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PHONOLOGICAL AWARENESS IN SERBIAN AND ENGLISH: A COMPARATIVE STUDY OF PRESCHOOL AND FIRST GRADE EFL LEARNERS**

Abstract
The present study represents preliminary research into the development of phonological awareness in L1 Serbian and L2 English. By investigating early sensitivity to sounds at two different developmental stages, the study aimed at comparing the level of phonological awareness in a mother tongue and in a foreign language at the beginning of formal education. Bearing the aforementioned in mind, the sample included 20 children, divided into a group of preschoolers and first graders. The results showed that first graders consistently outperformed preschoolers in Serbian, yet this consistency was not entirely reflected in English. This may point to the conclusion that other factors are involved in the development of phonological awareness in a foreign language, indicating important pedagogical implications.

Keywords: phonological awareness, English, Serbian, preschool, first grade

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1. Introduction

Phonological processing involves cognitive activities sensitive to the use of sounds in words, i.e. their recognition and manipulation. It consists of *phonological memory*, or a brief storage of sound-related information (numbers, phonemes, words) in working memory, *phonological naming*, also known as rapid automated naming which captures how quickly and efficiently a person can retrieve and articulate familiar items, and *phonemic* and *phonological awareness*, which involve conscious reflection on the sound structure of words (Whitehurst & Lonigan 1998). The development of phonological awareness proceeds in somewhat reverse order, from larger to smaller units, because children are able to distinguish similar from different sounds before they can perceive them in words, integrate phonological information before they learn to segment it, and recognize a syllable before they can manipulate phonemes within one (Carroll et al. 2003). Findings from different studies confirm this developmental sequence in the languages investigated so far, so it can be concluded that the given sequence is of a universal character (Goswami 2002).

As part of the broader concept of metalinguistic awareness (Golubović et al. 2019: 160), phonological awareness implies the recognition of phonemes, rhymes, syllables and words, i.e. the ability to manipulate the sound structure of a language (Adams 1990). According to the aforementioned author, the fundamental components of phonological awareness are the division of words into syllables, rhymes, acoustic analysis and synthesis of sounds. Acoustic analysis of sounds primarily refers to the possibility of isolating individual sounds, whereas acoustic synthesis pertains to the merging of syllables and sounds and the manipulation of sounds. Phonological awareness represents a superior concept to phonemic awareness, which specifically relates to the identification, isolation, segmentation and omission of the phonemes themselves. Although the two previously mentioned terms were viewed as synonymous in Serbian literature, scholars recognized the need to distinguish between them (Subotić 2011: 128).

As the ultimate prerequisite for reading skills, phonological awareness is also defined as conscious sensitivity to the sound structure of language (Torgesen & Bryant 1994). Later studies slightly modified the initial definitions into the ability to listen to and manipulate the sound structure of language, i.e. the capacity to distinguish between rhyming words, and

segment sentences into words and recognize syllables (Snow, Burns & Griffin 1998). One may argue that the generally accepted definition is actually the conscious ability to identify and manipulate any phonological unit (Freitas, Alves & Costa 2007). The entire process consists of adequate perception of speech units and the ability to retain them in working memory long enough to successfully perform a specific task, so it is not surprising that achievement improves with increased formal instruction in a school environment, for instance. In order to fully develop phonological awareness and automate the phonological system, a child must develop auditory perception and differentiation (recognizing and distinguishing phonemes in a word), auditory analysis and synthesis (the ability to analyze which phonemes a given word consists of and grouping separately pronounced phonemes into one word), auditory combination and memory (analysis and synthesis of words, as well as the ability to remember and reproduce a certain number of phonemes in a short period of time), auditory classification and word recognition (reproducing words in the correct order given orally and recognizing the entire word based on a given part of it), rhyme formation (recognizing and producing rhymes orally), alliteration (the ability to find words with the same initial consonant in one's own memory), intonation or accent (distinguishing stressed words or parts of a sentence) (Golubović 2017).

2. The Development of Phonological Awareness

Studying the relationship between speech perception and production, some authors argued that the difference in the level of representation between children and adults is precisely in that children are more holistic, because in certain situations, children manage to reach the finest levels of phonological representation, even the level of information about distinctive features (e.g. Walley 1993; Gierut 1998). Successful perception of rhyme and generally good achievement in rhyming tasks is a sure predictor of success in mastering reading skills at an early age (Cullata et al. 2007).

Stimulation of phonological awareness should certainly facilitate the connection of sound with grapheme as a prerequisite for successful mastering of reading skills (Alves, Castro & Correia 2009). In addition to understanding the sound structure, the development of reading entails the realization that the word itself has its own position within a sentence, that

letters have a position within a word, and ultimately comprehending the concept of the word itself as such (Yopp & Yopp 2000).

Some authors also discuss levels of phonological awareness, namely, syllabic, intrasyllabic and segmental, which in turn relate to the identification and manipulation of syllables, elements within a syllable and phonemes (Alves, Castro & Correia 2009). There are also those who single out word identification as a separate level (Fraitas, Alves & Costa 2007). The discussion of levels is important when talking about the progress of preschool and early school-age children, because it is believed that the path starts from the awareness about syllables, then about the beginnings and ends of syllables and finally about phonemes (Goswami & Bryant 1990). The development of phonemic awareness, on the other hand, starts from noticing rhyme, dividing words into syllables, identifying the first, then the last syllable in a word, identifying the first, then the last sound in a word, identifying sounds in the consonant-vowel-consonant structure of a syllable, and finally manipulating and playing with the phonemes themselves within a word (Cséfalvay & Lechta 2013). Early focus on graphemes, as well as noticing the connection between sound and letter, can influence the development of phonological representations (Treiman & Bourassa 2000). Children learn what they are taught, and if explicit instruction at the phonemic level is absent, achievement on such tasks may be lower than expected (Nancolis, Lowry & Dodd 2005). However, longitudinal studies have deepened our understanding of these relationships. Investigations measuring the relationship between phonological processing and letter knowledge did not reach the conclusion that phonological decoding ability would develop more rapidly if children were taught to read earlier (Wagner, Torgesen & Rashotte 1994). Nevertheless, a longitudinal study that began when the children in the sample were 3.4 years old showed that children with prior knowledge of rhyming were more successful in rhyme and alliteration identification tasks fifteen months later (Maclean, Bryant & Bradley 1987).

3. Phonological Awareness Assessment in L1 and L2

Phonological awareness is usually assessed in four ways: using normative tests that compare achievement with peers, criterion-referenced tests that measure the acquisition of a particular skill or determine therapy through

a specific task, curriculum tests that check the child's achievement on a task related to the curriculum of the institution they attend, and dynamic tests that assess the level of intervention, i.e. assistance in achieving a specific goal (Sodoro, Alinder & Rankin-Erickson 2002). Here are some of the typical tasks for assessing phonemic and phonological awareness, including: isolating the first and last sounds in words, dividing words into phonemes and syllables, combining phonemes and syllables in words, as well as rhyming tasks (Castles & Coltheart 2004; Subotić 2011). Most phonological awareness research is actually based on preschoolers as the preferred sample of respondents (Tibi & Kirby 2018; Pfost et al. 2019). Rhyming is also one of the easiest tasks for children when testing the level of phonological awareness, while the most informative but also the most demanding tasks are phonemic segmentation tasks (Vloedgraven & Verhoeven 2007). Other authors have reached similar conclusions investigating phonological awareness in preschool children (Geudens & Sandra 2003), and it is interesting that phonemic segmentation tasks are most successfully solved in those cases where the initial sounds are plosives or fricatives. Certain tasks, such as phoneme identification and omission, are more effective in predicting reading achievement, even in dyslexic children, while skills related to the syllable level are somewhat less reliable predictors of success (Mann & Foy 2003). Developing phonological awareness through instruction based on research findings in the field makes it easier to recognize potential difficulties that children may have in mastering reading skills (Torgesen 2002), and phonological awareness itself is directly related to achievement on early reading literacy tests (De Witt & Lessing 2016). It is important to note that even from a long-term perspective, research shows that children who have problems with literacy development in lower grades tend to have lower academic achievement later in life, and often have problems with social adjustment and behavioral disorders (Gillon et al. 2019).

Phonological awareness plays a crucial role in developing both spoken and written literacy skills, especially when it comes to second language acquisition. Research demonstrates that the two major factors influencing L2 phonological awareness are linguistic distance between L1 and L2, and L2 oral proficiency. Hence, some authors proposed a two-dimensional model of L2 phonological awareness including an independent metalinguistic component and a language-specific component grounded in L2 phonological representations (Saiegh-Haddad 2019). Depending

on the degree of cross-language similarity, transferring L1 phonological awareness skills to L2 may either facilitate or hinder actual progress and achievement. Therefore, delivering instruction in short and engaging activities aligned with the needs of young L2 learners may aid the desired attainment (Kkese 2020).

4. Methodology

Aims and research questions of the study. Bearing in mind the scarcity of research in L2 phonological awareness in the Serbian scientific context, the present study aims at investigating how phonological awareness skills differ between a pre-literacy and early literacy stages in a mother tongue and in a foreign language. The goal is likewise to determine which set of phonological awareness subskills shows the greatest level of development after formal education begins. We likewise seek to explore whether a well-developed phonological awareness in Serbian can support the emerging phonological awareness in English. Considering the proposed goals of the study, the following research questions were formulated:

- Are there developmental differences in phonological awareness between preschoolers and first graders?
- Do the participants from different age groups perform differently on phonological skills tasks in L1 Serbian and in L2 English?
- Which components of phonological awareness (e.g. rhyme, syllable segmentation, phoneme blending etc.) show the greatest difference in performance between the two groups of participants? Is this difference more pronounced for L1 or for L2?

Participants. A total of 20 participants, divided into two groups of 10, 10 preschoolers and 10 first graders, took part in the present preliminary research. The group of preschoolers (average age 82.2 months, SD=3.74, 6 female and 4 male) was attending two different preschool institutions in Jagodina ("Pionir", N=6 and "Sunce", N=4) and the children were finalizing their preschool education. The group of first graders consisted of 5 male and 5 female participants (average age 95.1 months SD=3.56) and attended three different primary schools in Jagodina ("Milan Mijalković" N=4, "Boško Đuričić" N=4 and "Rada Miljković" N=2). Regarding the participants' mother tongue, the preschoolers from the sample were all

in the pre-literacy stage with none in full command of L1 orthography, while the first graders were in the early literacy stage, having formally learnt to read and write the Cyrillic script. All the children were taking private 45-minute English lessons two times a week outside the preschool and school institutions, while only the first graders had English 45-minute lessons formally in schools two times a week. The formal age of learning (regarded as the beginning of organized private English lessons for all the participants) was the age of 5, i.e. around 60 months. Even though the participants had to meet the condition of learning English, the sample was relatively randomized and collected using the snowball sampling method. However, parents reported even earlier onset through cartoons, songs and other input available on mobile phones, which is why the sample was selected in the first place. The children involved in the research had previous experience with English, enabling the testing of phonological awareness in L2. In order to make sure that the participants' language experience actually matched their target language proficiency, we designed a small-scale vocabulary test involving tasks related to both receptive and productive vocabulary, resembling the style of PPVT. The test included three tasks: picture selection (10 items), acting out (6 items) and picture naming (12 items). Each correct answer was marked by 1 point, or 0.5 in the case of picture naming, if the pronunciation was not completely accurate. Considering the fact that no standardized form of testing could have been applied due to lack of literacy for preschoolers, we considered them pre-A1 or emergent users if their score was higher than 70% in each of the three categories, which means that they can understand simple instructions, recognize and name a few familiar words, often with hesitation. Only the ones with scores higher than 70% were tested for phonological awareness, hence the number of 20 participants, even though the initial testing included 27 children. Regardless of the limited target language proficiency, the results served as an indicator that the children were able to recognize the vocabulary chosen for the phonological awareness testing in L2. The results of the testing for the entire sample are presented in Table 1.

Task	Preschool	First grade
Picture selection	8.1/10 SD=0.94	8.0/10 SD=0.89
Acting out	5.2/6 SD=0.40	6.0/6 SD=0
Picture naming	9.3/12 SD=0.64	9.7/12 SD=0.78
Total	82.14%	85.71%

Table 1. Average Scores on a Vocabulary Test

Judging by the presented results, the productive vocabulary was slightly lower than the receptive one, which is completely understandable for the early stage of learning. The total score is relatively similar, which may point to the conclusion that preschoolers and first graders from the present sample exhibit similar levels of achievement in this particular L2 vocabulary test.

When it comes to the participants' socioeconomic and demographic background, all the children from the sample lived with both parents at the time of the testing, with parents working in the fields of commerce (37.5%), finance (25%), medicine (22.5%), engineering (12.5%) and architecture (7.5%). The parents' highest reached levels of education were high school diploma (32.5%), bachelor's degree (47.5%) and master's degree (20%).

Instruments and procedure. In order to test the participants' phonological awareness, a test battery was designed based on several different studies (Adams 1990; Torgesen & Bryant 1994; Milankov et al. 2021; Milošević, Vuković & Ristić 2022), bearing in mind the scarcity of research on phonological awareness including both Serbian and English. The test battery contained 6 tasks with 10 examples each (5 in Serbian and 5 in English), for a total of 60. The tasks were the same for both languages and even though understanding the vocabulary in English was not essential for completing the task, the chosen examples were simple words, familiar to beginners (e.g. dog, cat, house, fish, star, ball etc.).

The tasks included the following: *rhyme oddity* (the participants were presented with three words with one of them not rhyming, so they were supposed to determine which one, e.g. cat-hat-dog), *syllable segmentation* (clapping or counting for each syllable in a word, e.g. /bə.næ.nə/), *onset-*

rhyme blending (the participant hears the onset and the rest of the word and blends it into a word, e.g. /tr/-/eɪn/), *phoneme blending* (each phoneme in a word is pronounced separately and the child's task is to blend it into a full word, e.g. /k/-/æ/-/t/), *phoneme segmentation* (the participant hears a word and then separates phonemes in it, e.g. *star – /s/-/t/-/aː/*) and *phoneme deletion* (the participant pronounces the word without the first phoneme, e.g. plane–lane). The instructions were given in Serbian for every task, with an appropriate example provided by the examiner. The scoring was done by determining correct and incorrect answers, allocating one point for completely correct ones.

The testing was conducted during the last week in May and the entire June 2025, in the participants' homes, i.e. familiar environment, in order to maximally reduce stress. Testing duration ranged from 45 to 70 minutes per child with pauses between sections and tasks. The tasks in Serbian were presented first, followed by the ones in English, with a pause of half an hour in between. The examiner was familiar to the participants prior to the research and the parents were present in the room, though not directly visible to the child, to avoid distractions. The answers were not recorded, yet the response latency was measured using the stopwatch. During the pauses, the children were allowed to move around and play for a short time to be able to concentrate better on the next task. The parents were familiarized with the content and purpose of the research in detail. Hence, they all signed a written consent for participation.

The necessary descriptive statistics and data processing were performed using SPSS, version 20.0.

5. Results and Discussion

As explained previously, each participant completed phonological awareness tasks in Serbian and English through six subtests. The tasks and examples were identical for both groups. The results of the phonological awareness test in Serbian are presented in Table 2 with mean scores for accuracy, ranges and average response latency (in seconds). Response latency was measured as the total time between the instructor's question and the beginning of the participant's answer. Corrections were scored as an accurate response. Even though it was a challenging task to record every instance of response latency, it was presupposed that the data on

the time participants needed to answer the question was an important indicator of the task difficulty.

Subtest	Preschoolers	First graders
Rhyme Oddity	mean=3.6 SD=0.97 min.=2 max.=5 latency=3.28s	mean=4.8 SD=0.42 min.=4 max.=5 latency=2.75s
Syllable Segmentation	mean=3.2 SD=0.79 min.=2 max.=4 latency=3.55s	mean=4.6 SD=0.52 min.=4 max.=5 latency=3.06s
Onset-Rhyme Blending	mean=3.1 SD=1.31 min.=1 max.=5 latency=4.53s	mean=3.8 SD=1.4 min.=2 max.=5 latency=3.56s
Phoneme Blending	mean=4.4 SD=0.84 min.=3 max.=5 latency=4.94s	mean=4.7 SD=0.48 min.=4 max.=5 latency=3.8s
Phoneme Segmentation	mean=2.8 SD=1.14 min.=1 max.=5 latency=4.88	mean=4.1 SD=0.71 min.=3 max.=5 latency=3.31s
Phoneme Deletion	mean=3.4 SD=1.07 min.=2 max.=5 latency=5.48s	mean=4.5 SD=0.71 min.=3 max.=5 latency=3.66s

Table 2. Results of the Phonological Awareness Testing in Serbian

First of all, it seems convenient to comment on the internal consistency of the testing instrument. Namely, the testing items for Serbian showed good internal consistency (Cronbach's α=0.98) with corrected item total correlations ranging from 0.73 to 0.96, indicating that all items contributed meaningfully to the scale. No item removal substantially improved alpha, suggesting that the test functions as a reliable measure of phonological awareness.

Looking at the results from Table 2, it may be seen that first graders consistently outperformed preschoolers in the Serbian phonological awareness test. In the first task, rhyme oddity, the first graders reached almost maximum scores (M=4.8, SD=0.42), especially when compared to preschoolers (M=3.6, SD=0.97). A similar pattern could be observed in syllable segmentation, where first graders (M=4.6, SD=0.52) exhibited higher scores than preschoolers (M=3.2, SD=0.79). Moving on to slightly more demanding tasks, the developmental gap seems to have widened even further. In phoneme segmentation, preschoolers averaged 2.8 correct answers (SD=1.14), while first graders reached 4.1 (SD=0.71). Furthermore, preschoolers' performance was more variable in the phoneme deletion task (M=3.4, SD=1.07) and simultaneously markedly lower than that of first graders (M=4.5, SD=0.71). Somewhat surprisingly, in the phoneme blending task, preschoolers (M=4.4, SD=0.84) approached the average score of first graders (M=4.7, SD=0.48), yet the response latency was longer.

In general, latency measures revealed that preschoolers took longer to respond than first graders, particularly in the tasks pertaining to the level of a phoneme. What seems to be alarming, though, is the fact that children who were at the end of the first grade of formal education were not able to complete all tasks in different categories, which may underscore the need for more consistent practice of phonological awareness. The latter seems of utmost importance, considering the fact that it was proven to directly contribute to early literacy development.

The results of phonological awareness testing in English are presented in Table 3.

Subtest	**Preschoolers**	**First graders**
Rhyme Oddity	mean=2.9 SD=1.29 min.=2 max.=5 latency=2.91s	mean=3.7 SD=1.25 min.=2 max.=5 latency=2.31s
Syllable Segmentation	mean=3.1 SD=0.99 min.=2 max.=5 latency=2.74s	mean=4.1 SD=0.87 min.=3 max.=5 latency=2.28s

Onset-Rhyme Blending	mean=3.7 SD=0.95 min.=2 max.=5 latency=4.88	mean=3.3 SD=1.42 min.=1 max.=5 latency=3.25s
Phoneme Blending	mean=4.6 SD=0.97 min.=2 max.=5 latency=4.47s	mean=4.9 SD=0.32 min.=4 max.=5 latency=3.45
Phoneme Segmentation	mean=2.2 SD=1.33 min.=0 max.=5 latency=5.78	mean=3.0 SD=1.65 min.=1 max.=5 latency=4.36
Phoneme Deletion	mean=2.5 SD=1.65 min.=0 max.=5 latency=6.57	mean=3.2 SD=1.23 min.=0 max.=4 latency=4.62

Table 3. Results of the Phonological Awareness Testing in English

The testing for reliability demonstrated strong internal consistency (Cronbach's α=0.97) with corrected item total correlations ranging from 0.60 to 0.94. Such results provide evidence on the subtasks complementing each other and functioning cohesively as part of the phonological awareness testing tool.

Therefore, Table 3 shows that the performance on phonological awareness tasks was lower in English than in Serbian. This is, of course, understandable given the fact that Serbian is the participants' mother tongue and the linguistic experience with it is quite longer. Similarly to the test in Serbian, first graders scored higher on most tasks. For instance, in syllable segmentation, first graders had an average score of 4.1 (SD=0.88) as opposed to 3.1 (SD=0.99) for preschoolers. In the phoneme blending task, the group of participants in the first grade obtained an almost maximum result (M=4.9, SD=0.32). The performance of preschoolers was similar, though still lower (M=4.6, SD=0.97). In phoneme segmentation and phoneme deletion tasks, preschoolers' scores were relatively low and highly variable (M=2.2 and M=2.5, respectively), while first graders' accuracy was somewhat higher (M=3.0 and M=3.2).

The measurements of response latency revealed greater difficulty with English phonological awareness tasks, especially at the phonemic level. A notable exception was the onset-rhyme blending task, where preschoolers slightly outperformed first graders, which may point to the dynamicity of SLA and variety of factors involved, but also to possible chance effects due to the limited number of participants.

First graders consistently responded more quickly than preschoolers, which may emphasize greater automaticity and more developed processing efficiency that comes with age. Latencies proved to be the longest for phoneme-level tasks, confirming that these tasks were cognitively very demanding.

In order to explore the difference in performance between first graders and preschoolers in the tasks on phonological awareness in Serbian, we performed the Mann-Whitney U test and obtained the following results. Namely, the results demonstrated that there was a statistically significant difference in test scores between the group of children in preschool and in the first grade ($U=919.50$ $Z=-4.858$ $p=0.001$), meaning that first graders' scores were significantly higher than those of preschoolers. The difference most probably results from developmental factors and linguistic experience in L1. Comparing the two groups for the performance on the tests in English, the Mann-Whitney U test shows a statistically significant difference between the two groups ($U=1414.50$ $Z=-2.084$ $p=0.037$), though the p-value is not as low as it was the case with Serbian. Again, the group of first graders outperformed preschoolers, yet there are certain tendencies which demand further, more thorough investigation in order to delve more deeply into the intricacies of the interlanguage system. To investigate a within-subject effect, the Wilcoxon signed rank test was performed on both groups. The results showed statistically significant differences in scores between Serbian and English tests for both groups, i.e. $Z=-2.718$ $p=0.007$ for preschoolers and $Z=-4.959$ $p=0.001$ for first graders. These data support the finding that preschoolers had considerably lower scores on phonological awareness tests in English, with only sporadic tendencies towards opposing results.

6. Conclusion

The present study examined phonological awareness of L1 Serbian and L2 English children across parallel tasks. Though preliminary in design and limited in the number of participants, the contribution of the study may be traced along two directions – the theoretical, in analysing the levels of phonological awareness through empirical findings, and the practical, in exploring the reliability of the testing battery for investigating phonological awareness in L1 and L2.

The obtained results indicate consistent developmental progress from preschool to first grade, confirming that children perform more strongly in Serbian (mother tongue) than in English (foreign language). The findings align with previous research on a similar topic (Mann & Foy 2003; Carrol et al. 2003). First graders outperformed preschoolers on nearly all tasks, exhibiting both higher accuracy scores and faster response times. However, certain tendencies were noticed concerning the variability of the responses (e.g. onset-rhyme blending in English), which may point to the diversity of factors involved in learning an L2. Nevertheless, an investigation involving a larger sample could yield more reliable conclusions on this matter.

The most demanding tasks, phoneme segmentation and phoneme deletion, proved challenging for both groups of participants, particularly in English. This broadly supports evidence outlined in a fairly recent study (Kkese 2020). Response latency data align with accuracy patterns, indicating faster responses among first graders and slower, more effortful processing among preschoolers, especially in complex phonemic tasks. Yet it seems important to note that the response latency scores were almost evened out in the first two tasks in English (rhyme oddity and syllable segmentation). This may reveal signs of early bilingualism, likewise bearing in mind that the response latency was lower than in the participants' L1 for the same tasks. The general progression noticed from simpler to more difficult tasks follows the suggestions from previous research, as well (Adams 1990; Nancollis et al. 2005).

Taking the results into consideration, the study underlines important pedagogical implications. Since preschoolers struggled with phoneme segmentation and deletion, especially in English, early literacy instruction should emphasize exercises that develop phoneme-level skills. Comparing English and Serbian in terms of orthography, explicit grapheme-phoneme mapping activities and systematic phonics might compensate for English

opaque spelling. To help learners overcome linguistic features susceptible to transfer, cross-linguistic links should be made more straightforward. Ideally, teachers should monitor individual progress and provide targeted interventions for students for whom phonemic awareness tasks prove to be more challenging. Since latency scores pointed to longer processing time in certain cases, teachers might consider allowing more time for additional phonology-related practice.

Future research should focus on longitudinal aspects of phonological awareness development in order to gain more insight into how phoneme-level skills consolidate over time. Moreover, future studies should investigate whether and how explicit teaching strategies enhance L1 phonological awareness skills transfer to L2 English literacy, simultaneously taking broader individual differences into account, such as vocabulary knowledge or home literacy environment.

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