ARTIGO

The twofold role of reading in enriching L2 phonetic input: scaffolding learning from storytelling to independent reading

O duplo papel da leitura no enriquecimento do input fonético em L2: dando suporte à aprendizagem da contação de história à leitura independente

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Abstract

This paper delves into the multifaceted role of reading in the acquisition of second language (L2) sounds, focusing on the dual engagement of learners as listeners and readers. It underscores the importance of auditory and written input in facilitating L2 sound acquisition and consolidation. By examining empirical studies and theoretical frameworks, the paper highlights how storytelling is a pivotal strategy in enriching learners' phonetic input, thereby influencing their oral production and comprehension skills. It discusses how storytelling captivates young learners' attention and enhances their engagement, providing them with a rich phonetic environment essential for the successful acquisition of L2 sounds. Additionally, the article explores the journey of L2 reading development, emphasizing the synergy between L1 and L2 proficiencies and the significant role of written texts in advancing reading skills, speed, and comprehension. It further examines the impact of attention and memory in learning, illustrating how focused engagement with linguistic input supports the development of phonetic categories and the overall L2 sound acquisition process. The challenges and strategies in teaching segmental and prosodic features of English to speakers of Brazilian Portuguese (BP) are also detailed, offering insights into the complexities of L2 sound development. The paper underscores the instrumental role of teachers in scaffolding L2 sound acquisition through reading, advocating for pedagogical practices that integrate storytelling, reading, and attention to phonetic details to facilitate a comprehensive and effective language learning experience. Finally, this paper claims that reading is a remarkable tool for fostering L2 sound acquisition as it combines the work with memory and attention and the possibility to enrich

phonetic input throughout its process.

Keywords: Reading; Storytelling; Phonetic Input; Sound Acquisition; L2.

Resumo

Este artigo investiga o papel multifacetado da leitura na aquisição dos sons de segunda língua (L2), com foco no engajamento dos aprendizes como ouvintes e leitores. Ressalta também a importância do input auditivo e escrito na facilitação da aquisição e consolidação dos sons da L2. Ao examinar estudos empíricos e quadros teóricos, o presente artigo destaca o storytelling como estratégia fundamental para enriquecer o input fonético dos aprendizes, influenciando, assim, suas produções orais e habilidades de compreensão. Discute-se também como o storytelling cativa a atenção e aumenta o envolvimento de crianças aprendizes, proporcionando-lhes um ambiente fonético rico, essencial para a aquisição de sons L2. Além disso, o artigo explora a jornada do desenvolvimento da leitura em L2, enfatizando a sinergia entre as proficiências da primeira língua (L1) e da L2, e o papel significativo dos textos escritos no avanço das habilidades de leitura, velocidade e compreensão. O impacto da atenção e da memória na aprendizagem também é abordado, ilustrando como o foco no input auxilia no desenvolvimento de categorias fonéticas e no processo geral de aquisição de sons da L2. O artigo detalha desafios e estratégias no ensino de características segmentares e prosódicas do inglês para falantes do português brasileiro (PB), oferecendo insights sobre as complexidades do desenvolvimento da L2. Este trabalho também ressalta o papel instrumental dos professores na aquisição dos sons da L2 por meio da leitura, defendendo práticas pedagógicas que integrem o storytelling e a atenção aos detalhes fonéticos para facilitar uma experiência de aprendizagem abrangente e eficaz. Finalmente, este artigo clama que a leitura é uma ferramenta notável para promover a aquisição dos sons da L2, pois combina o trabalho com memória e atenção, e a possibilidade de enriquecer o input fonético ao longo do processo.

Palavras-chave: *Leitura; Storytelling; Input fonético; Aquisição de sons; L2.*

1. Introduction

The exploration of language acquisition, particularly in the realm of second language (L2) learning, has long been a subject of scholarly interest (Chomsky, 1981; Lightbown; Spada, 1999; Long, 1990), owing to its complexity and the multitude of factors influencing the process. Among these, the acquisition of L2 sounds stands out as a critical area of study, given its implications for communication efficacy and linguistic fluency (Flege; Bohn, 2021; Grosjean; Byer-Heinlein, 2018; Kuhl, 2011). This article endeavors to unravel the role of reading in the acquisition of L2 sounds, presenting a comprehensive examination that transcends the traditional boundaries of listening and reading as separate entities. It posits that the act of reading serves a dual purpose: not only it is a medium through which linguistic input is received but also a dynamic interactive process that engages the learner both as a listener and as a reader.

Central to this discussion is the acknowledgment of the multifaceted nature of language acquisition, where input plays a pivotal role. Historically, theories and empirical studies have evolved to highlight the significance of robust linguistic input in shaping the learner's phonetic and phonological competence (Dehaene, 2021; Flege, 1995; Moyer, 2009). This article draws upon the auditory and written dimensions of language, which, when intertwined through the act of reading, can significantly enhance the acquisition and consolidation of L2 sounds. Through an analytical lens, it delves into the pedagogical strategies of storytelling and reading aloud, underscoring their potential to enrich the phonetic landscape encountered by learners. The narrative posits that such strategies not only captivate and engage learners but also furnish them with a diverse phonetic repertoire essential for mastering L2 sounds.

This paper explores the journey of reading development in L2 learning and advocates for a nuanced understanding of the relationship between L1 and L2, drawing attention to the complex interplay between phonetic perception, reading comprehension, and written texts. It highlights the transformative potential of both auditory and written input in developing speech and reading skills.

Attention and memory are identified as critical faculties in the learning process (Dehaene, 2021), with the article elucidating their role in the formation of phonetic categories and the assimilation of L2 sounds. By examining the cognitive underpinnings of language learning, it offers insights into how focused engagement with linguistic input can significantly impact sound acquisition. The discourse extends to the challenges and strategies involved in teaching segmental and prosodic features, providing a detailed analysis of the phonetic intricacies encountered by speakers of different linguistic backgrounds.

In addressing the pedagogical implications, the article highlights the role of teachers in scaffolding L2 sound acquisition through reading. It calls for an integrative approach that combines storytelling, reading aloud, and a meticulous focus on phonetic details, advocating for practices that not only facilitate language learning but also enrich the educational experience. Through a confluence of theoretical insights, the article positions reading as a part of L2 sound acquisition, emphasizing its dual role in fostering linguistic competence and enhancing learners' phonemic awareness.

2. Reading as a tool to foster L2 sound acquisition and consolidation: learner as a listener and a reader

2.1 Auditory input

The role of input in L2 acquisition is acknowledged and widely accepted as crucial for language development. Throughout the years, many factors aimed to account for how languages were acquired. In the 1970s, the brain maturation construct (Lenneberg, 1967) proposed the Critical Period Hypothesis for L1 acquisition. Its simplistic transposal for L2 development was troublesome and opened discussions in the area (Flege, 1987). The hitherto claimed factor shifted with new data pointing to the input as the main component for language acquisition.

In the 1980s, linguists delved into the importance of robust input for the acquisition in both L1 and L2 (Chomsky, 1981; Flege, 1988, 2017; Grosjean; Byer-Heinlein, 2018; Long, 1990; Moyer, 2009; Dehaene, 2021; Marcelino, 2018, 2019). This new paradigm prompted discussion in phonetics, especially with Flege's work (1997, 1988, 1991, 1995).

Since then, the importance of phonetic input has risen to prominence and fostered research in the area of L2 sound acquisition. Many studies point to input as a central factor in the acquisition of sounds and suggest that the accuracy of the learner's oral production depends on the quality and quantity of phonetic input received (Flege; Frieda; Nozawa, 1997; Rochet, 1995; Silva, 2016; Steinlen, 2009). Measuring both the quality and quantity of input is a challenging endeavor and does not reach any common recipe. What is undeniable, though, is that the more quality and quantity of input received, the better for a successful L2 sound acquisition. When considering young L2 learners, a well-known strategy to foster auditory input is storytelling. This practice has been studied for decades to account for its impact on L2 acquisition.

Regarding the terminology, Lucarevschi (2016) points out that most studies refer to storytelling as a broad term, which includes the practice of reading aloud. Some researchers distinguished between these two formats. Roughly speaking, storytelling allows for creative interventions and linguistic improvisation, while reading aloud would be the process of reading the exact words in the story. We will use the term storytelling to encompass both formats.

From a young age, the learner is mainly a listener of stories and is still dependent on mediators to have contact with the L2 sounds in the books. From this perspective, the mediators

play a crucial role in providing storytelling moments to enrich phonetic input. In session five, we will discuss this role further and suggest strategies to help with this process. Prior to this discussion, it matters to observe the importance of storytelling moments for the L2 learner as a listener before they become readers.

In the literature of Applied Linguistics, much research has been dedicated to the empirical study of the role of storytelling linked to L1 and L2 development. Studies claim that storytelling is also effective for L2 development as students become more engaged as it is a fun and highly memorable strategy. Also, storytelling moments tend to capture children's attention and encourage active participation (Atta-Alla, 2012; Lee; Jang; Plonsky, 2014; Lucarevschi, 2016; Wajnryb, 2003).

In an empirical study considering the effects of storytelling on L1 acquisition, Isbell et al. (2004) distinguished the two previously mentioned formats: storytelling and reading aloud. In the former, the teacher retold the stories and invited children to participate in the chorus moments and interact with the narrative. In the latter, the teacher read the book's story, and the interaction was based on the discussion of the images. The study's objective was to explore how moments of storytelling and reading aloud influenced language development in a complementary way.

The research subjects were 38 children between 3 and 4 years old, divided into two groups: Group A, which received storytelling input, and Group B, whose input was from moments of reading aloud. The study involved a pre-test, in which oral samples of the children recounting some stories were collected; the exposure to the stimulus, which lasted twelve weeks; and finally, a post-test, again collecting oral samples of the children when retelling some stories. The data were analyzed focusing on linguistic complexity and understanding of the stories.

The results indicated that both groups developed linguistic skills after contact with stories, each group in a way. According to the data, storytelling moments have provided gains in some areas, such as the Mean Length of Utterance in storytelling and identifying themes. Reading aloud moments provided gains in domains such as fluency and vocabulary diversity.

The study indicates that both storytelling and reading aloud formats are beneficial and positively impact the development of linguistic oral complexity for children. Isbell et al. (2004) also claim that the best scenario for a quality linguistic input is to incorporate these moments, in both ways, into classroom practices to provide rich linguistic experiences in a playful environment with

engaged children.

Although Isbell et al. (2004) did not focus on L2, the concept of storytelling as an efficient tool to foster acquisition can also be transferred to L2 settings. Specifically considering these contexts, there are also studies showing that the practice of storytelling for children not only helps in their L2 development of receptive (listening and reading) and productive (writing and oral) skills but also in the acquisition of grammar structures and vocabulary (Ajibade; Ndububa, 2008; Beaken, 2009; Mattheoudakis; Dvorakova; Láng, 2008; Wajnryb, 2003; Wright, 2007). Regarding phonetics, there is data on the effects of storytelling on students' pronunciation and their awareness of L2 prosody aspects, namely rhythm and intonation (Beaken, 2009).

As an example, Hsu (2010) researched the role of storytelling in developing English as an L2 with 50 Taiwanese-speaking children in the fifth and sixth years of elementary school. The subjects were divided into a control group and an experimental group, and a pre-test was carried out before the program started. For the experimental group, English classes were planned using the textbook and many storytelling moments, while the control group received only the instructions from the textbook. After ten weeks of study, the post-test indicated that the subjects in the experimental group produced more complex and longer English sentences than those in the control group.

The explanation, according to Hsu (2010), is that the subjects who had storytelling throughout the process were more engaged and had the possibility of actively participating, producing new vocabulary and structures present in the stories. Hsu (2010), however, does not describe what would be the most complex sentences, whether the complexity involved only grammatical structures and vocabulary, or whether there was also a difference in pronunciation and aspects of prosody. Despite the vague description of the results, Hsu's empirical data point to positive developments in the role of storytelling for the development of L2.

In both Isbell et al. (2014) and Hsu's (2010) experiments, we encounter data supporting the widespread idea that storytelling moments benefit language acquisition in many ways from a very young age. The engagement caused by storytelling moments is crucial in fostering L2 input playfully and actively for children as listeners. In these moments, children are often concentrated and engaged, which are paramount elements for learning (Dehaene, 2021).

Through stories, children encounter a vast vocabulary, complex grammatical structures,

and prosodic elements, and they have the possibility of retaining and incorporating these elements into their everyday orality. Most importantly for this work, storytelling moments offer an extensive repertoire of L2 sounds. Moments of storytelling are a powerful tool to provide young learners with acoustic cues that will guide their perception and form categories for the L2 sound inventory. The role of the mediator in this stage is to grant opportunities to hear a robust amount of L2 sounds through stories. These young learners will become readers, and as they become more independent, new forms of mediation will emerge and play essential roles in this process of L2 sound acquisition, as explored below.

2.1 Written input

The journey of L2 reading development presents a complex tapestry, integrating L1 reading skills, L2 grammatical understanding, and the influential role of written texts. Alderson's (1984) pivotal question probes whether challenges in L2 reading stem more from linguistic difficulties or the reading process itself. Bernhardt and Kamil (1995) extend this inquiry, emphasizing the need to dissect both the linguistic complexities of L2 and the foundational reading skills honed in L1.

This exploration is further enriched by Bernhardt and Kamil's (1995) insights on Interdependence Hypothesis and Linguistic Threshold Hypothesis, positing a synergistic relationship between L1 and L2 proficiencies, where skills in one language can bolster the other. Additionally, the Threshold Hypothesis (Cummins, 1979) had already suggested that a certain level of L1 proficiency is crucial for positive transfer to L2 acquisition.

Recent studies, such as Maluch and Sachse's (2020) work, focus on the development of reading skills in young L2 learners, underscoring the importance of reading speed, comprehension, and efficiency. Their findings highlight a direct correlation between L2 proficiency and enhancements in reading speed and accuracy, emphasizing the significant role of written texts in L2 reading skill development. Similarly, Cole and Vanderplank (2016) highlight the transformative effect of digital resources and the Internet in facilitating naturalistic language learning and exposure to various written materials.

Cole and Vanderplank (2016), in their recent comparative study between fully autonomous self-instructed learners (FASILs) and classroom-trained learners (CTLs) in Brazil, significantly contribute to the discourse in the field of Second Language Acquisition (SLA). One of the most

striking outcomes of this study is the discernible superiority of FASILs in their understanding of both literal and figurative aspects of language, as evidenced in reading comprehension tests. This finding challenges traditional pedagogical assumptions, suggesting that the constraints typically associated with SLA, such as simplification and inflexibility in learning multi-word expressions, may be more attributable to the nature of formal instructional settings rather than intrinsic limitations of SLA.

The concept of reading efficiency, a harmonious integration of speed and comprehension, emerges as a vital component in L2 reading development. Studies suggest a consistent level of reading efficiency across different proficiency levels, implying that as learners enhance their L2 reading skills, they effectively balance speed with comprehension. Reading is actually a multi-folded activity that involves a series of steps and requires many cognitive resources. As learners advance in their journey with learning the language - which involves vocabulary acquisition, grammar acquisition, and so on via visual and auditory input - the more they can free up cognitive resources that at first are dedicated to figuring out the visual input of the words themselves to the comprehension of the text as a whole (Maluch; Sachse, 2020).

Adding to this multifaceted understanding, Mirfatemi, Sadeghi, and Niyazi's (2020) study on the impact of prosodic features on reading comprehension in L1 and L2 reveals the significant role of these features, such as intonation and stress patterns in speech, in both L1 and L2 reading comprehension. Their findings indicate that proficiency in the prosodic aspects of L1 can profoundly influence the understanding of L2 texts, suggesting a deeper, more intricate connection between the two language domains.

This intricate relationship between L1 and L2 reading speeds, further highlighted by Mirfatemi et al.'s research (2020), demonstrates how foundational L1 reading skills, particularly shaped by interaction with written texts and prosodic features, significantly impact L2 reading development. This is particularly evident among learners with lower L2 reading speeds, indicating that foundational reading skills acquired through L1 engagement with written texts can significantly influence L2 reading development.

Within the scope of this work, which is aimed to discuss the two-fold role of reading (as a source of input for the learner via storytelling conducted by the teacher, and as a receptive skill by the learner when they read), it is worth pointing out that the more robust the foundations in

L2 reading skills are, the better equipped the learner will be to carry out the task of conducting a top-down process. These foundational L2 reading skills are built upon the learning of segmental features and enable them to flow smoothly through the text as they advance in their journey of acquiring new lexis and grammar structures.

By synthesizing these insights, we can see the crucial role that written texts, along with prosodic features of language, play in the development of reading skills in a second language (L2). These elements not only support improvements in reading speed and comprehension but also help learners maintain a balance between the two as their proficiency grows. This broad understanding is essential for educators and curriculum developers, emphasizing the need to incorporate varied written materials and to focus on prosodic aspects that influence learning in L2 environments.

3. Attention as a key factor in learning

As previously discussed, focusing on prosodic aspects of the L2 as we integrate written materials in the task of improving the learner's listening skills plays an important role in the acquisition of L2 phonemic aspects.

In Dehaene (2021), the intricate relationship between attention and learning is thoroughly examined. This exploration is not only crucial for understanding the cognitive processes underpinning learning, but it also has profound implications for educational practices.

Dehaene (2021) begins by delineating the multifaceted nature of attention. Attention is more than a mere cognitive function; it is the bedrock upon which our conscious awareness is built. This selective mechanism filters through the vast array of stimuli that bombard our senses, directing our cognitive resources toward what is deemed most relevant. The effectiveness of learning, therefore, is significantly influenced by where and how attention is focused.

In the early stages of L2 development, much of the processing happens in a part-to-whole fashion, both for reading and listening input. This means that during the reading and listening process, the learners' attention is dragged to known words and familiar grammar structures, while the rest is unknowingly ignored in an attempt to conduct top-down processing of what is being heard and read. In other words, the very task of reading and listening puts a strain on the learner since they are dealing with incomplete information and are trying to cope with both top-down

and bottom-up processing at the same time (Alderson, 2000; Bråten, 2007; Grabe, 2009; Koda, 2005).

The neurological foundations of attention, the author discusses, lie in the symbiotic relationship between the prefrontal cortex and the parietal lobes. These areas of the brain collaborate in a complex dance, orchestrating the focus and direction of our attention. This partnership is not just about the immediate steering of our mental spotlight but also profoundly influences how information is processed and encoded in memory. Herein lies a key insight: the data that captures our attention is more likely to be deeply encoded into our memory systems. This nexus between attention and memory encoding is a cornerstone of learning. Given that students struggle to incorporate prosodic features of the L2 into their speech while reading, it is paramount that the earlier students are called their attention to these aspects, the better.

However, Dehaene (2021) does not shy away from discussing the limitations inherent in our attentional systems. In an age where multitasking has become the norm, his insights into the costs of divided attention are particularly salient. The ability to split attention across multiple tasks is not only limited but often detrimental to the depth and quality of learning. This observation is a clarion call for an educational approach and personal habit formation that emphasizes focused, undivided attention for deeper and more effective learning.

The interplay between attention and learning is a dynamic and pivotal aspect of cognitive science, one that has far-reaching implications for how we teach, learn, and grow. It propels us to reconsider how we engage with information, prioritize tasks, and structure our learning environments. By understanding the mechanisms of attention, we can better navigate the complexities of learning, making the process more efficient, effective, and aligned with our neurological design. It also gives educators an insight into what to bring to the classroom to effectively help students accommodate the features of the L2 in their already formed inventory of L1 sounds and features of the language. In addition, when considering the process of accommodating these new "sounds" and patterns of the L2 in their long-term memory, learners have to form new phonetic categories, which are tokens that best represent the sound units of the L2 that are stored in the brain.

Iverson and Kuhl (1996) use the word prototype to define "good instances" of categories, instances that represent the category as a whole. In the task of decoding an L2, learners access

these tokens to decipher what has been heard. Flege (1995) points out the crucial role of quality input, and this walks hand in hand with the role of educators in the classroom regarding the quality of the input itself that learners will be presented with, and how this input is going to be incorporated in the lessons regarding how learner's attention will be called to the aspects being taught.

4.   The process of L2 sound acquisition

The understanding of the multi-layer process of how L2 sounds are acquired entails delving into phonetic categories, the L1 influence, and the crucial role of input. In a nutshell, learners acquire L2 sounds when they can form new phonetic categories that will compose their L2 inventory. This depends on phonetic input, explained as "the sensory stimulation associated with the L2 speech sounds that are heard and seen during the production by others of L2 utterances in meaningful conversations" (Flege; Bohn, 2021, p. 20). When children are immersed in the sounds of two languages from their first months of life, this process happens concomitantly, and the phonetic categories will be created based on the input of both languages. When the child is first exposed to an L2 later in life, more factors need to be considered.

According to Kuhl's findings (Kuhl, 2011), in the first months of life there is greater sensitivity to the perception of all the sounds of human languages. This makes the ability to acquire languages more accurate. Kuhl (2011) believes that there is a state of universal phonetic perception in newborns, which decreases as the domain of L1 develops, around 11 months old. This universal sensitivity indicates that the older the speaker, the more difficult it is for L2 sound acquisition to happen, which is in tandem with diverse research that points to age as an important factor for language development (Asher; García, 1969; Flege, 1995, 1999; Flege; Frieda; Nozawa, 1997; Flege; Mackay, 2011; Long, 1990; Montessori, 1967). To understand the interaction of such factors, it matters to look at the process of how sounds are acquired.

Flege (1995) claims that L2 sounds are acquired when L2 phonetic categories are formed, composing the L2 phonetic inventory. For a phonetic category to be formed, the phonetic details of the L2 sound need to be perceived and differentiated from the closest L1 counterpart. The greater the perceived difference between an L2 sound and an L1 sound, the greater the possibility of a new category formation. When these details are not perceived, the L2 sounds are likely to be

assimilated into L1 counterparts.

Assimilation (Flege, 1995; Flege; Bohn, 2021) is a process that impedes the formation of L2 phonetic categories due to the speaker's inability to perceive the phonetic details that differentiate the L2 sound of an L1 sound. Thus, the L2 sound will be heard as its closest L1 counterpart and assimilated to it. The major factor for the assimilation process to happen is the influence of the speaker's L1 phonetic inventory. As Flege (1995) and Flege and Bohn (2021) pointed out, both L2 and L1 sounds share a common phonetic space, thus, they inter-influence each other.

The influence of the L1 on the L2 in terms of sound acquisition has been considered in the literature for decades (Polivanov, 1978, Trubetzkoy, 1969). Nowadays there is still data supporting that L1-L2 influence plays an important role in determining whether new categories will be formed or not (Best; Tyler, 2007; Flege, 1995; Flege; Bohn, 2021; Iverson; Kuhl, 1996; Kuhl, 2011). As mentioned before, speakers tend to lose sensitivity to oral sounds, and if they are not exposed to L2 sounds from a very young age, the L1 inventory will excerpt influence on L2 sound acquisition, making it likely that L2 sounds will be assimilated into the L1 system. However challenging it might be to perceive L2 phonetic details and form new categories, research (Flege, 1995; Flege; Bohn, 2021) suggests that the ability to form new phonetic categories remains intact over the life span. It means that it can be harder throughout life, but it is far from being impossible.

As a hypothesis, a new phonetic category of an L2 sound will be formed when the speaker discerns the phonetic differences between the L2 sound and its similar L1 counterpart (Flege, 1995; Flege; Bohn, 2021). This process depends on two factors, according to the SLM-r: as the degree of phonetic dissimilarity between the sound of L2 and the sound closest to L1 increases, the greater the chance for speakers to discern phonetic differences between languages; and the older the speaker is when first exposed to the sounds of a L2, the more difficult it is to perceive phonetic differences.

Both factors influence the three stages of the formation of a new category, namely: 1. Discrimination of phonetic details of L2 sound and sound closer to L1; 2. Emergence of an "equivalence class" of sounds that are close in phonetic space while token distributions do not stabilize; and 3. Separation of L2-L1 equivalent sounds for the creation of a new phonetic category.

A new phonetic category - which can still be an L1-L2 compound - is formed when there is

the identification of phonetic details and the categorization when such contrasts are passed to the long-term memory. Once the phonetic category is formed, it does not necessarily remain unchangeable. Although they seem to stabilize (Flege; Munro; Mackay, 1995), the SLM-r argues that this stabilization does not indicate an upper limit on the ability to modify them depending on the phonetic input.

As previously mentioned, the SLM's first postulate claims that the mechanisms used for L1 sound acquisition remain intact over the life span and can be used to account for L2 sound acquisition. Thus, what will most impact L2 sound categories to be formed is not the age factor, but rather, the quantity and quality of input received (Flege, 1995; Flege; Bohn, 2021; Moyer, 2009). Indeed, age is important concerning language acquisition, but it is understood as a macro variable (Flege; Mackay, 2011) that imposes other factors, such as Full-Time Equivalent (Flege; Bohn, 2021) and the amount of received input.

Recent research (Flege; Bohn, 2021) argues that the effects of phonetic input linger throughout life, modifying existing categories by approaching them to L1 counterparts when L1 phonetic input is stronger, or warding them off depending on L2 input robustness.

The cardinal factors for sound acquisition are the acoustic cues embedded in the phonetic input which will guide the learners' attention to the phonetic rules and details in an L2. By perceiving these cues, L2 sounds are likely to be better differentiated from the closest L1 counterpart, and new phonetic categories are likely to be created and not assimilated. Aiming at a smooth acquisition, it matters to foster attention to L2 acoustic cues by offering rich phonetic input.

In a bilingual context, when both L1 and L2 inventories overlap, the core issue is to identify similarities and differences in both inventories to select what challenges might come up. Only with this in mind can teachers scaffold the acquisition process in meaningful and precise ways. In the next session, we will examine segmental and prosodic specificities taking Brazilian Portuguese as the L1 and English as the L2.

5. When two phonetic inventories overlap: BP as an L1 and English as an L2

5.1 Speech segments

To better mediate L2 sound acquisition it matters to ponder both L1 and L2 phonetic inventories. Considering the phonetic phenomena involved in the two languages is central to the understanding of which difficulties learners are likely to have in the acquisition process. Due to the languages' phonotactics, learners tend to apply their L1 phonetic rules to their L2. The implications of such influence are massive and might mislead accuracy, resulting in troublesome comprehension and intelligibility (Munro; Derwing, 2015). It is important that teachers are aware of the main phonetic differences between the two language systems so that they better help learners overcome difficulties in the acquisition of the L2 segmental features, or even avoid them.

When considering the interaction between two language systems, the difficulties will be different depending on the specific phonetic inventory of the languages concerned. This work will highlight some segmental and prosodic differences between BP as the L1 and English as the L2.

In terms of segmental features, some events are problematic and impact pronunciation the most. The VOT, for instance, differs in both languages and often confuses speakers. Burst intensity and pre-voicing are essential features and important cues in distinguishing plosive voicing (Alves; Zimmer, 2015). In BP, plosives are not aspirated and have VOT mean values reported as /p/ 11ms, /t/ 19ms, /k/ 32ms, /b/ -90ms, /d/ -77ms, and /g/ -66ms (Madureira; Barzaghi; Mendes, 2002). In English, VOT is considerably longer with mean values of /p/ 42ms, /t/ 65ms, /k/ 62 ms, /b/ 15ms, /d/ 21ms, and /g/ 27 ms (Hewlett; Beck, 2013). This difference often causes Brazilian speakers to hear voiced English plosives as voiceless and produce voiceless English plosives with short VOT values, impacting their output intelligibility.

Also, differences in consonant behavior in coda position are normally challenging for Brazilian speakers when producing L2 utterances. The production of the consonants /m/, and /n/, for instance, does not differ in BP and English in syllable onset but alters significantly in coda positions. In BP, the consonants /m/, and /n/ do not occur in the syllable coda position. In syllable coda position in BP, both oral and nasalized vowels occur. Leading the learner to interpret the /m/ and /n/ in the final position as a cue to nasalize the vowel before them. The consonant /l/ suffers a similar effect. In English, a velar lateral can occur in coda position but in BP, the most common allophone of /l/ in coda position is the velar approximant.

The worrisome segmental phenomena considering the influence that the L1 exerts in L2 also include the common epenthetic vowel /i/ added to English utterances. BP phonotactics allow

certain final consonants, namely, /l/, /m/, /n/, /r/, /s/, and /z/, and as mentioned before, some restrictions such as nasalization and vocalization are embedded. BP rules do not allow final /g/, /t/, or /p/, though. In these cases, learners tend to add an epenthetic /i/ following the phonotactics of BP language. The result is a final sound that is unpermitted by English phonetic rules and may cause miscommunication. The BP epenthetic vowel also occurs in consonant clusters in syllable onsets such as in the words start and stop.

When acquiring L2 sounds, vowels are also puzzling and worthy of attention. The difference between the 11 English vowel phonemes versus the 7 BP vowel phonemes in oral positions tends to make the assimilation process (Flege, 1995) prone to happen. Due to the inexistence of lax high vowels in oral positions in the BP inventory, Brazilian learners tend to assimilate these sounds to their tense L1 counterparts. This will impact not only their perception but also their production (Flege, 1995; Rochet, 1995), affecting the vowel quality and leading to imprecise communication.

The overlap between L1 and L2 phonotactics engenders difficulties in segmental and prosodic instances. Mediators should consider the former and the latter to foster input and provide learners with opportunities to overcome possible challenges due to this L1-L2 interaction. These challenges encompass phonetic specificities within words and also prosodic elements that are mister for L2 development.

5.2 Prosody

The learner-listener whose mother tongue shifts toward syllabic timing in the rhythm continuum faces a major difficulty in learning to deal with the more stress-timed nature of English while listening. This is the case of Brazilian learner-listeners who are not used to the prosodic cues of English and fail to parse the unbroken string of sounds in speech. Along with teaching segmental features, students' attention should also be directed to the prosodic features of the language to provide them with the tools to decode speech accurately. It is important to note that rhythm characteristics represent tendencies in a rhythmic continuum rather than strict categories, and languages can exhibit both syllable-timing and stress-timing features.

In English, the message is delivered mainly through content words, and function words are typically unstressed, have their vowels reduced and their consonants assimilated, elided,

coarticulated, etc. Therefore, on top of acquiring a new set of sounds, the student must establish a new mechanism to analyze and understand speech. This divergence underscores the necessity for BP learners of English to not only recognize but also produce the nuanced intonation patterns characteristic of English to achieve communicative competence and fluency.

Gilbert (1987) refers to the prosodic elements as the most powerful signals in spoken English. Prosodically trained students often report improved understanding of speech in movies, shows, on TV, and in face-to-face conversations. Cole and Vanderplank (2016) have also shown that autonomous learners whose primary interaction with English was through naturalistic input via movies, shows, music, etc., performed remarkably well in proficiency exams. This goes to show that the quality and quantity of input provided to the learner has a tremendous effect on their learning process.

Speech perception is an intricate process that involves auditory processing, phonetic and phonological processing, lexical access, semantic processing, syntactic processing, pragmatic understanding, and paralinguistic processing. In other words, learner-listeners carry out the task of conducting both bottom-up and top-down processing. While segmental features aid the student with sound-specific properties of the language, prosodic features provide them with the blueprint to follow the meaning.

Grojean and Gee (1987) presented a word-recognition theory based on prosodic structure which allows us to understand some of the difficulties of learners whose first language is syllable-timed. They argue that lexical access in the early stages of the development of a phonological system for the L2 is based on "phonological words". Phonological words are essentially groupings of syllables or words based on their stress patterns and phonological cohesion rather than their syntactic or semantic groupings alone. For instance, in a sentence, content words (which typically carry the main stress) and unstressed function words can form phonological words. These units reflect how speakers of a language perceive and process spoken language in real-time, recognizing words and meaning through stress patterns and prosodic cues rather than isolated, sequential word recognition.

Breaking down the stream of speech might put a strain on the learner-listener due to vowel reduction and consonant-to-vowel linking. In regards to teaching priorities, one of them might be focusing on these two aforementioned features of spoken English, incorporating teaching

practices that focus the learner's attention on how sounds are combined and coarticulated in the stream of speech.

This perspective challenges the conventional view that spoken language processing involves identifying words one by one in a linear fashion, emphasizing instead the dynamic and interactive nature of lexical access. It highlights the importance of stress as a key factor in recognizing and understanding spoken language, suggesting that the stressed syllables initiate a search in the mental lexicon, around which the understanding of surrounding syllables and words is organized.

The implications of this theory for language teaching and learning are significant, underscoring the need to focus on the prosodic aspects of language in teaching listening and speaking skills. It suggests that language learners need to develop an awareness of stress patterns and prosodic cues to effectively process and comprehend spoken language, moving beyond a focus solely on the pronunciation and recognition of individual words as isolated units.

As earlier presented, bottom-up processing dominates in the early stages of the learning process, and as the learners acquire new lexical items and familiarize themselves with new grammar structures, they free up cognitive space to allow for a top-down process to take place. Therefore, it is paramount that teachers provide students with a solid and reliable source of input, and make it as naturalistic as possible, so that the input provided contributes to the formation of the mechanism necessary to parse and decode speech.

6. The role of the teacher in scaffolding L2 sound acquisition through reading

It is widely acknowledged that teachers play a fundamental role in scaffolding L2 sound development in the classroom and should be guided by competent theory (Munro; Derwing, 2015). Levis (2015) claims that there should be a deep-seated relationship between researchers and teachers, so that teachers create guidelines that are grounded on research, and studies that contribute to classroom settings. However necessary it is to intersect research and teaching for the benefit of learners, the two areas seem not yet to be sufficiently connected (Levis, 2015).

It is common for teachers to use their instincts when dealing with L2 orality (Munro; Derwing, 2015) in the classroom without encompassing what L2 sound development entails. This article proposes a reflection on how teachers can better scaffold L2 sound acquisition mainly

through reading in its twofold role.

Firstly, it matters to state that enriching the phonetic input is undoubtedly crucial for learners to develop their L2 and compose their L2 phonetic inventory (Flege, 1995; Flege; Bohn, 2021; Kuhl, 2011; Moyer, 2009). Even though grasping what accounts for input quality is a challenging endeavor, we understand that when it comes to phonetic input, a rich environment provides learners with a vast repertoire of accurate acoustic cues that will guide their perception and facilitate L2 category formation. Also, enriching phonetic input in classroom settings entails intentionally planning meaningful and efficient learning engagements that call attention to the most difficult aspects of the L1-L2 interconnectedness (Barros, 2022).

In this article, we present some of the most problematic processes Brazilian learners face when developing English as an L2. We claim that phonetic knowledge is a pivotal matter for teachers to scaffold learners' L2 sound development. Only when mediators know why and what to address, will they be able to work with the "how" (Levis, 2015) and effectively offer meaningful support.

Once teachers are aware of the possible hurdles, a myriad of possibilities open to link phonetic theory and classroom practice. One of them is reading, which was proven to be efficient in L2 development (Atta-Alla, 2012; Lee; Jang; Plonsky, 2014; Lucarevschi, 2016; Wajnryb, 2003) and the core of this work. The positive effects of reading in both contexts, when the learners are listeners, and when they become independent readers were previously regarded in this study. The next step is delving into the role of the teachers when conducting reading moments.

In regard to storytelling, learners are mostly children who interact with the story by the sounds and book images. Some considerations are worthy so these moments foster children's attention and benefit L2 acquisition (Deheane, 2021). It is crucial to choose books according to the learners' age not only in terms of the theme, but also considering its length to avoid boredom. When the story is captivating, children are likely to pay attention, which causes a cascade of neural functions that will solidify the synapses for learning to happen (Deheane, 2021). Children will also respond better to the stimulus if there are moments directed to them (Deheane, 2021). Pausing the reading to engage children in the story by asking questions and making comments might keep their focus and spark curiosity.

It is also efficient to engage children in their active participation during storytelling

moments. This can involve helping the teacher to tell the story or even retelling it using visual resources. By encouraging the learner's participation, teachers are giving them the opportunity to produce English utterances in a context-based moment when learners normally become comfortable and motivated (Lightbown; Spada, 1999; Saville-Troike, 2012). This active production is also important for it generates acoustic feedback to the speaker and foments articulatory exploration.

Learners tend to feel more confident in participating when they are familiar with the story. Hence, working with the same story for some days is efficient for some reasons. Not only do learners have enough time to get acquainted with the vocabulary and the plot, but they can also revisit its narrative and grasp elements that were left behind in previous moments. Also, words are easier to acquire through repeated occurrences in context, so telling the same story more than once enhances vocabulary learning, and also provides repeated acoustic cues present in the vocabulary. Their active participation plays a major role not only in broadening their receptive vocabulary repertoire but also in expanding their expressive vocabulary repertoire, which is when learners recognize and are able to insert new words into their speech (Schmitt, 2014).

Revising stories is also a great opportunity to diversify these moments and make use of diverse formats, such as using props or non-structured elements to play the characters; playing the audiobook so children get familiar with different accents; acting out; and creating games related to the book. Expanding the ways teachers engage with storytelling promotes novelty, which is likely to catch children's attention and concentration.

Another efficient way to foster learners' L2 acquisition through storytelling is by choosing stories with rhymes and repetitions. These books call attention to the L2 sounds and encourage learners' engagement for their highly memorable sentences. With that, children can begin playing with the sounds in isolation and "phonological words" (Grosjean; Gee, 1987) of a language and perceive them in playful contexts. Research also shows that although storytelling moments are implicit methods of language development, adding multi-component interventions such as flashcards makes it more explicit and might boost L2 acquisition (Marulis; Newman, 2010). This consideration is in accord with what we claim: thinking of new strategies when reading books in classroom contexts is part of what we understand as enriching phonetic input.

It is also fundamental to highlight that slowing down the speech rate so that learners identify words more easily might create artificial utterances which may compromise the quality of

the input. Other common attempts to facilitate word recognition such as extremely long pauses, changes in the quality of unstressed vowels, etc., will fail to produce the desired effect on students which is the familiarization with utterances that respect the prosodic cues of English. Teachers must commit to a lifelong learning process, which involves becoming familiar with storytelling itself, along with the segmental and prosodic features of the language, so they know where to direct their students' attention.

Storytelling for the learners who are still listeners is a powerful tool for L2 sound acquisition and demands reflection, creativity, and preparation in order to make the most of it. The teacher's role concerning scaffolding reading changes when these children become active readers, but continues to carry a fundamental part in L2 sound development.

Final considerations

Throughout this article, we explored both the importance of reading for L2 sound acquisition in different learning stages, and also, the fundamental role the teacher plays in mediating these moments so learners can make the most of them.

Reading is undoubtedly a pivotal skill for any learner's language development. This article approached how reading and its twofold role are intrinsic to the L2 sound acquisition process. As explored, young learners benefit from storytelling moments as they provide children with a vast range of vocabulary, language structures, and, fundamental to this article, acoustic cues which will guide the learner's perception.

Along with the opportunity to enrich phonetic input through books and stories comes the neurological aspect which plays an essential role in the acquisition process, namely attention and memory. These aspects when combined with enriching phonetic input make reading an excellent tool for fostering L2 sound acquisition. In the first years of a learner's life, this reading will happen through a mediator who will offer the acoustic cues and grant an engaging setting to thrive learning.

As the learner-listeners advance in their language acquisition process, they become independent readers who, if equipped with the proper tools and mechanisms, will be able to use written input to enhance their vocabulary and their understanding of grammar and syntax.

In a nutshell, reading plays a crucial role in developing an L2 throughout the different learning stages. To make the most of these moments, the teachers must have phonetic knowledge to efficiently scaffold learning and promote meaningful mediation.

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