill is a strategy that has become automatic, and in reading instruction the goal is to move readers from conscious control of reading strategies to unconscious use of reading skills [28]. Similarly, Grabe suggests that strategies are cognitive processes that are open to conscious reflection but that may be on their way to becoming skills [26]. In the word recognition process, skills such as phonological processing, orthographic processing, and lexical processing, and other reading skills such as syntactic parsing and semantic proposition formation, at early stage, may be acquired through active attention and conscious processing, but for fluent readers, they may have become automatic. Bernhardt (1993) considers that reading strategies are central in the comprehension process and argues that there is a high probability for the L2 readers to employ the L1 reading strategies when reading L2 texts [10]. And many L2 learners start to realize how to approach a text when they start to learn L2 reading. In short, the literacy variables of L2 learners are very much influenced by interference from their first language.

The third variable is world knowledge. In language teaching, world knowledge refers to one's previously acquired knowledge or world knowledge and one's special knowledge on a certain subject [43]. In the traditional view of teaching L2 reading, reading was viewed as a bottom-up process in which readers decode the text and rebuild the author's idea. Accordingly, the teaching of reading focuses on the teaching of language points known as grammar and vocabulary. The failure to comprehend a text is deemed as lack of grammar and vocabulary knowledge. This has led to the belief that the approach to effective reading would be enlarging vocabulary and grammatical mastery. But this belief has been contested since the emergence of the schema theory which suggests that comprehension takes place when the information in the text corresponds to something in the reader's memory storage (background knowledge). Studies by Bernhardt, Dubin et al., and Huang showed that background knowledge is a critical variable in second language reading [10], [44], [45]. It will facilitate comprehension as readers really use their background knowledge in processing second language texts. The next section will discuss L2 reading theories namely bottom-up model, top-down model and interactive model. The bottom up model focuses on the printed form of a text whereas the top-down model enhances the role of background knowledge in addition to what appeared on the printed page. The interactive model is anchored in the metacognitive theory which recognizes the interplay of different layers of meaning making processes of a text.

#### *1) Bottom-up Model*

The bottom-up model in L2 reading is characterized as the process of reading which involves exact, detailed, sequential perception and identification of letters, words, spelling patterns and larger language units [46]. The bottom-up model focuses on lower-level cognitive skills which involve simple identification skills – the straight forward recognition of the lexical units (the individual words and phrases) and the grammatical signals required for the simple decoding of a text. Day et al. (1998) call this process of reading as text-driven [22]. The bottom-up model assumes that the reader begins essentially by trying to decode letters, words, phrases and sentences and “builds up” comprehension in somewhat linear fashion from this incoming data [47]. Similarly, Cambourne (1997) stated that the bottom-up approach in L2 reading is viewed as decoding a series of written symbols into their aural equivalence [48]. The bottom-up model was developed from the structural linguist approach, especially by Fries and dominated reading instruction and research until the late 1960s [49]. The bottom-up model as an approach is based on the idea that the understanding of a L2 text depends on the perception of what is visually written in a text, not on the reader. These letters or graphemes are matched with phonemes of the language. Phonemes which are the smallest unit of sound in the sound system of a language are blended together to form words. Parry stated that this approach suggests that some words form sentences, sentences to form paragraphs and so on [50]. The reader is assumed to

start reading, moving his or her eyes from left to right across the page, or right to left in the case of Arabic, from individual words to understand a sentence and eventually a paragraph is understood after some sentences are comprehended. Shih et al. stated that the reader constructs the text from the smallest units (letters to words to phrases to sentences, etc.) and that the process of constructing the text from those small units becomes so automatic that readers are not aware of how it operates [33]. The bottom-up model may provide detailed explanation of common mental processes of L2 learners. Thus, this model gives emphasis to the importance of the reader's language knowledge when processing a reading text to obtain meaning.

### 2) *Top-down Model*

If the bottom-up model starts with the smallest text unit, either letters or letter features, it does not seem so with the top-down model. It is difficult to see where the top-down model begins. We might expect that the top-down model should begin with the largest unit that is the whole text. However, it is impossible to see how a reader can begin to deal with the text as a whole, then proceed to smaller units of the text. Say, for example, the reader starts to deal with a paragraph, then goes to individual sentences, and ends with letters. According to Urquhart et al., the term 'top-down' is deceptive, appearing to offer a neat converse to 'bottom-up', a converse which in reality does not exist [20]. According to Goodman (1967), possibly the best-known name associated with it, the top-down model assumes that the reader is seen as bringing hypotheses to bear on the text, and using the text data to confirm or deny the hypotheses [16]. The reader comes to the text with a previously formed plan, and perhaps omits chunks of the text which seem to be irrelevant to the reader's purpose. In practice, the reader is seen as (1) scanning a line of text and fixating a point on the line; (2) picking up graphic cues guided by constraints set up through prior choices, the reader's language knowledge, cognitive styles, and strategies learned; (3) forming an image which is 'partly what the reader sees and partly what is expected to see', then making a tentative choice. Goodman also suggested that reading is a top-down process and he called it a "psycholinguistic guessing game". He claimed that reading is not merely picking up information from the page letter by letter and word by word but is a selective process during which the readers will look at units of texts which they think are important to obtain. They bring knowledge to understand the text. They read by predicting what is coming based on the knowledge they already have [16]. It can be seen from the description above that the top-down model assumes the reader's expectations are seen as being brought to the text, i.e. the model is reader-driven where the schemata that the reader brings to the text drive comprehension [51]. The reading process is seen as cyclical, the reader moving from hypothesis to text to hypothesis, and so on. The top-down model implies higher-level cognitive skills that allow for the meaningful reconstruction of a text as a unified, coherent structure of meaning. The top-down model involves interpretative skills that rely more on prior linguistic and conceptual knowledge (nonvisual information) for reconstructing the meaning of the text as a whole [46].

### 3) *Schema-Theory*

The top-down model of reading processing is closely related to schema theory. This theory also plays an important role in understanding reading instruction. It has to do with the background knowledge or previous experience of the learner on the text. It is assumed that the students' background knowledge or schemata plays a fundamental role in comprehending the text. The basic notion of schema theory is that prior knowledge or past experience is capable of creating a mental framework that will assist the reader to make sense of new experiences. Pardede suggested that past experiences will be related to new experiences which encompass the knowledge of objects, situations and events as well as knowledge of procedures for retrieving, organizing, and interpreting information [52]. This L2 reading is adapted from the reading "Theory of Schemata" proposed by Rumelhart [17]. In the words of Nash-ditzel, schema is an organized set of information or organized set of knowledge which exists in the memory [53]. It functions to process the interpretation of new information and make it enter and become a part of the knowledge store [54]. Nassaji also suggested that recall of information in a text is affected by the reader's schemata and that a reader comprehends a message when he or she is capable of bringing to mind as schema that gives account of the objects and events described in the message [55]. Comprehension is a matter of activating or constructing a schema that provides a coherent explanation of objects and events mentioned in the discourse. And teachers are seen to have the responsibility to activate the preexisting schemata and integrate the isolated 'parcels' of knowledge into schema and build a new one [56].

There are two kinds of schemas: formal schemata and content schemata [57]. Formal schemata are knowledge about the structure of the text, and content schemata are knowledge about the subject

matter of the text. Both of these schemata enable readers to predict events and infer meaning from a wider context. Formal schemata refer to the way that texts differ from one another; for example, scientific essay, fictional work or a letter to the editor. Each of these genres has its own different structural organization, the knowledge of which will facilitate comprehension. Knowledge on these structural organizations functions as a basis for predicting what a text will be like [58]. Content schemata refer to the message of the text. The basic notion of this theory is that one's familiarity with the content of the text will support comprehension. Anderson stated that when readers cannot locate a schema that fits a text, they may find it incomprehensible [54]. Difficulties in comprehension may be caused by the lack of background knowledge presumed by the text.

#### 4) *Interactive Model*

In another approach to reading, the word "interactive" refers to both the interaction of the reader's several kinds of knowledge and the interaction of the reader and the text [46]. Esky also called this reading process as a cognitive behavior. Readers must be able to recognize the language and the subject matter in order to comprehend the text. The knowledge of form will assist them to understand the language of the text and the knowledge of substance will assist them to make accurate predictions in interpreting the meaning of the text as a whole. Constructing comprehension will largely be determined by these readers' knowledge and reasoning powers. The central arrow suggests that in the normal process of reading, readers blend the interaction between the text and what the readers know. The breakdown of the two forms of knowledge, knowledge of form and knowledge of substance, can be seen in the following diagram [46].

#### 5) *Cognition in L2 Reading*

The role of cognition is very central in any kind of learning because all of cognitive processing is key to all aspects of learning, including all aspects of language learning [39]. The center or core of the L2 reading process rests on it as Bialystok et al (1994) suggest that the general principles of cognition comprise parts of the foundation on which complex meaning and language must rest [35]. The meaning construction and language processing are all taking place in the cognition. They further suggest, "It is the source of the cognitive operations that process the stream of language, make sense of it, and extract from it knowledge of a linguistic system" [59]. These cognitive concepts for reading constitute the foundations of learning theory for all cognitive and educational psychology. They provide the basis not only for how reading comprehension works, but also for how it develops. Multhaup stated that cognition is at the center of language learning which cannot be understood separately from cognitive maturity and general conceptual world knowledge [60]. The role of cognition is also parallel with aptitude and intelligence in language learning [61]. Reading is an intrapersonal process, a problem-solving task which occurs in the brain's knowledge structure [42]. Individual differences in L2 reading capability depend on cognitive capacity and thus, beyond the reader's linguistic knowledge. During reading activity, cognition processes the language input and decodes it so as to make sense of what is written in the book, magazine, newspaper, etc.

#### 6) *Metacognition in L2 Reading*

Metacognition refers to learners' understanding and control of their own thinking and learning [62]. These capabilities are responsible for readers' decision-making in regulating their actions. Lander et al. defined metacognition as one's knowledge and control of one's own cognitive system [63]. It is simply claimed as "knowing what and knowing why" [58]. According to Koda, there are two basic tenets in metacognition: the ability to reflect on one's own cognition and the capacity to regulate one's own cognitive activities [21]. The reflective aspect deals with learners' understanding of their own cognitive resources, as well as operational perception of how the understanding can facilitate their comprehension. The control aspect, on the contrary, concerns the mechanisms for regulating efforts to increase performance efficiency. Thus, the role of metacognition is to aid and monitor memory, comprehension and other cognitive enterprises. Metacognition plays an important role in oral communication of information, reading comprehension, writing, language acquisition, memory and problem solving [64]. He further implies that a wide variety of cognitive enterprises occurs through the actions of and interactions among four classes of phenomena; (1) metacognitive knowledge; (2) metacognitive experiences; (3) goals (or task); and (4) actions (or strategies). For the purpose of this study, the researcher will discuss the first two phenomena.

Metacognitive knowledge consists of knowledge or beliefs about what factors or variables act and interact in whatever ways to affect the course and outcome of cognitive enterprises. There are three major categories of these factors or variables: (1) person; (2) task; and (3) strategy. The person



category encompasses everything that we could come to believe about the nature of ourselves and other people as cognitive processors. The person category can be subcategorized into beliefs about intra- individual differences, inter-individual differences and universals of cognition. The example of the belief of intra-individual differences is our belief that we can learn better by listening than by reading, and the example of the belief of inter-individual differences is that some of our friends are more socially sensitive than the others. The example of beliefs about the universal properties of cognition is that there are various degrees and kinds of understanding (attending, remembering, communicating, problem solving, etc.) [64].

The second category, task category, refers to any information available during a cognitive enterprise. The information could be abundant or minimal, familiar or unfamiliar, well or poorly organized, interesting or dull, and so on. The understanding of this information will determine the success of achieving the goal. The last category, strategy category, concerns the strategies which are likely to be effective in achieving the goals in cognitive undertakings. For example, we may come to believe that one good way to learn some information is by paying attention to the main points and try to repeat them in our own words. In the context of reading, metacognition involves thinking about what a reader is doing while reading. It is quite possible that when reading a text, a reader involves himself or herself in several activities to infer meaning, such as sampling the text, making a hypothesis, confirming or rejecting it. Reading activities, in general, can be divided into three, i.e., pre-reading, whilst-reading, and post-reading. In pre-reading, the activities are identifying the purpose of the text, identifying the form or the type of the text. In whilst- reading, the activities are identifying the general character and features of the form or type of the text. Included in these activities are locating the topic sentence, the supporting details, the author's purpose, etc. In the post-reading phase, the activities are making a summary, conclusion or inference of what has been read.

### 3.4 Reading Teaching Strategy

In the face of the complexity of second language reading comprehension, L2 reading teachers are required to understand not only the nature of reading and teaching methodology, but also the nature of learners and the context in which the teaching of reading takes place. Phakiti identifies two general factors contributing to the complexity of second language reading comprehension: reader factors and contextual factors [65]. Reader factors include L1 literacy, L1 background, language proficiency, background knowledge, knowledge of genre and pragmatics, metalinguistic knowledge, motivation, metacognition, and strategy use. Contextual factors include text topic and content, text type and genre, text readability, and verbal and non-verbal communication. Aebersold's approach to teaching reading is broadly divided into two categories: extensive approach and intensive approach. An extensive approach to reading is based on the belief that if students read large quantities of text of their own choosing, their ability to read will improve. Extensive reading is meant for pleasure and usually conducted outside the classroom at a convenient time. The emphasis of an extensive reading course is to use reading as a means to an end, implying that reading is used to accomplish something else such as a written summary, a written report, an oral report, etc. The focus of extensive reading is on the comprehension of main ideas, not the details of the text. According to Horwitz, it parallels with what we think of as reading for pleasure in our first language [66]. Extensive reading usually employs short stories, magazine articles, novels or essays. Proponents of extensive reading believe that extensive reading is effective in increasing the number of word items in the reader's lexicon and general language improvement [67]. Extensive reading improves reading fluency, vocabulary acquisition, writing ability, and grammar knowledge [68]. But, Day et al. has reminded us that this approach requires that the teacher be organized and stay current with the students' reading reports on a weekly or biweekly basis [22]. There is a lot of work in extensive reading, and if we are left behind, it is impossible to catch up.

However, such reading practices will not promote much of the second language learners' development. If students are expected to gain maximum benefit from reading, they have to be made familiar with both intensive and extensive reading [67]. In practice, the teaching of reading in the EFL context such as Indonesia, the combination of both approaches is adopted. Phillips' five stages of reading instruction, as quoted in Hadley (1993), can be used either in the classroom, in individualized instructional settings, or in computer-adaptive instruction. And the practice activities might be used in concert to integrate individual skills so that high levels of proficiency might be achieved [69]. The five stages she identifies are:

- *Pre-teaching/Preparation Stage*. This important first step helps develop skills in anticipation and prediction for the reading of graphic material. It will also give students expectancies for the material that they are going to read.
- *Skimming/Scanning Stages*. This second stage is the process involving both getting the gist (skimming) and locating specific information (scanning).
- *Decoding/Intensive Reading Stage*. This stage is needed for students who are at the stage of “learning to read” rather than “reading to learn”. Students are taught not only how to guess the meaning of words or phrases at the word, or discourse level, but also how to interpret the meaning of connectors, determine the relationship among sentences or sentence elements, and the like.
- *Comprehension Stage*. This is the stage where the students’ comprehension is checked, to see whether their reading purposes have been achieved.
- *Transferable/Integrating Skills*. In this stage the students are given exercises that will help them go beyond the confines of the specific passage to improve reading skills and effective reading strategies, such as contextual guessing, selective reading for main ideas, and appropriate dictionary usage.

All of these activities (Figure 1) can be used at various levels of the students’ reading proficiency. Teachers are required to adapt a given sample activity format to a particular level of proficiency by simply choosing an appropriate topic and creating tasks that conform to the reading purposes of that level.

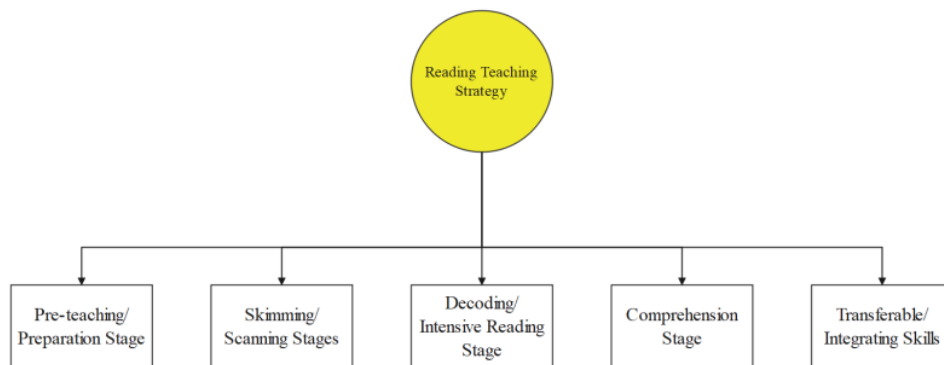


Fig. 1. The five stages of reading teaching strategy

### 3.5. L2 Reading Materials

In general, types of text can be classified into two categories: fiction and non-fiction. Fictional texts center on telling stories, whereas non-fictional texts center on the presentation of information [70]. Fictional texts tell a sequence of imagined events usually involving human characters who’s emotional, physical, psychological, and spiritual experiences in life create empathy or response in the reader. These kinds of text may not be a part of people’s regular reading. In contrast, nonfictional texts constitute people’s need for information which is performed by reading newspapers, magazines, instructional manuals, reports, etc., and is usually done on a regular basis. In the L2 reading teaching context, these two types of texts are classified into two categories: authentic and simplified/constructed [66] although there is still an ongoing debate in the L2/FL profession about whether or not reading materials should be authentic [70]. Besides, the effects of simplification upon the linguistic features of texts remain largely unexplored [71]. Day et al. stated that there is no agreement whether language learners are better served by one type over the other [22]. Both have their own advantages. Authentic reading materials are the ones that native speakers encounter in their daily lives, such as advertisements, movie schedules, classified ads, food packaging, etc. Authentic text is theoretically more appealing [72] [73] [74]. These texts are referred to as realia. Authentic materials

are taken directly from L1 sources and are not changed in any way before they are used in the classroom [70]. Authentic materials have some advantages, such as they can be more exciting because they include current slang and other commonplace daily language, and such realia provide useful reading passages for students to learn about everyday life in the target culture [75], and they also allow students to use nonlinguistic cues to interpret meaning [76].

### 3.6 Reading Assessment

Reading assessment is probably one of the most frequently contested areas in the discussion of L2 reading instruction. The question remains the same: how comprehension can be accurately measured so as to reflect the true level of comprehension on the part of L2 readers. According to Grabe, there are twenty formats of L2 standardized reading assessments [26]. They are categorized into common and uncommon. The twenty formats are as follows; (1) Standardized Reading Assessment Format; (2) Cloze; (3) Gap-filling formats (rational cloze formats); (4) C-test (retain initial letters of words removed); (5) Cloze elide (remove extra word); (6) Text segment ordering; (7) Text gap; (8) Choosing from a "heading bank" for identified paragraph; (9) Multiple-choice; (10) Sentence completion; (11) Matching (and multiple matching) techniques; (12) Classification into groups; (13) Dichotomous item (T/F/ not stated, Y/N); (14) Editing; (15) Short answer; (16) Free recall; (17) Summary (1 sentence, 2 sentences, 5-6 sentences); (18) Information transfer (graphs, tables, flow charts, outlines, maps); (19) Project performance; (20) Skimming; (21) Scanning. Of the twenty standardized reading assessment formats, Grabe identified that some are common and widely used and some are not [26]. The Cloze test, for example, which measures readers' knowledge of the passage by filling blank spaces with the exact words from the original text, according to him, is not appropriate for L2 reading assessment because it is more like production measures than a reading test although achievement in cloze tests directly relates to achievement in other tests such as grammar and even sentence repetition tasks [77]. If the reader can perform this task with at least 50 per cent accuracy he or she may be rated as "fully competent" to read the passage. The cloze test is considered to have concurrent validity because it correlates highly with other language proficiencies. But Bernhardt criticized it saying that for scores on a cloze test to generate high correlations with other measures, exact word scoring must be used [10]. And if acceptable word scoring is permitted, then the correlation between the cloze test and other tests decreases, therefore, changing its concurrent validity.

Multiple-choice test and true/false formats are also problematic. They are often not passage-dependent. Many tests, even formally and professionally developed ones, fall into the passage independence category. A study by Pyrczak on multiple-choice questions in standardized reading tests in the native languages found no significant difference between the scores of the students who read a passage and selected an answer to comprehension questions and scores of students who simply selected a, b, c, or d in answer to the same comprehension questions without reading the text [78]. This is caused by three reasons: prior knowledge, "the interrelatedness" of the questions, and the general construction of multiple-choice tests. Recall protocols, which Grabe classified as a relatively uncommon test format, are generally considered as the most straightforward procedure for assessing the outcome of reader-text interaction [62]. In this procedure, the test takers are asked to describe everything they remember from the text they have read. It is easy to prepare and administer, but it needs thorough analysis and is time consuming. For a 250-word text with just one individual, one will need around 25 to 50 hours for scoring. The base scoring instrument frequently used in recall protocols is Meyer's recall protocol scoring system [42]. The Meyer system identifies the structural characteristics as well as lexical units of a passage. The procedure helps to assess the relationship between passage type and level of performance. It is known to reveal common linguistic and conceptual difficulties experienced through reading and as such, it can be used not only as a teaching device but also as a testing device [79]. Another frequently used scoring system is Johnson's scoring system which is based on pausal units or breath groups. This system has also been validated by Bernhardt (1993) and is highly correlated with the score generated using Meyer's system [10]. In this research study, the Johnson scoring system was chosen to calculate and elaborate the subjects' recall.

### 4. Conclusion

The purpose of this article is to provide a review of a body of literature on the nature of reading and its implications for classroom pedagogy. For that purpose, we have discussed theoretical ramifications, assumptions and arguments around the nature of reading such as top down, bottom up and interactive reading model, role of metacognition, extensive and intensive reading, and the

teaching of reading strategies. We have also highlighted key arguments and debate around the issues of reading assessment and showed differing views on the use of recall protocol as an alternative procedure to measure reading comprehension. It is apparent that all of these reading theories are anchored in the strong tradition of cognitive-perceptual psychology concerned with describing the internal-mental processes involved in the construction of textual meanings. While the theoretical and pedagogical merits of these reading theories need to be applauded, it is equally important to acknowledge that reading activity is not merely a mental-cognitive process of decoding words, phrases, sentences and paragraphs. We argue that, just as extensive reading is as important as intensive reading [80], there is a need to synthesize the cognitive-based theory of reading with sociocultural aspects of reading. This is even more relevant in light of the increasing digitisation of texts we pointed out earlier. The digitisation of texts has been associated with some negative effect on reading practice such as deterioration of reading habit and literacy skills, replacement of deep reading by shallower forms of reading [81] as well as changes in individual and social attitude to reading [82]. With this in mind, we argue that, from theoretical perspectives, there is a need to incorporate social cultural aspects into L2 reading curriculum to complement the cognitive-based teaching of reading strategies. Perhaps there is truth in the old saying 'practice makes perfect' which suggests that it takes a lot practice to be skillful in reading. However, continuous engagement with reading requires sustained motivation that originates from meaningful connection with the text. Students' decision as to what and why to read may also be intertwined with their sense of the self, their perception of practical benefits from reading particular text as well as the temporal-spatial condition where reading takes place. These sociocultural aspects are even more crucial when reading becomes screen-based, which is different from the traditional print-based in terms of attention, cognitive and emotional processing, subjective experience and variety of texts. The point we wish to make is that it is only by attending to both the cognitive and sociocultural aspect of reading in our approach to teaching reading that we can expect students to increase their level of reading engagement. When students' reading engagement increases, they supposedly read more texts (quantity) and a wider range of text genre (quality), two types of reading activity that we deem instrumental for students' reading skill improvement. On a similar note, we wish to draw attention to the importance of sociocultural aspects of reading as they shape the way students deal with reading activity. For this reason, we deem it is essential that more qualitative research is needed to better understand socio cultural factors affecting students' reading engagement. For example, a phenomenological research approach within qualitative research paradigm might be useful to tap into students' individual experience of reading both print-based and screen-based texts. The findings from such a research study could inform reading curriculum designer and educational policy maker alike of the variety of reasons and factors that contribute to students' reading activity that we need to consider in our practice as teachers.

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