

Reading and writing as organs of individuality: memory and automatism in the literacy process

A leitura e a escrita como órgãos da individualidade:
a memória e o automatismo no processo de alfabetização¹

La lectura y la escritura como órganos de la individualidad:
Memoria y automatismo en el proceso de alfabetización

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ABSTRACT

Memorization and automatization are frequently associated, in the educational field, with mechanical and meaningless practices. In contrast to this understanding, the present article analyzes the importance of memory and automatism in the learning of written language, arguing that the consolidation of graphophonic relations constitutes a necessary, though not exclusive, mediation for the appropriation of reading and writing as organs of human individuality. The study, bibliographical in nature and grounded in historical-dialectical materialism, articulates contributions from historical-critical pedagogy, historical-cultural psychology, and neuroscience to discuss the processes of memorization, automatization, and development of written language. The functioning of memory is analyzed, highlighting the relevance of the systematic revisiting of contents, the semantic organization of activity, and individual particularities in learning. It is argued that the automatization of graphophonic correspondences is not reduced to meaningless mechanization, but rather constitutes a condition for subjects to progressively expand their attention to the semantic, discursive, and cultural aspects of written language. It is concluded that the appropriation of written language requires systematic, intentional, and deliberate teaching, with memorization and automatization functioning as fundamental mediations for the development of intellectual autonomy, creativity, and the conscious appropriation of written culture.

Keywords: Literacy; Memorization; Automatism; Historical-Cultural Psychology; Historical-Critical Pedagogy.

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RESUMO

A memorização e a automatização frequentemente são associadas, no campo educacional, a práticas mecânicas e esvaziadas de sentido. Em contraposição a essa compreensão, o presente artigo analisa a importância da memória e do automatismo na aprendizagem da língua escrita, defendendo que a consolidação das relações grafofônicas constitui mediação necessária, porém não única, para a apropriação da leitura e da escrita como órgãos da individualidade humana. O estudo, de natureza bibliográfica e fundamentado no materialismo histórico-dialético, articula contribuições da pedagogia histórico-crítica, da psicologia histórico-cultural e das neurociências para discutir os processos de memorização, automatização e desenvolvimento da linguagem escrita. Analisa-se o funcionamento da memória, destacando a relevância da retomada sistemática dos conteúdos, da organização semântica da atividade e das particularidades individuais na aprendizagem. Argumenta-se que a automatização das correspondências grafofônicas não se reduz à mecanização esvaziada de sentido, mas constitui condição para que os sujeitos ampliem progressivamente sua atenção aos aspectos semânticos, discursivos e culturais da linguagem escrita. Conclui-se que a apropriação da língua escrita exige ensino sistemático, intencional e deliberado, sendo a memorização e a automatização mediações fundamentais para o desenvolvimento da autonomia intelectual, da criatividade e da apropriação consciente da cultura escrita.

Palavras-chave: Alfabetização; Memorização; Automatismo; Psicologia histórico-cultural; Pedagogia histórico-crítica.

RESUMEN

La memorización y la automatización son frecuentemente asociadas, en el campo educativo, a prácticas mecánicas y desprovistas de sentido. En contraposición a esta comprensión, el presente artículo analiza la importancia de la memoria y del automatismo en el aprendizaje de la lengua escrita, defendiendo que la consolidación de las relaciones grafofónicas constituye una mediación necesaria, aunque no única, para la apropiación de la lectura y de la escritura como órganos de la individualidad humana. El estudio, de carácter bibliográfico y fundamentado en el materialismo histórico-dialéctico, articula contribuciones de la pedagogía histórico-crítica, de la psicología histórico-cultural y de las neurociencias para discutir los procesos de memorización, automatización y desarrollo del lenguaje escrito. Se analiza el funcionamiento de la memoria, destacando la relevancia de la retomada sistemática de los contenidos, de la organización semántica de la actividad y de las particularidades individuales en el aprendizaje. Se argumenta que la automatización de las correspondencias grafofónicas no se reduce a una mecanización vacía de sentido, sino que constituye una condición para que los sujetos amplíen progresivamente su atención hacia los aspectos semánticos, discursivos y culturales del lenguaje escrito. Se concluye que la apropiación de la lengua escrita exige una enseñanza sistemática, intencional y deliberada, siendo la memorización y la automatización mediaciones fundamentales para el desarrollo de la autonomía intelectual, de la creatividad y de la apropiación consciente de la cultura escrita.

Palabras clave: Alfabetización; Memorización; Automatismo; Psicología histórico-cultural; Pedagogía histórico-crítica.

Introdução

Traditional pedagogy has been widely criticized for its content-centered, rigid, and mnemonic character. As a result, educational practices involving memorization have often been devalued, as though every activity directed toward the retention of knowledge necessarily implied passivity and a lack of meaning for students. Like Saviani (2012), we acknowledge the validity of the criticisms directed at traditional pedagogy; however, we disagree that memorization should be relegated to a secondary role in school education. This raises an important question: what role does memory play in learning to read and write?

This article is grounded in the historical-critical understanding that certain cultural objectifications, when appropriated by individuals, become second nature within the human psyche, thereby expanding the possibilities for action, thought, and human development (Duarte, 2013; Saviani, 2012). From this perspective, the appropriation of written language cannot be reduced to the acquisition of an instrumental skill; rather, it entails the incorporation of a complex cultural achievement that has been historically developed over time.

The objective of this article is to analyze aspects of the development and functioning of memory that should be considered in the organization of written language instruction, particularly with regard to the sequence, pacing, and systematic introduction of graphophonic correspondences in the literacy process. This is a theoretical-conceptual, bibliographical study grounded in historical-dialectical materialism as its epistemological and methodological framework. According to Martins (2015), historical-dialectical materialism cannot be reduced to qualitative research approaches, as it seeks to apprehend phenomena in their multiple determinations and constitutive contradictions, thereby moving beyond merely descriptive and immediate analyses of reality.

The investigation draws upon contributions from historical-critical pedagogy, historical-cultural psychology, and neuroscience to analyze the relationship between memory, automatism, and the appropriation of written language in the literacy process. To this end, the study takes as its point of departure Saviani's (2012) premise of automatism as a condition of freedom in teaching and learning; Dehaene's (2012)

studies on reading acquisition in the field of neuroscience; and the proposition advanced by Martins, Carvalho, and Dangiό (2018) concerning figure-ground dynamics in literacy development. Based on these theoretical foundations, we argue that the automatization of writing mechanisms constitutes an important condition for the appropriation of written language and that memorization plays a fundamental, though not exclusive, role in this process. The consolidation of these mechanisms, in turn, enables individuals to progressively devote greater attention to the semantic, discursive, and cultural dimensions of written language.

I. Memory in Historical-Cultural Psychology: Considerations for the Organization of Written Language Instruction

We briefly examine some general concepts concerning the psychic function of memory based on the studies of Vygotsky (2012) and the synthesis developed by Martins (2013), before returning to Saviani's (2012) postulate regarding the importance of automatism in learning, particularly in the acquisition of written language.

As with other psychic functions, Vygotsky (2012) identifies two fundamental lines in the development of memory: the natural and the cultural. The set of organic memory functions that operate on the basis of certain properties of cerebral and nervous tissue is designated by the author as *mneme*. Procedures of memorization that employ technical and external means to direct and control memory, in turn, constitute *mnemonics*. In summary, these terms are used "[...] to designate, on the one hand, the natural and organic functions of memory and, on the other, the cultural procedures of memorization" (Vygotski, 2012, p. 248).

Martins (2013) explains that Vygotsky and Luria recognized the importance of understanding the neurophysiological foundations of memory. However, they criticized biologizing and naturalizing perspectives that establish causal and mechanistic relationships between the neurophysiological bases of memory and mnemonic activity. According to this view, these neurophysiological processes operate through the formation and dissolution of neuronal assemblies. In general,

mnemonic activity thus emerges within the dynamics between the formation and dissolution of neuronal assemblies. If this functional set of neurons is not reused, it dissolves without leaving more substantial

traces. However, if this neural network is activated repeatedly, the synaptic connections present within it become strengthened and stabilized, creating a pattern of connections that becomes increasingly incorporated into nervous tissue. This process is responsible for the fixation and stable storage of mnemonic contents, as well as for the possibilities of their evocation. The quality of these processes also depends upon the quantity of neurons “recruited”; that is, the larger the “assembly,” the greater the intensity and duration of the memorized content (Martins, 2013, p. 155, emphasis added).

From this excerpt, we highlight the importance of repetition in activating neural networks and strengthening and stabilizing synaptic connections. If the fixation and storage of contents, as well as the possibility of their later retrieval, result from the process described above, then understanding how this process operates becomes essential for teachers. Such knowledge enables them to incorporate the systematic revisiting of previously taught content into lesson planning. This repeated engagement activates neural networks, reinforces synaptic connections, and contributes to the fixation, storage, and retrieval of learned concepts. With regard to written language, we infer that the storage, consolidation, and retrieval of graphophonic correspondences are essential to the literacy process and can only be achieved if students are repeatedly encouraged to reflect upon such relationships. In this sense, the process supports rational operations such as analysis and synthesis, comparison, generalization, and abstraction in the appropriation of written language.

According to Martins (2013, p. 154), memory consists in the “[...] formation of the image through the evocation of that which in the past was felt, perceived, and attended to.” For this to occur, it is necessary to register, preserve, and reproduce what has been experienced, in accordance with Luria’s definition. This process is indispensable to the historical development of humanity, for it is through memory that human beings register, store, and reproduce objectifications in-themselves and for-themselves, while also creating new and increasingly developed cultural forms (Martins, 2013).

Registration and preservation are not synonymous; therefore, not everything that is registered is necessarily preserved. Based on Alexander Luria’s studies of the mnemonic processes involved in registration and preservation, two stages of memory formation can be identified: short-term memory and long-term memory (Martins, 2013).

The former is characterized by the formation of memory traces whose expression remains limited to the period of their formation—that is, to the duration of the corresponding “neuronal assembly”—making it essentially temporary in nature. This is the case of operational memory, which is required to meet specific and transitory demands. The latter is characterized by the formation and subsequent long-term consolidation of memory traces, enabling them to endure over time and resist the potentially disruptive effects of other registration processes (Martins, 2013, pp. 156–157).

Clearly, the learning of scientific, artistic, and philosophical knowledge relies on the functioning of long-term memory, since such learning is expected to endure rather than serve merely temporary purposes. Nevertheless, many concepts remain confined to short-term memory; that is, they are registered, preserved, and recalled only until a particular moment (e.g., bimonthly examinations, university entrance examinations, or civil service exams). Once these contents fall into disuse, they tend to be forgotten, indicating that they have not become second nature within the human psyche and, therefore, have not been fully learned. Because reading and writing are used daily by literate individuals, such knowledge is rarely forgotten. Thus, once graphophonic correspondences have been consolidated, they can be readily retrieved. However, it is clear that the habit of reading and writing, as well as the content of what is read and written, influences the quality of reading fluency and comprehension, as well as the content, cohesion, and coherence of written production. In children undergoing the literacy process, however, graphophonic correspondences have not yet been consolidated. Consequently, this learning remains at the level of short-term memory, making it the responsibility of systematic teaching processes to ensure its consolidation in long-term memory.

Lurian research indicates that the memorization process is influenced by three factors: semantic organization, the structure of activity, and individual particularities.

The first concerns the organization of the elements to be memorized into logical structures, associations, cause-and-effect relationships, and similar arrangements, since such organization enhances memory performance and the stability of memory traces. This was demonstrated in an empirical study conducted by Alexander Luria, in which participants were asked to memorize a sequence of

eighteen isolated binary digits composed of zeros and ones. These numbers were progressively organized into pairs, trios, and larger groups until only four groups remained (Martins, 2013). As a result, “a reduction in the effort expended was verified, as well as a significant increase in the success rate of the mnemonic task when the numerals were grouped” (Martins, 2013, p. 157).

In summary, memorizing a telephone number such as 14997582182 becomes easier when the digits are grouped as follows: 14 9 9758 21 82. The same applies to learning the names and forms of letters. Which is easier: memorizing the names and graphic forms of all the letters of the alphabet at once, or learning them in smaller groups? The same principle applies to grapheme-phoneme correspondences.

Considering the varying levels of difficulty involved in grapheme-phoneme correspondences and drawing on the studies of Solovieva and Rojas (2008), Seabra and Capovilla (2010), and Lemle (2007), Carvalho (2024) proposed a sequence for the introduction of letters and certain digraphs in the literacy process that is consistent with this first principle influencing memory.

The second factor concerns the purpose of the activity within which memorization takes place. The quality of what is memorized is “[...] conditioned by the purposes of the actions within which memorization occurs and, above all, by the importance such actions hold for the individual” (Martins, 2013, p. 159, author’s emphasis). In essence, everything directly related to the objective of the activity is remembered before anything else, including whatever contributes to or presents itself as an obstacle to achieving that objective. Secondary aspects—that is, those unrelated to the central purpose of the activity—tend not to be retained in memory (Luria, 1991b, as cited in Martins, 2013).

“[...] the inclusion of memorization as an act linked to the orientation of activity is of great importance for understanding involuntary, immediate memory, which, unlike voluntary, mediated memory, occurs independently of the intentional intentions of the subject who performs it, though not independently of the activity being performed” (Martins, 2013, p. 158).

In this way, the motive and purpose of an activity influence the memorization process. In the author’s pedagogical experience with first-grade students, it was

observed that when learners were made aware of the purpose of an activity, memory tended to function more effectively; that is, students showed greater engagement in the memorization process. This was particularly evident in activities organized as games and playful tasks (letter memory games, initial-sound bingo, magical matching games, and others), since the desire to win led students to develop strategies that supported memorization. Furthermore, it was observed that the importance attributed to the activity also influenced the quality of memorization. For example, remembering the initial letter or sound of a familiar word (such as the names of family members, friends, toys, candies, or favorite characters) was more meaningful to students than memorizing the initial letter or sound of an unfamiliar or meaningless word.

The third and final factor concerns the influence of individual particularities on the memorization process. In Luria's work, a distinction is made between two patterns of such particularities: the predominance of modes of recall (visual, auditory, motor, and so forth) and the organization of activity itself (Martins, 2013). As Martins (2013, p. 159) explains, "[...] considering that different individuals resolve the activities linking them to reality in different ways, the characteristic traits of memory are intertwined with these ways, simultaneously constituting both cause and consequence of their nature and organization." In discussing individual differences in memorization, Smirnov et al. (1960, as cited in Martins, 2013) identified three additional patterns: objective memorization, abstract memorization, and intermediate memorization. In the words of Martins (2013, p. 159, author's emphasis):

In the first pattern, objective memorization, individuals demonstrate greater *ease* in retaining information directly related to the sensory perception of its properties, such as images, colors, and sounds. By contrast, other individuals memorize more effectively through verbal expressions and logical formulations, such as concepts, formulas, and numerical symbols, giving rise to what is termed abstract memory. However, the third pattern represents the most common form of memorization, characterized by a balance between objective and abstract modes of memory.

It is important to emphasize that these patterns indicate individual strengths rather than limitations of mnemonic functioning. Such differences depend directly on the types of activities in which individuals engage; in other words, the activity itself

determines the sensory and cognitive channels mobilized in memorization. Thus, the development of the different forms of memory described above results from the social activities individuals experience through learning and professional work and, therefore, remains open to change. When individuals participate in a variety of activities, the possibility of a more balanced development of the different forms of memory is enhanced (Smirnov et al., 1960, as cited in Martins, 2013). In our teaching experience, we observed that many students memorized content more effectively through songs that were frequently sung in class. Others relied on posters displayed in the classroom and repeatedly revisited during instruction. Even the alternation of chalk colors on the blackboard appeared to influence student performance. Some students became confused when identifying words and sentences if only a single color was used.

In summary, semantic organization is crucial for planning written language instruction, since the random presentation of grapheme-phoneme correspondences is unlikely to be as effective as teaching them in organized groups according to their level of complexity. We therefore infer that, just as the memorization of numerals was facilitated through grouping, as demonstrated in Luria's research, the organization and grouping of grapheme-phoneme correspondences can support students' memorization and the reasoning processes involved in the appropriation of written language. Accordingly, the organization and sequencing of graphophonic correspondences according to progressively increasing levels of complexity constitute important elements in the pedagogical planning of literacy instruction (Carvalho, 2024).

With regard to the structure of activity, we contend that an understanding of role-play activity and study activity, as well as of the developmental transition from early childhood education to elementary schooling, is essential for organizing activities in which the purposes of memorization and the importance of such actions become clear to first-grade students. This is necessary because children must move beyond merely understandable motives toward genuinely effective motives for learning to read and write. They need to understand that grapheme-phoneme correspondences must be both understood and memorized, since reading and writing become impossible if students are unable to recall which grapheme represents the sound they wish to encode.

“The adult must therefore organize the child’s activity, creating conditions that foster the development of intentional and meaningful memory processes by providing a purpose for remembering and recalling, connecting memorization tasks to the broader objectives of the activity, and developing methods and means that support memorization” (Saccomani, 2018, p. 214).

Finally, individual differences in memorization also constitute an important aspect to be considered in the planning of pedagogical work. Instructional activities should simultaneously engage and develop different forms of memory. Accordingly, teachers should make use of images, colors, songs, nursery rhymes, chants, stories, tongue twisters, diagrams, verbal explanations, symbols, cards, flashcards, and other resources that support children in memorizing, generalizing, and abstracting correspondences between letters and sounds. Such an approach not only accommodates students who show a stronger inclination toward objective or abstract memorization but may also promote a balance between the two, fostering the development of intermediate memory.

Vygotsky (2012) conducted investigations with children in order to contrast the natural and cultural forms of memory and to clarify the procedures involved in memorization. In one experiment, children were asked to memorize a sequence of words, most of which designated concrete objects. When they proved unable to recall the dictated sequence, they were provided with cards containing drawings that could serve as auxiliary means in the memorization process. The researcher merely told the children, “Perhaps these cards may help you remember,” without explaining how they might assist memorization” (Vygotski, 2012, p. 249). The findings demonstrated that even preschool-aged children were capable of using an external sign—the drawing—as a tool for remembering. Moreover, it was observed that “the memorization process was immediately restructured in such a way that the memorization of each word occurred through the card, which fulfilled the role of a sign” (Vygotski, 2012, p. 249).

In light of these findings, Vygotsky concluded that cultural memory (mnemonics) consists of mastering memory through the use of external sign stimuli. Over time, the use of external aids in memorization should gradually give way to the use of internal means.

Children in the process of literacy acquisition still rely on external signs as supports for memorization. The colored letter cards used in Elkonin's sound-analysis activities, for example, function as auxiliary signs. However, many other resources can be employed to strengthen the memorization of content related to written language learning. Images may facilitate the memorization of letter names and the sounds they represent. Verbal cues may assist children in learning letter formation. More broadly, establishing connections among images, colors, shapes, sounds, and names helps students memorize graphophonic correspondences and supports the processes of generalization and abstraction required to apply these correspondences when writing new words.

Dangió (2017) questions the widespread use of mechanical copying activities, such as the copying of notebook headings by children in the literacy process. The author argues that

Historically, considerable importance has been attributed to this practice during the early years of literacy instruction, as it has been regarded as essential for enabling children to appropriate information such as the school's full name, the name of the city, and the current day, month, and year. However, the amount of instructional time devoted to this activity is often excessive, sometimes occupying the entire period before recess. As a result, it frequently becomes a source of impatience among teachers, reflected in comments heard in the staff room during break time: *"It's already recess, and so-and-so still hasn't finished the heading!"* According to Dangió (2017), a more productive use of instructional time would involve simplifying the heading in accordance with the way dates are conventionally recorded in everyday life (day/month/year), thereby substantially reducing the time spent on this mechanical copying task (p. 322).

We agree with the author that the mere mechanical copying of headings does not promote development nor contribute meaningfully to the appropriation of written language. However, we contend that this activity can be reconfigured when implemented in accordance with a historical-critical understanding of memory and learning.

In pedagogical experiences conducted by the author during the literacy process, guided heading-copying activities were used as a means of teaching grapheme-phoneme correspondences, word segmentation, spatial orientation in writing, orthographic conventions, and semantic aspects of written language. Rather than functioning as an

exercise in mechanical reproduction, the activity was intentionally mediated by the teacher, who drew students' attention to letter formation, graphophonic correspondences, punctuation marks, and the organization of written language.

Information was introduced gradually and systematically, following progressively increasing levels of complexity. Initially, students worked only with the date; later, additional elements were incorporated, including the school's name, the student's name, weather conditions, and words related to the grapheme-phoneme correspondences being studied. This organization supported memorization, generalization, and the progressive automatization of writing-related skills.

From this perspective, the heading ceased to be a purely mechanical exercise and instead became an intentional activity aimed at the analysis and appropriation of written language. It enabled children to draw upon previously consolidated knowledge as a reference point for reading and writing new words. Accordingly, the pacing, sequencing, and grouping of information proved important for the gradual automatization of the activity and the consolidation of graphophonic correspondences. In summary, it is necessary to create the conditions that make the teaching and learning of systematized knowledge possible. As Saviani (2012, p. 17) states, "This implies dosing and sequencing it in such a way that the child gradually moves from non-mastery to mastery."

It should be emphasized that the purpose of the activity was not the mere graphic reproduction of the heading, but the gradual appropriation of fundamental elements of written language through intentional teacher mediation. Grapheme-phoneme correspondences, word segmentation, spatial organization in writing, orthographic conventions, and semantic elements were continually highlighted throughout the activity. As a result, copying ceased to function as a mechanical task and became integrated into a conscious process of analyzing written language.

In summary, the memorization and automatization of writing-related skills contribute to the processes of generalization and abstraction, thereby constituting an important condition for the appropriation of written language with greater freedom and autonomy. From this perspective, automatism is not synonymous with meaningless mechanization; rather, it refers to the conscious incorporation of cultural operations necessary for engaging in complex human activities. This issue is examined in the following subsection.

II Memorization in the Literacy Process: Contributions from Neuroscience

Within the domain of written language learning, the establishment in memory of patterns “[...] corresponding to the linguistic structure of phonemes, syllables, morphemes, and words” (Byrne, 2013, p. 125) occurs only through teaching and learning experiences that repeatedly engage students in reflecting on the functioning of written language. Treiman and Kessler (2013) explain that the arbitrary nature of writing systems requires learners to rely on memory when selecting symbols to represent particular sounds, and that repetition-based memorization is one of the primary means through which associations between spellings and sounds are acquired.

According to Ehri (2013), learning to read and write requires a powerful mnemonic system because “when the reader’s eyes fall upon a familiar word, its pronunciation, meaning, and syntactic role are all activated in memory” (Ehri, 2013, p. 154). Learning both depends upon and simultaneously develops mnemonic capacity. Consequently, while acquiring literacy requires a robust memory system, literacy itself also contributes to the development of mnemonic functioning.

Literacy thus modifies the regions activated when one listens and speaks, but also the very anatomy of the brain: the corpus callosum becomes thicker in the posterior region connecting the parietal areas of the two hemispheres. Undoubtedly, some of these cerebral modifications are responsible for one of the major effects of schooling: the increase in memory capacity (Dehaene, 2012, p. 227).

Stuart and Coltheart (1988, as cited in Ehri, 2013), in an empirical study, found that the development of phonemic awareness and explicit instruction in letter-sound relationships significantly influence reading and writing performance. Ehri (2013, p. 165) explains that:

“[...] systematic phonics instruction contributes more to immediate word reading, decoding, and reading comprehension than other types of instruction, including whole-word instruction and whole language approaches. The effects were especially pronounced in kindergarten and first grade.”

Dehaene (2012) likewise challenges the effectiveness of whole-language approaches in literacy instruction, arguing that grapheme-phoneme correspondences must be taught systematically and “[...] in a highly explicit manner and without fear of repeating them” (Dehaene, 2012, p. 246). Drawing on findings from neuroscience, he argues that:

“[...] students who learned to read through the whole-language method not only perform worse in the reading of new words, but are also slower and less effective in textual comprehension. This refutes the idea that graphophonological methods transform the student into a spelling machine incapable of attending to meaning” (Dehaene, 2012, p. 245).

According to Dehaene, decoding and encoding develop in close conjunction with comprehension. Nevertheless, he maintains that “[...] comprehension depends above all upon fluency in decoding. The more rapidly this stage is automatized, the better the student will be able to concentrate on the meaning of the text” (Dehaene, 2012, p. 245). In summary, the more fully students generalize and abstract graphophonic correspondences, the greater their capacity to direct cognitive resources toward the semantic dimensions of written language.

III. Freedom and Autonomy in Historical-Critical Pedagogy: Considerations on the Learning of Written Language

Traditional pedagogy has long been criticized—and continues to be criticized—for its instructional methods and teaching practices. Rigidity, memorization, repetition, lecture-based instruction, content transmission, and the teacher’s central role in the teaching-learning process are among the characteristics commonly associated with this pedagogical tradition and often viewed negatively. Such criticisms emerged largely from advocates of the New School movement, who emphasized the student as the central agent of learning, student creativity and initiative, the construction of knowledge, active learning methods, and the teacher as a facilitator or partner in the educational process. As Saviani (2012, p. 17) observes:

“[...] the criticism directed at traditional teaching was justified insofar as such teaching lost sight of its ends, rendering the contents it transmitted mechanical and devoid of meaning. From that point onward, the New School tended to classify every transmission of content as mechanical, every mechanism as anti-creative, and every automatism as a negation of freedom.”

However, Saviani argues that automatism is a condition of freedom and that creativity becomes possible only through the mastery of certain mechanisms. This principle applies to the learning of generic objectifications *in-itself* and *for-itself* (Duarte, 2013). Everyday activities provide clear illustrations of this process. Initially, actions such as eating with utensils, riding a bicycle, or brushing one's teeth demand conscious attention and deliberate effort. Through repetition and the gradual incorporation of the operations involved, however, these actions become automatized and are integrated into the individual's second nature. As Saviani (2012, p. 17) explains, “[...] in the learning process, such apparently simple acts require a reasonable degree of concentration and effort until they become fixed and begin to be exercised, so to speak, automatically.” Once consolidated, they become organs of individuality because their acquisition has become irreversible.

Saviani's central argument is that the mastery of knowledge and activities depends upon the repeated exercise of the mechanisms that constitute them. He illustrates this process through the example of learning to drive an automobile. While learners must consciously attend to each operation involved in driving, their attention remains focused on the technical aspects of the activity. As these operations become automatized, greater freedom, safety, and creativity become possible. In this regard:

“Freedom will only be attained when acts are mastered. And this occurs at the moment when mechanisms become fixed. Therefore, paradoxical as it may seem, it is precisely when the level is reached at which acts are performed automatically that one gains the conditions to exercise, with freedom, the activity comprising those acts. Attention is thus liberated, making it no longer necessary to thematize each individual act. At that moment, it becomes possible not only to act freely, but also to be creative in the exercise of that activity. And this point is reached only when the learning process, as such, has been completed” (Saviani, 2012, p. 18).

If learning has been completed, however, the individual no longer occupies the position of learner. For this reason, Saviani concludes that learners are never fully free in relation to the activity they are learning, because “[...] when he becomes capable of exercising it freely, at that exact moment he ceases to be a learner” (Saviani, 2012, p. 18).

The same reasoning can be observed in the learning of multiplication tables. Initially, students must understand the logic underlying mathematical operations and rely on auxiliary resources to perform them. The progressive appropriation of these operations, however, requires memorization and automatization, which in turn become necessary conditions for carrying out more complex mathematical tasks with greater intellectual autonomy. At the same time, Saviani (2007, p. 243) notes that “[...] modern mathematics is incompatible with those methods that oblige the student to memorize mechanically.” We therefore argue that teaching multiplication tables becomes mechanical and devoid of meaning only when students are required to memorize them without first understanding the principles that underlie them. Once these principles have been understood and incorporated, instruction must move forward and challenge students to surpass their current level of development. This, according to Saviani, is a fundamental principle of good teaching: to promote the fullest possible development of learners.

In all these cases, automatism does not represent meaningless mechanization; rather, it refers to the conscious incorporation of operations necessary for engaging in increasingly complex human activities.

Within the sphere of generic objectifications for-itself, Saviani (2012) takes literacy as a paradigmatic example. He argues that mastery of the mechanisms underlying written language is indispensable. Initially, children read laboriously, syllable by syllable, and produce written language slowly and deliberately. Over time, through repeated engagement with these tasks, they internalize the operations involved, begin to perform them automatically, and gradually free their attention from technical concerns, making it possible to engage in more complex cognitive activities. As Saviani (2012, p. 18) states, “here too it is necessary to fix certain automatisms, to incorporate them—that is, to make them part of our body, of our organism, to integrate them into our very being. Once the basic forms are mastered, reading and writing may flow with confidence and fluency.”

Consider, for example, an elementary school student who can already read words, sentences, and short texts with a reasonable degree of fluency. If asked to read a text backwards, that student would not perform the task with the same automaticity and ease as an adult for whom reading and writing have become second nature. As Dehaene (2012, p. 124) explains, “In adults, the links between graphemes and phonemes become automatized and take the form of a genuine reflex converting letters into acoustic images.” For literate individuals, reading and writing are practiced

“[...] with such naturalness that we can scarcely imagine ourselves deprived of these characteristics. We find it difficult to recall the period in which we were illiterate. Things occur as though this were a natural and spontaneous ability. And yet, it is an acquired ability—and, it must be emphasized, not acquired spontaneously” (Saviani, 2012, p. 19).

We consider graphophonic relations to be among the fundamental mechanisms that must be learned and automatized in order for reading and writing to develop with confidence, fluency, and creativity. Initially, literacy learners devote so much attention to establishing relations between graphemes and phonemes—that is, to the phonological aspects of words—that they are unable to attend simultaneously to semantic aspects. “As the learner gradually becomes liberated from the mechanical aspects, he or she may progressively concentrate more and more attention upon the content, that is, upon the meaning of what is read or written” (Saviani, 2012, p. 18).

The postulate advanced by Dermeval Saviani (2012) regarding the automatization of reading and writing is consistent with the studies of the French neuroscientist Stanislas Dehaene (2012). Both authors maintain that written language does not develop naturally or spontaneously and therefore must be systematically taught. Furthermore, they argue that before arriving at the meaning of a word, individuals engage in a series of operations involved in its encoding and decoding.

“Our brain does not move directly from the visual form of words to their meaning. Unconsciously, an entire series of cerebral and mental operations takes place before a word is decoded. It is analyzed and then recombined into letters, bigrams, syllables, and morphemes. Fluent reading is ultimately nothing more than the result, in the skilled reader, of the automatization of these stages of decomposition and recomposition” (Dehaene, 2012, p. 236).

The author further argues that all other forms of learning related to written language (orthography, grammar, semantics, stylistics, and so forth) depend directly upon the process described above. He also criticizes the whole-language method, maintaining that it is ineffective and leads many children to difficulties in learning written language. The whole-language approach rejects the primacy of automatization and places meaning at the center of learning. It offers “[...] children texts considered capable of interesting them, leaving them with the pleasure of discovering by themselves the sentences, then the words, then the orthographic rules. [...] It is their task to construct their own learning by discovering for themselves the rules of reading” (Dehaene, 2012, p. 237).

The capacity for generalization and abstraction, promoted especially through study activity, is essential to the learning of written language. As children learn graphophonic correspondences, they must generalize and abstract them—that is, identify the regularities underlying these correspondences and apply them in the reading and writing of different words. According to the French author, this is one of the principal limitations of the whole-language method, since it does not adequately support the generalization required for reading and writing unfamiliar words. Because it is impossible to present every word of a language during the literacy process, methods that systematically teach grapheme-phoneme correspondences provide children with the tools needed to read and write new words more efficiently.

“To know how to read is, above all, to be able to decode thousands of new words encountered for the first time in a book, whose pronunciation must be inferred. In order to progress in reading, the child must therefore ‘self-teach’—that is, independently learn to decipher new strings of letters in order to recognize words whose pronunciation and meaning are already known, while progressively automatizing the entire chain of processes involved” (Dehaene, 2012, p. 244).

Saviani (2012) understands automatism as a condition of freedom, arguing that, as children master the mechanisms of reading and writing — that is, graphophonic correspondences — they gain greater freedom to read and write creatively. A similar position is advanced by Dehaene (2012), who, like the Brazilian educator, rejects the argument that the whole-language method (associated with the New School perspective) promotes greater freedom and autonomy for children.

“[...] the explicit learning of grapheme-phoneme correspondences is the only approach capable of granting the child the freedom to read, because only it allows access to new words. *It is a mistake to oppose the child's freedom to the effort and rigor of instruction.* Conquering the freedom of the reader undoubtedly demands effort from the child, but such effort is quickly rewarded when, for the first time, the child discovers that he or she is able to read words never before learned at school” (Dehaene, 2012, p. 244, emphasis added).

A child will not spontaneously strive to learn written language and, at first glance, efforts to direct the child toward such learning may appear inappropriate or even *harmful*. However, it is necessary to understand that, in essence, this process constitutes an act of liberation from common sense and of fostering philosophical consciousness. Such freedom can only be achieved when there are moments in which immediately more pleasurable activities—such as sleeping, playing, chatting, going out, or watching television—are temporarily set aside in favor of educational activities (Duarte, 2016).

It is a matter of the dialectic between the increase in individual freedom that educational work seeks to achieve and the momentary restriction of freedom, so that the acquisition of mental tools may occur, without which the mastery of scientific, artistic, and philosophical knowledge is impossible (Duarte, 2016, p. 127).

The mastery of such forms of knowledge promotes a deeper understanding of the natural and social world, contributing to the overcoming of idealistic, mystical-religious, and naturalizing interpretations of class society (Duarte, 2016). Nevertheless, individuals can scarcely appropriate science, art, and philosophy without first mastering written language. Reading and writing with fluency, competence, and confidence therefore constitute essential conditions for transcending common sense and for the development of philosophical consciousness. This implies the need to cultivate in students an irreversible habitus in relation to written language.

In short, it is necessary to develop a habitus in relation to the various activities that are learned, so that learning may produce an irreversible transformation. Such a process, however, does not occur naturally, spontaneously, or through immediately pleasurable experiences. Repeated engagement is necessary for the effective consolidation of knowledge, as discussed in the section devoted to memory. “It is not by

chance, therefore, that the duration of primary school is fixed in all countries at, at minimum, four years. This indicates that such a period is the indispensable minimum” (Saviani, 2012, p. 19) for students to learn and consolidate the foundational knowledge of reading, writing, and arithmetic.

However, when learning is not completed—that is, when the irreversible incorporation of acquired knowledge does not occur—the result is regression, and students tend to forget what was taught because it never became a habitus, an organ of their individuality. “Conversely, once the process is completed, the habitus acquired, and second nature attained, the interruption of activity, even for a long period of time, does not entail reversal” (Saviani, 2012, p. 19). Therefore,

educational work must unfold over a sufficient period of time so that the skills and concepts intended to be assimilated by students may, in fact, become converted into a kind of second nature. This requires time. Continuity is therefore a characteristic intrinsic to education (Saviani, 2012, p. 107).

In summary, the literacy process must be deliberate, systematic, and carefully organized, just like the teaching of any other school subject. “The curriculum must translate this organization by arranging the time, agents, and instruments necessary so that the efforts of the learner in the literacy process may be crowned with success” (Saviani, 2012, p. 19). As argued both by us and by Solovieva and Rojas (2008), Stanislas Dehaene (2012) likewise maintains that literacy instruction should follow a logical sequence in the presentation of graphemes and phonemes, beginning with the simplest and most regular forms and progressively advancing toward those that are more complex, less frequent, and more irregular.

Individual differences among students are sometimes invoked as justification for adopting particular methods or theories of literacy instruction. However, findings from neuroscience indicate that although learning rates may vary, all individuals possess the same basic neural architecture and that, from the standpoint of brain functioning, the systematic and explicit teaching of grapheme-phoneme correspondences produces more effective results (Dehaene, 2012). Therefore, “the school of freedom is not the one that allows the child to choose the texts he or she wishes to learn, but rather the one that rapidly teaches every child to decode [...]” (Dehaene, 2012, p. 346) and encode written

language, enabling the appropriation of grapheme-phoneme correspondences and the subsequent generalization and abstraction of this knowledge in reading and writing.

Certainly, learning written language is not limited to the ability to encode and decode; comprehension is indispensable. Nevertheless, the acquisition of graphophonic correspondences constitutes the foundation upon which other dimensions of written language are built. Martins, Carvalho, and Dangió (2018) proposed a figure-ground dynamic in the teaching and learning of written language. In summary, the authors argue that, initially, the smaller units of language (graphemes, phonemes, and syllables) constitute the figure in the literacy process, while the larger units (words, sentences, and texts) form the ground. As students appropriate letter-sound correspondences and this learning becomes consolidated, it becomes necessary to initiate the grammatical study of writing. At that point, the relationship is reversed: what was previously figure becomes ground, and what was ground becomes figure. Words, sentences, and texts then become the central focus of teaching and learning, while the smaller units assume a secondary role.

Based on the propositions advanced by Dermeval Saviani (2012) and Stanislas Dehaene (2012), we suggest that the same analogy proposed by Martins, Carvalho, and Dangió (2018) may be extended to the relationship between the phonetic and semantic dimensions of words. A child who is still appropriating graphophonic correspondences devotes so much attention to the mechanisms of writing—which grapheme represents a particular phoneme, the shape of letters, and the sequence in which they must be arranged—that he or she is often unable to attend simultaneously to the meaning of what is being read or written. In this stage, the phonetic aspects of words emerge as figure, while their semantic aspects remain in the background.

As mastery of these writing mechanisms gradually becomes second nature, or a habitus within the psyche, individuals become able to perform them automatically and with greater freedom, thereby directing their attention toward the semantic dimensions of words and the meanings they convey. At this point, the figure-ground relationship is reversed: the phonetic dimension recedes into the background, while the semantic dimension becomes the primary focus. Once graphophonemic mechanisms have been automatized, pedagogical work should be organized to promote the automatization of other aspects of written language, including grammar, semantics, stylistics, and literature.

The defense of memorization and automatization of graphophonic correspondences does not imply reducing literacy to mechanical exercises or practices devoid of social meaning. Rather, these mechanisms constitute necessary mediations through which individuals participate in the social practices of reading and writing with increasing autonomy.

Final Considerations

The present study examined the role of memorization and automatism in the learning of written language, arguing that the consolidation of graphophonic relations constitutes an essential condition for the appropriation of writing and for the development of freedom and creativity in language use. Grounded in historical-cultural psychology, historical-critical pedagogy, and contributions from neuroscience, the study demonstrated that memorization is not merely a mechanical or meaningless process. Rather, it constitutes a necessary condition for the development of reading and writing fluency and for the execution of more complex psychological operations involved in literacy.

Studies of memory within historical-cultural psychology proved fundamental for understanding how this psychological function operates in the learning of written language. Particular emphasis was placed on the need for teachers to consider the semantic organization of content, the structure of activity, and students' individual characteristics when organizing teaching and learning processes. From this perspective, it was argued that the systematic teaching of graphophonic correspondences promotes processes of generalization, abstraction, and automatization that are indispensable to the appropriation of writing.

The consolidation of graphophonic correspondences was shown to be fundamental to the processes of generalization, abstraction, and automatization involved in literacy development. Such mechanisms, however, do not constitute ends in themselves; rather, they function as necessary mediations through which individuals expand their conscious participation in social practices of reading and writing.

The concept of automatism as a condition of freedom, as developed within historical-critical pedagogy, made it possible to understand how the conscious incorporation of writing mechanisms expands individuals' capacities for attention,

thought, creativity, and conceptual elaboration. As discussed throughout this study, the progressive automatization of writing mechanisms broadens the possibility of directing attention to the semantic and discursive dimensions of language.

It may therefore be concluded that the appropriation of written language does not occur naturally or spontaneously, but requires deliberate, systematic, and intentional pedagogical intervention. Within this process, memorization and automatization should be understood as fundamental mediations for the development of intellectual autonomy, creativity, and conscious participation in written culture. In this sense, they contribute to the consolidation of reading and writing as organs of human individuality.

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