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ESTUDIOS

The Transition from First to Second Language Instruction: South African Year 4 Learners

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Abstract: The precursor literacy skills phonological and phonemic awareness play a central role in later literacy skills acquisition, especially during the transition from first language to second language mode of learning and teaching. arious research projects in South Africa found that English second language learners, even those who receive instruction in English from the Reception Year (Year R), do not have sufficient precursor and later literacy skills to support academic requirements. Learners who transfer from first-language instruction to second-language instruction in Year 4 may have even lower skills due to less exposure to the medium of instruction (English) on an academic level. This may further influence their literacy abilities. ThisThis study intended to determine and analyse the association of precursor literacy and later literacy skill competency measures of Year 4 learners who have recently transitioned from being taught in their first language (L1) to English as their language of learning and teaching (LoLT). A quantitative, cross-sectional, descriptive, and correlational design was used. Non-probability, convenient sampling was employed. Results indicated that participants had limited precursor literacy and later literacy skills in English, demonstrating that transferring to their second language as the language of learning and teaching in Year 4 may be challenging. These challenges impact literacy skills necessary for academic success. Additionally, strong positive correlations between precursor and literacy skills assessed were determined. Therefore, intervention is essential to equip learners with strong literacy skills in the language of learning and teaching.
Keywords: First language instruction; Literacy skills; Phonological awareness; Second language instruction; South Africa.

ES La transición de la enseñanza de la primera lengua a la segunda: el caso de los alumnos sudafricanos de cuarto año

Resumen: Las habilidades precursoras de lectoescritura y la conciencia fonológica desempeñan un papel fundamental en la adquisición posterior de habilidades de lectoescritura, especialmente durante la transición de la primera lengua a la segunda. Diversos proyectos de investigación en Sudáfrica han revelado que los estudiantes de inglés como segunda lengua, incluso aquellos que reciben instrucción en inglés desde el primer año (Año R), carecen de las habilidades de lectoescritura precursoras y posteriores necesarias para cumplir con los requisitos académicos. Los estudiantes que pasan de la instrucción en la primera lengua a la instrucción en la segunda lengua en el cuarto año pueden presentar habilidades aún menores debido a una más escasa exposición al inglés a nivel académico. Esto puede influir decisivamente en sus habilidades lectoescritoras. Este estudio tuvo como objetivo determinar y analizar la asociación entre las medidas

de competencia en lectoescritura precursora y lectoescritura posterior de los estudiantes de cuarto año que recientemente han pasado de recibir instrucción en su primera lengua (L1) al inglés como lengua de aprendizaje y enseñanza (LDA). Se utilizó un diseño cuantitativo, transversal, descriptivo y correlacional. Se empleó un muestreo no probabilístico por conveniencia. Los resultados indicaron que los participantes tenían un nivel de alfabetización precursora y posterior limitada en inglés, lo que demuestra que la transición a su segunda lengua como lengua de aprendizaje y enseñanza en cuarto año puede ser difícil. Estas dificultades afectan las habilidades de lectoescritura necesarias para el éxito académico. Además, se determinaron correlaciones positivas y significativas entre las habilidades precursoras y de lectoescritura evaluadas. Por lo tanto, la intervención es esencial para dotar a los estudiantes de sólidas habilidades de lectoescritura en la lengua de aprendizaje y enseñanza.
Palabras clave: Alfabetización; Conciencia fonológica; Enseñanza de una primera lengua; Enseñanza de una segunda lengua; Sudáfrica.

Summary: Introduction. The South African context. The Current Study. Method. Materials and Apparatus. Data Analysis. Results. Precursor Literacy and Later Literacy Skills in English. Correlations Between the Precursor and Later Literacy Skills. Discussion. English Later Literacy Skills. Correlations Between the Precursor and Later Literacy Skills. Recommendations. Limitations. Conclusions. Acknowledgement. Disclosure statement. Funding. References.

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Introduction

For successful literacy acquisition to develop, two fundamental precursor literacy skills, phonological awareness (PA) and phonemic awareness (PhA), need to be acquired (Anthony et al., 2007; Badian, 1998; Callaghan & Madelaine, 2012). PA, the umbrella term including PhA, is an oral language skill that focuses on the awareness of the sound structure in spoken words (Torgesen et al., 1999; Yopp & Yopp, 2000). PA, therefore, refers to the understanding of rhyme, onset and rime and the segmentation of words into syllables as well as to the ability to recognise, analyse, and manipulate the sounds of a language (Adams, 1990; Clauss, 2023; Giazitzidou et al., 2023; Mohammed, 2014). These skills lay the foundation for reading and spelling development (Anthony et al., 2007; Byrne & Fielding-Barnsley, 1993; Kilpatrick, 2016; Lundberg et al., 1988; Stanovich et al., 1984; Yopp, 1988).

The development of PA skills is explained as progressing from relatively large sound units such as words, syllables, and onset and rimes to smaller sound units, namely phonemes (Adams, 1990; Anthony & Francis, 2005; Goswami & Bryant, 1990; Kilpatrick, 2016; Mohammed, 2014). The progression of phonological skills development in children usually aligns with their chronological age (Mohammed, 2014; Zoubrinetzky et al., 2016). This suggests that the more sophisticated PhA skills develop when the child is in the Reception Year (Year R) or Year 1 when formal reading and writing skills are introduced (Le Roux et al., 2017; Schuele & Boudreau, 2008; Yeong & Liow, 2012).

PhA skills include listening to words, identifying sounds, and blending them into a cohesive and meaningful unit (Clauss, 2023). These advanced skills include segmenting words into constituent phonemes, which indicates an individual's understanding that each phoneme in isolation is unique. Additionally, the deletion of a sound within a word and the replacement with another phoneme are two important skills that form part of PhA and have an essential impact on the development of literacy skills (Hodgins & Harrison, 2021; Siregar & Lubis, 2023). Children with these skills can discern the differences in sounds and are aware that changing a sound alters pronunciation and word meaning (Clauss, 2023). Studies have indicated a strong correlation between phoneme awareness and phoneme identification (Zoubrinetzky et al., 2016). PhA, therefore, allows children to decode words into phonemes, facilitating reading (Siregar & Lubis, 2023). PhA measured during preschool was identified as the strongest predictor of decoding abilities, reading comprehension, and spelling skills (Callaghan & Madelaine, 2012) as it facilitates phoneme-grapheme correspondence (Goldstein et al., 2017).

English, with its opaque orthography, often poses challenges to second language (L2) learners who are used to a language with a transparent orthography with direct phoneme-grapheme coupling. Phoneme-grapheme correspondence is essential to the development of literacy skills such as phonics since children need to be able to match phonemes to the correct grapheme to read and spell successfully (Kilpatrick, 2016). Phonics relies on PhA skills and enables learners to decode and read words accurately (Kilpatrick, 2016). The development of sufficient PhA skills, therefore, forms the foundation for literacy acquisition (Garcia, 2017).

Since PA is an oral language skill, developing these skills forms part of first language (L1) acquisition. PA development starts with sensitivity to sounds in speech and gradually becomes more refined as children learn to distinguish smaller units such as individual phonemes (Mohammed, 2014; Zoubrinetzky et al., 2016). Developing sufficient PA skills is influenced by exposure to language-rich environments where children engage in verbal communication, rhyming, shared reading, word segmentation, and sound manipulation (Siregar & Lubis, 2023). Research indicates that children who develop robust PA in their L1 typically achieve better reading outcomes, as they can more easily decode written text (Snow & Matthews, 2016). Working memory, and more specifically, the phonological loop, forms part of L1 development and can aid children in

decoding and encoding during literacy activities and is also related to the development of PA skills (Cockcroft & Alloway, 2012; Gathercole, 1998). Lervåg and Aukrust (2010) state that decoding plays a greater role in reading comprehension for longer in especially opaque orthographies, stressing the importance of strong PA skills when learning to read in a language like English.

Research suggests that children with well-developed PA in their L1 tend to transfer these skills to the L2, eventually leading to more effective reading acquisition in the L2 (Goodrich et al., 2014). In the context of L2 acquisition, PA skills develop through a complex interaction of factors, including the child's age, proficiency in their L1, and the degree of similarity between the phonological systems of the L1 and L2 (Anderson, 2004; Yeong & Liow, 2012). If the phonological systems of the L1 and L2 differ significantly, children may face challenges in perceiving and producing certain sounds, which can slow the development of PA in the L2 (Anderson, 2004; Fahey et al., 2019; Yeong & Liow, 2012). Research indicates that the less complicated the phonological structure of the L1, the less sensitive to phonemic awareness in the L2 the child seems to be (Anderson, 2004; Eslick et al., 2020; Le Roux et al., 2017; McBride-Chang et al., 2008). Additionally, the quality and quantity of L2 exposure – such as immersion in a language-rich environment and explicit instruction – are crucial (Naeem et al., 2018).

The South African context

In South Africa, the multicultural and multilingual setting raises several educational challenges, especially concerning L2 acquisition and learning through the medium of the L2 (Eslick et al., 2020; Wildsmith-Cromarty & Balfour, 2019). Despite South Africa having 12 official languages, English remains the language of learning and teaching (LoLT) in many schools. The reason is that English is perceived as the language of progress and prosperity (Taylor & von Fintel, 2016). In the foundation phase (Reception Year – Year 3), L1 instruction is encouraged with English as an additional language. However, transitioning to English as the LoLT from Year 4 onwards is inevitable (Department of Basic Education, 2013; Wildsmith-Cromarty & Balfour, 2019) although many learners have an African language[1] as an L1 and only have basic English communication skills. These learners, therefore, have insufficient language skills to use in an academic context (Howie et al., 2017).

The transition to English as LoLT comes with numerous challenges for English L2 learners (Eslick et al., 2020) that significantly influence learners' achievement at school (Prinsloo et al., 2018; Steyn, 2017; Wildsmith-Cromarty & Balfour, 2019). Strong correlations exist between children's oral language abilities – including PA skills – and literacy skills (Boyer, 2017; Rohde, 2015). Developing word-level reading abilities such as decoding and word recognition (Tighe & Schatschneider, 2021), is a necessary step in learning to read in both the L1 and L2 (Chang & Sprague, 2022). Effective development of word-level reading abilities is essential for successful reading acquisition and reading comprehension in the LoLT (Ruan et al., 2018).

Studies frequently focus on the issue of English as LoLT in South African schools as many researchers agree that L2 instruction is often not successful due to the South African learners' low level of English oral language skills, including the PA skills crucial for literacy acquisition (Le Roux et al., 2017; Manten et al., 2020; Eslick et al., 2020). One of the reasons for the low levels of PA skills of English L2 learners is that English, which will be the LoLT from Year 4, is introduced as an additional language with only a few hours allocated to its teaching in the national school syllabus. A maximum of three hours per week in Years 1 and 2 and four hours per week in Year 3 are allocated to teaching English (Department of Basic Education, 2022). The insufficient time spent teaching learners English to equip them to transition to English as LoLT could be proposed as a reason for the low skill levels (Le Roux et al., 2017).

Although L2 learning and teaching is frequently described as not the best method of instruction during the early years, L1 teaching and learning is not necessarily more successful in South Africa. The Progress in International Reading Literacy Study (PIRLS) attempts to assess and evaluate learners' reading ability in their fourth year of schooling across nations and institutions of learning (Mullis et al., 2023). In the most recent PIRLS, Year 4 learners in South Africa were assessed across 11 of the 12 official languages (excluding sign language) (Department of Basic Education, 2023). Learners are assessed in the LoLT in which they Received: instruction until the end of Year 3; most of the participants were thus assessed in their L1, which is an African language. South Africa scored 288 points which is significantly below the international average of 500 points (Department of Basic Education, 2023). The low scores of especially the African language assessments suggest that many South African learners do not have sufficient precursor literacy skills such as PA in the L1 that can be transferred to the L2 to support the reading acquisition process.

The degree of difference between the phonological systems of the African language and English also plays a role in the struggle of English L2 learners to read successfully (Le Roux et al., 2017). Research found that significant differences between the phonological systems of the L1 and L2 may result in children not being sensitive to certain sounds. Children not being able to perceive or produce the sounds of the L2 can slow the development of PA in the L2 (Anderson, 2004; Yeong & Liow, 2012; Fahey et al., 2019). When the L1 of the child has a less complicated phonological structure, the child seems less sensitive to phonemic awareness in the L2 (Anderson, 2004; Le Roux et al., 2017; McBride-Chang et al., 2008). This is the case with the African languages and English. Setswana, the L1 of the participants in this study, belongs to the Sintu language family and the Sotho language group and was placed in the South Eastern Sintu language zone, falling in Zone S (Guthrie, 1948).

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1 In South Africa, Bantu languages are referred to as African languages.

Setswana, like the other Southern African languages, has a reduced vowel system (Snyman, 1989; Cole, 1955) containing seven monophthongs only. South African English contains 19 vowels, including monophthongs and diphthongs (Bekker, 2009). Consonant clusters in Setswana also differ markedly from those in English. Setswana clusters are usually an affricate sound consisting of a plosive consonant followed by a fricative, for example, /ts/ in the word 'tsamaya' (walk). English, on the other hand, has consonant clusters consisting of a variety of sound combinations, such as a fricative followed by a plosive and an approximant, for example, /spɹ/ in 'spring' or a plosive followed by an approximant, for example, /bɹ/ in 'bring'.

In addition to the differences in the phoneme inventories between the two languages, the syllable structure also differs. Setswana has an open syllabic structure, meaning that all syllables end in vowels, while English has open and closed syllables. These differences result in challenges for Setswana L1-speaking learners to develop sufficient PA skills in English to support literacy acquisition (Le Roux et al., 2017).

Quality and quantity of L2 exposure in a language-rich environment coupled with explicit instruction are described as critical for the development of PA and literacy skills (Kalb & van Ours, 2014; Naeem et al., 2018). Various researchers investigated this contributing aspect of the literacy crisis in South Africa and found a variety of possible reasons. Poverty, limited educational levels of the parents, limited access to resources, and teacher factors are all contributing to an environment that is not conducive to the development of PA skills and literacy in the L2 especially (Howie et al., 2017; Hugo, 2020; Nel & Müller, 2010; Posel & Casale, 2011; Saiegh-Haddad, 2019; Schaffler, 2015). Although South Africa is classified as an upper-middle income country (World Bank Group, 2024), many children are from low-socioeconomic households with limited resources and low parental educational levels. In many instances, the home environment does not offer much support for young learners to acquire sufficient language skills such as PA in the L2.

In addition to limited resources in the home environment, educators who are not English L1 speakers may have difficulty accurately teaching PA and the English sound structure (Nel & Müller, 2010; Saiegh-Haddad 2019; Schaffler, Nel, & Booysen, 2019). South African Year R to Year 3 teachers also experience challenges due to limited exposure to training that will assist them in teaching PA in class and in the multilingual and low socioeconomic environment (Kotze et al., 2017; Shibambu, 2017). Research has shown that targeted interventions and reading support programs tailored to the specific needs of South African learners can significantly mitigate the impact of resource limitations and enhance their overall reading proficiency (Fleisch et al., 2017; Le Roux et al., 2017).

The Current Study

The current study forms the initial phase of a project undertaken in collaboration with the World Literacy Foundation (WLF) and Sun Books focused on enhancing the literacy skills of children in rural schools in South Africa. The next stage of this collaborative project will entail introducing electronic educational resources focusing on improving the literacy skills of the targeted group of participants. This entails tablets, sponsored by Sun Books and the WLF, containing material to enhance precursor and later literacy skills. Teachers will also be trained on how to use these materials in class. Many studies in South Africa focus on English L2 learners in Years 1-3. We, however, focused on Year 4 English L2 learners and aimed to determine and describe their present English precursor and later literacy skills at this critical phase of their scholastic process. Furthermore, the presence of significant possible positive correlations between precursor and later literacy skills was investigated to confirm the relationship between these skills displayed by the participants. The participants attend a rural school in a low socio-economic area in the Gauteng province, South Africa. Rural schools in South Africa usually cater to learners from lower socio-economic households compared to their urban peers (Hlalele, 2014). A low socio-economic environment in South Africa is generally associated with abject poverty, less access to basic services such as water and sanitation, under-resourcing of schools, inadequate infrastructure in schools, lack of qualified teachers, extremely high teacher-learner ratio leading to reduced drive and morale on the side of the teachers, and a high rate of illiteracy in the general community (Hlalele, 2014). These factors negatively impact the learners' literacy acquisition and general academic achievement (Spaull, 2015).

The participants learned through the medium of their L1, Setswana – an African language – up to the end of Year 3. They have recently transitioned from instruction in Setswana to English, their L2. The first objective was to determine the average English precursor literacy skills (PA skills such as auditory discrimination, phonological segmentation and blending, forward and backward number and word memory, and rhyming) scores. Secondly, English later literacy skills, including spelling, reading rate, reading accuracy, and reading comprehension were assessed. The average scores were then compared to the age-appropriate norms of the various assessment tools[2]. The null hypothesis of this study was that the participants' English precursor and later literacy skills would be age-appropriate as determined by the various standardized assessment tools. The alternative hypothesis was that the precursor and later literacy skills of the English second language participants would not be age-appropriate. Finally, the presence of significant possible positive correlations between precursor literacy skills and later literacy skills was investigated. The null hypothesis posed was that no significant possible positive correlations would be found between precursor and later literacy skills investigated. The alternative hypothesis posed that significant possible positive correlations between precursor and later literacy skills exist.

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[2] Assessment tools standardized for English L1 learners were used. No such tools are available for English second language learners.

Method

Study Design

A quantitative, cross-sectional, descriptive, and correlational study design was used. The data was analyzed quantitatively (Aspers & Corte, 2019).

Participants

The participants were from a low socio-economic community in a rural area and attended the local primary school. They adhered to the following inclusion criteria: a) all had to speak Setswana as their L1, b) had to be taught in Setswana until the end of Year 3, and c) had to be taught in English from Year 4 at the specific participating school. Fifty-one Year 4 learners (9-10 years old) – 26 females and 25 males – were selected to participate in this study. The school employs the South African Curriculum Assessment Policy Statements (CAPS) as the syllabus. The entire convenience sample was screened for possible hearing loss and or language disorders using the HearZa Application (University of Pretoria, 2016) and the Test of Auditory Comprehension of Language (3rd edition) (TACL-3) (Carrow-Woolfolk, 1999). However, no such participants were identified.

Procedures

Consent to conduct the study had been obtained from the Ethics Committee of the Faculty of Humanities (HUM039/0720), University of Pretoria, South Africa before the onset of data collection. In addition, consent was obtained from all the stakeholders. Assent was also obtained from the participants themselves. The participants' information is kept strictly confidential – the results of each participant were assigned an alphanumeric code when stored.

Non-probability, convenient sampling was used for this study. The data were collected early in the school year during a single week at the school by final-year Speech-Language Pathologist (SLP) students, experienced SLPs, and post-graduate students who are also qualified SLPs. All SLP students and SLP practitioners have received training on a tertiary level and are registered at the Health Professions Council of South Africa (HPCSA). Although the final-year BA Speech-Language Pathology students are already qualified to administer the data collection tools, the experienced SLPs revised the specifics of the assessment tools and procedures before data collection commenced.

The participants were assessed in English using standardized, globally accepted tools. The assessment took place in a quiet venue at the school and took approximately one hour per participant, including short periods of rest. The results were originally stored in a paper-based format and converted to a secure digital format using alphanumeric coding.

Reliability and validity were ensured by limiting both visual and auditory distractions whilst administering the tests (Horne, 2020). The tests were conducted in a quiet room with minimal external noise and adequate lighting. Using standardized and formally published tools (Leedy & Ormrod, 2015) also assisted in ensuring reliability and validity. Maintaining basal and ceiling levels helps to ensure that the study appropriately assesses the skills of the participants and minimises the possibility of ceiling or floor implications, which can assist in improving the reliability and validity of the study's outcomes (Stone-MacDonald et al., 2018). Using trained, qualified administrators of the tools during data collection also ensured reliability and validity.

Materials and Apparatus

Various assessment materials were used for data collection. These assessment tools have age-appropriate norms and are standardized, published, and validated tools used in assessment in South Africa and globally. Globalization led to the standardization of these tools promoting uniform assessment criteria across countries and populations.

The hearing screening was done by SLPs using the HearZa Application (University of Pretoria, 2016). Language screening was done using the Test of Auditory Comprehension of Language (3rd edition) (TACL-3) (Carrow-Woolfolk, 1999).

The assessment materials used were the following:

Assessment 1: The Test of Auditory Processing Skills Third Edition (TAPS-3) (Martin & Brownell, 2005). This test evaluates how well children and adolescents understand auditory stimuli, including language. The TAPS-3 is standardized for learners aged 4:0 to 18:0 years and has good internal consistency with test-retest reliability of .96 (Klein et al., 2019). The Phonological Segmentation subtest assesses a learner's ability to break down words into individual sounds, while the Phonological Blending subtest evaluates the ability to blend sounds together to form words. These subtests are particularly relevant in evaluating phonemic awareness, an important precursor to reading. The Number Memory Forward and Number Memory Reversed subtests evaluate auditory memory abilities. In the Number Memory Forward subtest, the learners were required to repeat a sequence of numbers in the order in which they were presented, while in the Number Memory Reversed subtest, they were required to repeat the sequence in reverse order.

Assessment 2: The Phonological Awareness Literacy Screening– Kindergarten (PALS-K) (Invernizzi et al., 1997). The test offers a thorough evaluation of a learner's comprehension of critical literacy fundamentals that are indicative of future reading success.

The reason for using this test designed for kindergarten-aged children, was previous studies with L2 participants in South Africa using age-appropriate phonological awareness assessments did not render minimum

outcomes. The test offers a thorough evaluation of a learner's comprehension of critical literacy indicative of future reading success. The PALS-K is considered reliable and valid, with test-retest and inter-rater reliability coefficients ranging from .78 to .95 and .96 to .99, respectively, and with content–, criterion– and construct-validity being established (Invernizzi et al., 2015).

Assessment 3: The Schonell standardized spelling test (Schonell, 1932). This standardized test was used to measure the learners' spelling ability by determining a norm-based age equivalent of their spelling skills. The words are organized according to the sequence followed by most spelling programs wherein similarly spelt and sounding words are placed together. The Schonell spelling test can be used with participants aged 5:0 to 15:0 and takes approximately 15 minutes to administer. This test is widely used by psychologists, special educators and speech-language pathologists to determine spelling age and spelling errors of patients, clients, and research participants and is described as well-validated and high in reliability (Chmilar, 2016; Devonshire & Fluck, 2010). Additionally, Jethwani and Subhashini (2019) reported the reliability of the Schonell spelling test as .69 and the validity as .83. Schie and Vedder (2023) reported a high reliability estimated by Cronbach's alpha (.97) in their application of the Schonell spelling test.

Assessment 4: The One Minute Reading Test (OMRT) (Turner, 1987). This test was used to assess the reading speed of deictic sight words. The words range from one and two-letter words up to words with two syllables. The One Minute Reading Test is standardized for learners aged 6:0 to 16:0 and is widely used in South Africa. It is a reliable tool for reading skills research with young English second language participants as the word list contains simple words and high-frequency sight words. Young English second language learners in South Africa very often have extremely low reading abilities, and using this test allows for data collection with participants in this population. Kortekaas-Rijlaarsdam et al. (2017) reported the reliability of the OMRT as high (.90) and mentioned the OMRT performance correlates with reading comprehension (r = .55–.70) and with vocabulary (r = .55–.76), indicating good validity.

Assessment 5: The Gray Oral Reading Test Fourth Edition (GORT-4) (Wiederholt & Bryant, 2001) (approximate duration of test: 20-30 minutes). This test assesses oral reading rate, accuracy, fluency, and comprehension. The GORT-4 objectively measures reading growth and assists in diagnosing oral reading difficulties. The GORT-4 has fourteen developmental passages which are sequenced accordingly. Each passage is followed by five comprehension questions. The GORT-4 is standardized for learners aged 6:0 to 16:0 years and is reliable as the test-retest reliability coefficients over the four areas of oral reading rate, accuracy, fluency, and comprehension have been shown to all be above .9 (Bryant et al., 2009). The GORT-4 is frequently used by speech-language pathologists and other professionals involved in the education outcomes of children. These professionals are required to use a tool that provides valid measurements and additionally, does not discriminate against culturally and linguistically diverse populations (Champion et al., 2010).

Data Analysis

The data were entered into Excel, with each participant assigned an alphanumeric code. Results were determined according to the measurements/scales of each standardized assessment mentioned in the previous section. The participants' raw scores for each tool were recorded and used to determine their average performance per subtest. To see how the participants performed, their average scores were calculated and compared to the normative data of each assessment tool. All statistical tests were performed using a 5% level of significance. The normality of the variables was tested using the Shapiro-Wilk test, and since the variables were not normally distributed ($p < 0.05$), the median (*Mdn*) and interquartile range (*IQR*) are reported alongside the mean (*M*) and standard deviation (*SD*) and non-parametric tests were used for the inferential statistics, specifically the Spearman correlation (r_s). The results were analyzed statistically by determining measures of location (*M* and *Mdn*), measures of spread (*SD* and *IQR*), minimum – maximum values and skewness coefficients of each test and sub-test. Note that the skewness coefficients also speak towards the normality of the variables, with values between –1 and +1 being excellent, between –2 and +2 acceptable and values beyond –2 and +2 suggesting substantial non-normality (Hair et al., 2022). The three inferential statistical procedures used in this research study are: (i) the one-sample Wilcoxon signed-rank (WSR) test (to compare medians against the norms of the various instruments), (ii) the Shapiro-Wilk test (to test normality) and (iii) correlations (to test relationships). While both the Kolmogorov-Smirnov and Shapiro-Wilk tests are common for normality testing, the latter is more powerful for samples under 50 (de Souza et al., 2023). Given our sample size ($n = 51$) is just above this threshold, we opted for the Shapiro-Wilk test, which has sufficient statistical power when working with small sample sizes around 50 or less. Regarding the statistical power for correlations, effect size has to be considered first. There are many recommendations in the literature on how to interpret the strength of correlations, with most researchers advocating for using effect sizes for this purpose and, accordingly, $r_s \leq .1$ (small), $.1 < r_s < .3$ (small to moderate), $r_s = .3$ (moderate), $.3 < r_s < .5$ (moderate to large) and $r_s \geq .5$ (large) (Téllez et al., 2015). Later in the manuscript, it is shown that the statistically significant correlations for the current study ranged from .440 to .619. For correlations, the value of the correlation itself equals the effect size. It is well known that the larger the effect size, the higher the statistical power and, accordingly, we used the lowest correlation/smallest effect size of .440 and entered it as an input parameter into the statistical software package G*Power (Faul et al., 2007) to obtain the statistical power for correlations (which equalled .911 which is above the desired minimum statistical power of .8). Having a power of .911 and effect sizes ranging from "moderate to large" to "large" for the correlations speaks to the precision of the results. For the WSR test, effect size

is computed as the WSR test statistic (*Z*) divided by the squared root of the sample size, and the smallest effect size equalled .475 giving a power of .984 using G*Power. For effect size differences, .20, .50 and .80 are viewed as small, moderate and large effect sizes (Cohen, 1988), so the WSR test having a power of .984 and effect sizes ranging from "moderate" to "large" speak to the precision of the WSR test results.

Results

This study aimed to determine and describe the precursor literacy skills and later literacy skills of Year 4 learners who recently transitioned from instruction in their L1 to English as their primary language of learning and teaching. Firstly, normality was tested using the Shapiro-Wilk test statistic and as mentioned earlier, most variables were not normally distributed ($p < .05$); see Table 1.

Table 1. Normality test results

Variable	Statistic	*df*	*p*
V1: 1 –Minute Reading	0.898	51	<.001
V2: Schonell Spelling	0.746	51	<.001
V3: PALS Rhyming	0.945	51	.019
V4: TAPS Discrimination	0.928	51	.004
V5: TAPS Phon Segment	0.946	51	.022
V6: TAPS Phon Blend	0.827	51	<.001
V7: TAPS Nr Mem forward	0.979	51	.486
V8: TAPS Nr Mem reverse	0.954	51	.045
V9: TAPS Word Memory	0.963	51	.113
V10: GORT Rate Stories 1	0.774	51	<.001
V11: GORT Rate Stories 2	0.829	51	<.001
V12: GORT Rate Stories 3	0.767	51	<.001
V13: GORT Rate Stories 4	0.562	51	<.001
V14: GORT Accuracy Stories 1	0.737	51	<.001
V15: GORT Accuracy Stories 2	0.779	51	<.001
V16: GORT Accuracy Stories 3	0.684	51	<.001
V17: GORT Accuracy Stories 4	0.526	51	<.001
V18: GORT Comprehension 1	0.846	51	<.001
V19: GORT Comprehension 2	0.777	51	<.001
V20: GORT Comprehension 3	0.766	51	<.001
V21: GORT Comprehension 4	0.684	51	<.001

Additionally, the presence of significant possible positive correlations between precursor and later literacy skills was investigated. Findings are presented following the objectives. The objectives were first to determine the average precursor literacy skills (phonological awareness skills such as auditory discrimination, phonological segmentation and blending, forward and backward number and word memory, and rhyming) scores. Secondly, later literacy skills including spelling, reading rate, accuracy, and comprehension were assessed. The scores were then compared to the age-appropriate norms. Lastly, it was determined whether significant possible positive correlations between precursor and later literacy skills exist.

Precursor Literacy and Later Literacy Skills in English

In Table 2 the various phonological awareness and literacy skills results are depicted. Note that some of the skewness coefficients are greater than 2, supporting the results of the Shapiro-Wilk test that non-parametric methods should be used for analysis. To test whether the respondents' medians differed statistically significantly from the age-appropriate norms, the one-sample WSR test was used, with the results reflected in the last column of Table 2. For the last four variables in Table 2, where the age-appropriate norm (APN) is a range (52-54), since all the median current age performance (CAP) values were less than the lower limit of 52, for the WSR test, the value of 52 was used to test whether the attained CAP medians were significantly less than the lower limit of 52. This was done, since the WSR test tests whether the attained median of a variable equals some pre-defined value (and not a predefined range of values).

The skewness coefficients of GORT-4 Rate Stories 4 (S4) and GORT-4 Accuracy Stories 4 (S4) are above +2, confirming the non-normality of the variables found in Table 2. The significantly low scores of the participants (CAP) compared to the age-appropriate norms (APN) of the assessment tools, can be viewed in Table 2.

Table 2. Results of precursor literacy and later literacy skills assessment

Tool / Subtest	*Min*	*Max*	*SD*	*IQR*	APN	*Mdn*	*M*	Skewness	CAP	*Z*; *p*
Precursor Literacy Skills										
TAPS Discrimination	0	31	9.23	14	>31	21	18.02	-0.53	<3.6	-6.095; < .001*
TAPS Phonological segmentation	0	33	9.90	17	31	16	15.33	-0.05	5.5	-6.117; < .001*
TAPS Phonological Blending	0	43	8.31	9	23	7	8.43	1.94	5.3	-5.810; < .001*
TAPS Number Memory Forward	0	28	5.32	5	17	14	14.33	-0.04	6.6	-3.389; < .001*
TAPS Number Memory Reverse	0	16	3.54	3	10	7	7.31	-0.02	6.7	-4.303; < .001*
TAPS Word Memory	0	24	5.17	7	18	12	11.22	-0.34	4.6	-5.881; <. 001*
PALS-K Rhyming	0	10	2.58	4	≥28	4	3.88	0.34	5.0	– 6.232; < .001*
Later Literacy Skills										
Schonell Spelling	0	29	7.17	8	9.6	2	5.75	1.79	<6.0	– 3.746; < .001*
1-minute Reading	0	79	20.61	29	75	16	23.08	0.91	6.6	– 6.207; < .001*
GORT-4 Rate Stories 1 (S1)	0	5	1.66	2	26	0	1.37	0.76	<6.0	– 6.340; < .001*
GORT– 4 Rate Stories 2 (S2)	0	5	1.70	3	26	1	1.61	0.57	<6.0	– 6.277; < .001*
GORT-4 Rate Stories 3 (S3)	0	4	1.42	3	26	0	1.16	0.80	<6.0	– 6.325; < .001*
GORT-4 Rate Stories 4 (S4)	0	4	0.92	1	26	0	0.45	2.29	<6.0	– 6.555; < .001*
GORT-4 Accuracy Stories 1 (S1)	0	5	2.09	4	26	0	1.73	0.63	<6.0	– 6.337; < .001*
GORT-4 Accuracy Stories 2 (S2)	0	5	1.75	3	26	1	1.43	1.01	<6.0	– 6.293; < .001*
GORT-4 Accuracy Stories 3 (S3)	0	5	1.65	3	26	0	1.10	1.19	<6.0	– 6.395; < .001*
GORT-4 Accuracy Stories 4 (S4)	0	5	1.21	0	26	0	0.55	2.24	<6.0	– 6.614; < .001*
GORT-4 Comprehension Stories 1 (S1)	0	5	1.47	3	52-54	1	1.45	0.53	<6.0	– 6.279; < .001*
GORT-4 Comprehension Stories 2 (S2)	0	6	1.41	2	52-54	1	1.12	1.57	<6.0	– 6.301; < .001*
GORT-4 Comprehension Stories 3 (S3)	0	5	1.64	3	52-54	0	1.29	0.92	<6.0	-6.323; < .001*
GORT-4 Comprehension Stories 4 (S4)	0	4	1.03	1	52-54	0	0.67	1.40	<6.0	-6.435; < .001*

Note: *Min* = minimum, *Max* = maximum, *SD* = standard deviation, *IQR* = interquartile range, APN = age-appropriate norms, *M* = mean, *Mdn* = median, CAP = current age performance, *Z* = Wilcoxon signed-rank test statistic, *p* = *p*-value, * $p < 0.05$ statistically significant

In Figure 1 the results of the precursor literacy skills assessments (phonological awareness skills) of the participants compared to the age-equivalent norms of the assessment tools are depicted. The results of the later literacy skills assessments of the participants compared to the age-equivalent norms of the assessment tools can be seen in Figure 2.

Correlations Between the Precursor and Later Literacy Skills

Relevant, statistically significant correlations are displayed in Table 3. It is noteworthy that four of the five correlations have a large effect size ($r_s \geq .5$) indicating the correlations are strongly correlated, while the first correlation has a moderate to large effect size ($.3 < r_s < .5$), indicating a moderately strong correlation.

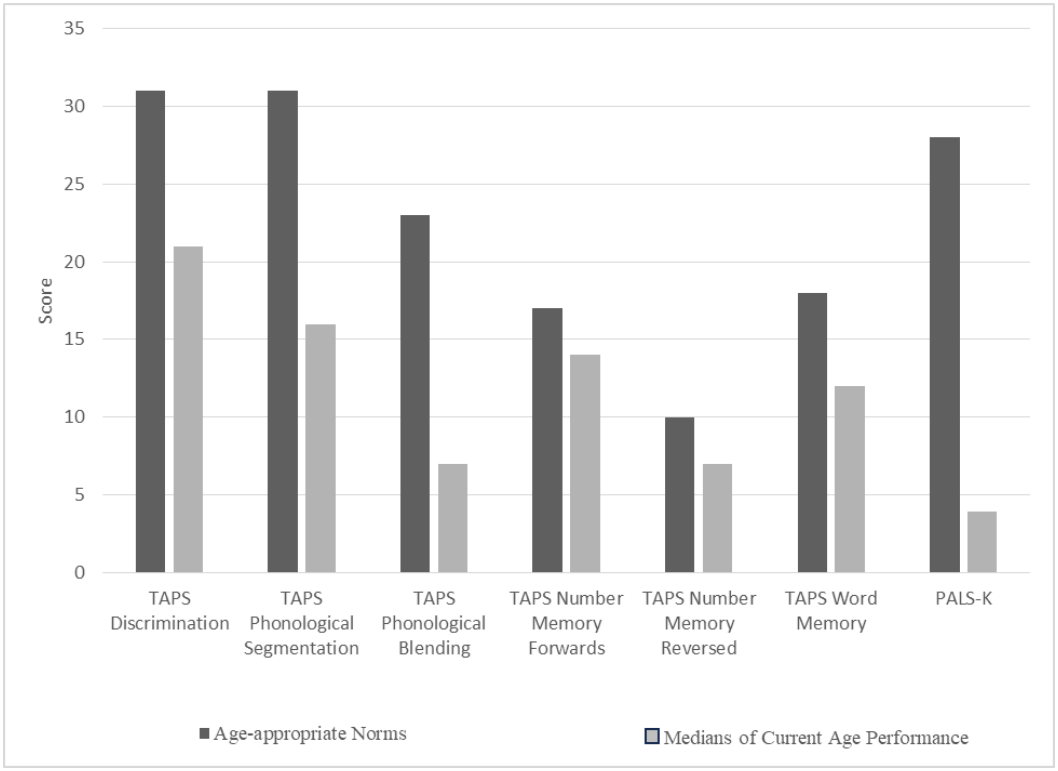

Figure 1. Comparable differences between age-appropriate norms and current age performance scores of precursor literacy skills

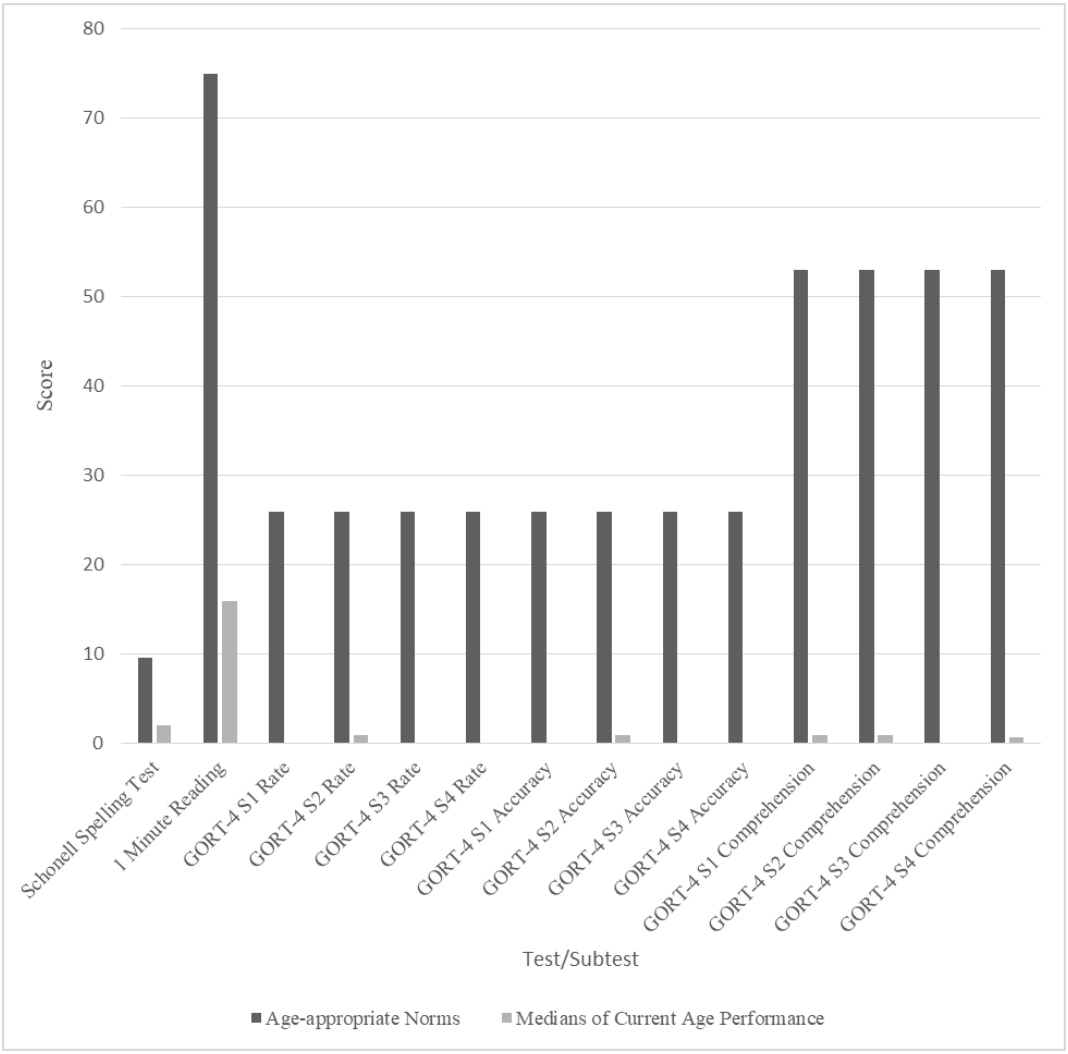

Figure 2. Comparable differences between age-appropriate norms and current age performance scores of later literacy skill

Table 3. Relevant, significant positive correlations between precursor literacy skills and later literacy skills

Variables	r_s	*p*
PALS-K Rhyming correlated with GORT-4 Comprehension (S2)	.440	.001
TAPS phonological segmentation correlated with Schonell Spelling Test	.541	<.001
TAPS phonological segmentation correlated with GORT-4 Accuracy (S2)	.584	<.001
TAPS phonological blending correlated with 1-minute reading	.619	<.001
TAPS phonological blending correlated with GORT-4 Accuracy (S2)	.518	<.001

Discussion

This study aimed to determine and describe the precursor literacy and later literacy skill competency of Year 4 learners who have recently transitioned from being taught in their L1 to English as their LoLT. Furthermore, the presence of significant possible positive correlations between precursor literacy skills and later literacy skills was investigated to confirm possible relationships between these two sets of skills.

The results support the alternative hypotheses stating that the precursor and later literacy skills of the English second language participants would not be age-appropriate and that significant possible positive correlations between precursor and later literacy skills exist. The results revealed significantly low scores across various precursor literacy and later literacy skills assessments compared to age-appropriate norms, as reflected in Table 2 and Figures 1 and 2. The large differences between the participants' scores and the age-appropriate norms indicate that not all English L2 learners in South Africa are on par with their English L1 peers when they start Year 4. This implies they have to navigate the academic content of the syllabus in a language they often have little academic proficiency in. According to the PIRLS of 2016, the average age of a Year 4 learner is 10 years 6 months, which was used to identify the age norms, however, the PIRLS was conducted at the end of the year. Our study was conducted at the beginning of Year 4. Therefore, we have conservatively used 9 years 6 months as the average age. The scores of our participants are still below the 9 years 6-month age norms, and even further delayed in terms of the 10 years 6 months age norm used in the PIRLS report.

For all the discussions below, the reader should keep in mind that the use of a non-probability convenience sample from a single rural school introduces potential sampling bias and limits the representativeness of the findings. As such, the results may not be generalizable to the broader population of South African Year 4 learners, particularly those in urban or better-resourced contexts. Second, while standardized assessment tools with established reliability and validity were used, no reliability coefficients were calculated based on the current sample. Although this decision aligns with the study's focus on applying — not validating — these tools, it introduces a threat to internal validity insofar as psychometric precision within this specific population cannot be empirically confirmed. Additionally, while every effort was made to ensure accurate and consistent administration (e.g., use of trained SLPs, quiet assessment spaces), minor imprecisions in measurement protocols — such as variations in learner attention, fatigue, or language anxiety — could have affected individual performance. Finally, although the G*Power software indicated that all the statistical tests had sufficient power, the relatively small sample size may affect the robustness of the inferential claims.

Phonological Awareness Skills as Precursor Literacy Skills

Regarding the TAPS-3, the largest discrepancy in performance was noted in the phonological blending subtest, which was the only result of the TAPS-3 that was positively skewed. The results remained below the established age-appropriate norms despite the seemingly favourable skewness. These results agree with previous studies focusing on younger learners and confirm specific learning challenges with PA and PhA. This further explains the insufficient reading and writing skills due to the lack of fundamental literacy skills (Eslick et al., 2020; Manten et al., 2020).

The PALS-K assessed the participants' rhyming skills. There is a large deviation between the median of the participants' scores and the age-appropriate norm. However, the skewness is not large. The variations in performance could be related to the fact that rhyming is not prevalent in most African languages (Manten et al., 2020). This cultural difference might contribute to the variations in the participants' results (Orfield, 2014). As rhyming is not a literary feature in the African languages the skill is not automatic. Rhyming does not appear as nursery rhymes in the languages and must be taught directly to learners (Manten et al., 2020). This provides context to the lack of rhyme recognition skills and accounts for the learners' reading difficulties, as rhyme awareness aids in accurate word identification (Eslick et al., 2020).

The study revealed that participants performed these precursor literacy skills at approximately the level of a 5-year-old. This is more than four years below their chronological age. Thus, they lack the foundational precursor literacy skills and poor academic performance can be expected. In South Africa, it seems that a poor transition to English as LoLT and limited exposure to it leads to diminished literacy skills, reduced academic accomplishments, and, ultimately, hinders academic success among these learners (McCormick et al., 2021).

The low scores obtained in the precursor literacy skills assessments confirm that a significant difference in the phonological systems of the L1 and L2 may result in L2 learners not being sensitive to unfamiliar sounds (Anderson, 2004; Le Roux et al., 2017; McBride-Chang et al., 2008). This could have resulted in the Setswana L1 learners being unable to transfer the PA skills needed to manipulate the extended phoneme inventory and unfamiliar sounds encountered in English. Not being familiar with specific sounds would also influence the ability of the working memory, and more specifically the phonological loop, to assist in storing, manipulating, and processing information about the sounds (Cockcroft & Alloway, 2012). The low scores of blending and segmenting could also be attributed to the difference in syllabic structure between the two languages. These skills often require the crossing of syllable boundaries present in Setswana.

Additionally, environmental factors such as low exposure to primarily academic English, limited time spent on teaching PA skills during the Years R – 3, poverty, lack of support from parents with low educational levels, teachers not being English L1 speakers themselves, and lack of training on how to teach PA skills to the English L2 learners in their classes, could all have contributed to the low levels of PA skills (Schaffler et al., 2019; Shibambu, 2017). Intervention on various levels is therefore necessary. The explicit teaching of PA skills in English has been shown to improve the PA skills of English L2 learners (Le Roux et al., 2017; Naeem et al., 2018) and needs to be implemented to support the learners to develop sufficient literacy skills (Callaghan & Madelaine, 2012; Eslick et al., 2020).

These findings should be viewed with caution, considering the potential limitations discussed at the outset of the discussion section. Future research could focus on the possible effects of extensive, explicit teaching of PA skills during the preschool years, specifically Year R. Additionally, research should also investigate whether teacher training and parental support regarding the precursor literacy skills could have a positive influence on the skills levels of preschool children in low socio-economic areas in South Africa.

English Later Literacy Skills

Despite the positive skewness in the data of the Schonell spelling test, a large deviation in spelling skills was noted in the performance in this test when comparing the median to the expected age-appropriate norm. As such, it could negatively affect learning and reading ability as spelling skills build the foundation for learning and improve these areas (Paul et al., 2018). The difference in the orthographies of the two languages could also have influenced the spelling skills of the participants. Setswana has a transparent orthography with direct phoneme-grapheme coupling, while English has an opaque writing system with an extended phoneme inventory (Goldstein et al., 2017).

The results of the OMRT indicate that the median in terms of reading speed was significantly lower than the expected age-appropriate norms. These values indicate a large deviation in the participants' performance. The large deviation is further confirmed by the positive skewness. Low proficiency and a lack of English vocabulary could be reasons for the low scores, as the test consists of high-frequency words. A lack of the PA skills necessary to decode words could have also contributed to the low scores in this reading assessment.

This demonstrates the challenge for the participants to fully comprehend the content when reading slowly (Turner, 1987). The slower reading pace can contribute to poor academic performance, negatively influencing reading comprehension (Paul et al., 2018).

Form A of the GORT-4 assessed the participants' oral reading rate, accuracy, fluency, and comprehension. The median in terms of rate, accuracy, and comprehension was significantly lower than the expected age-appropriate norms. Throughout all the assessment areas, the participants displayed results lower than expected at 9 years. All the GORT-4 subtests were positively skewed. It is vital to contextualize the extent to which the results deviated from established literacy norms. In many instances, the scores lag behind the expected developmental milestones in precursor literacy, indicating a significant gap of more than 3 years 5 months compared to age-appropriate norms. The results indicate that the participants' capacity for overall comprehension may be hampered by their inability to fully understand the primary points, specifics, and nuances of the material read. The participants' insufficient literacy skills hinder their ability to acquire reading and academic proficiency (Manten et al., 2020).

The inadequate precursor literacy skill of rhyme awareness affects the second language participants' ability to correctly assume the meaning of words (Manten et al., 2020). This is evident in the moderately strong significant positive correlation between the PALS-K and the GORT-4 comprehension results. Therefore, insufficient rhyme awareness seems to affect overall reading comprehension.

Interpretation of these findings should be tempered by the methodological and contextual limitations highlighted earlier in the discussion. Future research should focus on improving young learners' language skills in Years R to 3, including vocabulary learning. This should improve both spelling and reading skills. Instructional programs focused on reading skills, such as speed and fluency, should be implemented to determine whether reading comprehension is improved.

Correlations Between the Precursor and Later Literacy Skills

There is a strong positive correlation between all the precursor and the later literacy skills assessed, except between rhyming correlated with reading comprehension which shows a moderately strong correlation. This confirms the relationship between precursor – especially PhA skills – and later literacy skills in this population (Boyer, 2017; Scheepers et al., 2021).

The low scores recorded in the PIRLS predicted the insufficient transfer of precursor and later literacy skills from the L1 to English (Howie et al., 2017; Manuel, 2023). Our study's results indicate that the participants'

precursor literacy skills are insufficient to support later literacy skills acquisition in the LoLT as confirmed by the low scores of the later literacy skills assessments. The results must be understood within the context of the study's design limitations, as noted at the beginning of this discussion section.

Recommendations

Although the sample size of our study was limited, and generalizations to the broader South African population cannot be made, various studies in South Africa indicated that second language learners have low precursor and later literacy skills. Based on the findings of our study, it may be beneficial to tailor literacy instruction to the linguistic needs of the learners, especially those who transfer from L1 instruction in Years 1– 3 to English, their L2, in Year 4. This should allow educators to provide more meaningful and engaging learning experiences leading to better educational outcomes as various research studies found (Callaghan & Madelaine, 2012; Le Roux et al., 2017). While the current results are novel in the context of learners transferring to the second language as LoLT due to the constraints of this study its broader applicability should be approached with caution. For example, PA skills in Setswana could not be assessed and compared with PA skills in English as no relevant assessment tool in Setswana exists.

While this study identifies significant correlations between precursor and later literacy skills, these relationships may be influenced by unmeasured confounding factors such as prior literacy exposure, socioeconomic status, and instructional quality. Future research should aim to account for these variables to provide a clearer understanding of the factors shaping literacy development in bilingual education transitions. However, as this study represents an initial phase in a broader project, the primary objective was to describe learners' literacy skills at the critical transition stage rather than to isolate specific influences. Future studies employing longitudinal designs and statistical methods that adjust for potential confounders could offer a more comprehensive perspective on these relationships.

Policymakers should acknowledge that English L2 learners in South Africa are frequently not proficient enough to navigate academic content in English. They should investigate curricular reforms, teacher training, and resource allocation to this specific cohort of learners. The switch in the language of learning and teaching, therefore, necessitates the cooperation of teachers, speech-language pathologists, families, and the community. Ensuring that all roleplayers are aware of the challenges that the transition from L1 to L2 instruction entails and equipping them with knowledge and skills to assist these learners, should contribute to improved language and literacy skills of the learners (Brown, 2014; Eslick et al., 2020).

Programs aimed at enhancing learners' literacy skills provided by organizations like the WLF are one viable way to facilitate the enhancement of precursor and later literacy skills of young learners. Initiatives like this are invaluable assets that can offer specialized educational resources, teacher training, and strategies involving the community. This can promote an environment of hope and optimism by supporting and employing the electronic programs designed in collaboration with the WLF (World Literacy Foundation, 2017).

Limitations

A limitation of this study is that we could not engage more participants from schools from different socioeconomic circumstances. Obtaining consent from the parents for participation in research studies where assessment is conducted is an ongoing challenge in South Africa. This may be due to the many studies conducted in the English L2 population. Another limitation is the lack of English standardized assessment materials for English L2 learners in South Africa. Therefore, selection bias may have occurred in the sample leading to results that cannot be generalized to the entire English L2 population. The cross-sectional design and the sampling bias may lead to underreporting challenges; for example, marginalized groups such as the sample of our study may be underrepresented, skewing the results.

Although all instruments used in this study are standardized, published, and widely used tools with established reliability and validity as reported in the literature (see the Materials and Apparatus section of this manuscript), internal consistency or other reliability coefficients were not calculated using our study's sample. This is because the primary aim of this study was not to assess or revalidate the psychometric properties of the instruments in the local context, but rather to apply them to determine the literacy profiles of a specific group of learners. We acknowledge this as a limitation, as not calculating reliability statistics within our sample may limit the ability to confirm psychometric robustness in this specific context. However, the use of multiple well-established tools and the consistency of findings across these measures over different contexts help to mitigate this concern.

Conclusions

The transition of Year 4 learners from learning in their L1 to English as the LoLT presents a difficult and multifaceted journey. Precursor literacy skills, which set the basis for successful language acquisition and reading proficiency, play a central role in this process (Scheepers et al., 2021). Developing sufficient precursor literacy skills to enable the successful development of later literacy skills seems problematic in South Africa when studying the results of independent assessments such as the PIRLS and local South African studies.

The need to adapt and improve literacy contexts for multilingual speakers is paramount, ensuring that learners are proficient in the medium of instruction from Year 4. Low levels of oral language proficiency, including crucial skills like PA, impede learners' access to education and subsequent socioeconomic opportunities.

Effective policy must acknowledge the cognitive and cultural benefits of multilingualism, fostering an inclusive educational framework that respects and integrates the linguistic diversity of the population. This necessitates the development of literacy programs and intervention systems that not only promote proficiency in the language of instruction but also support and maintain the development of strong L1 abilities of multilingual speakers.

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Authorship declaration:

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Salomé Geertsema	Data collection; Methodology; Writing revision draft
Marien Alet Graham	Statistics; Methodology; Writing revision draft, Writing final draft
Carmen Milton	Data collection; Writing revision draft
Kate Wittstock	Data collection; First draft writing
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Diyaanah Sattar Carrim	First draft writing
Helene Veerasamy	First draft writing

Conflict of interest

There is no conflict of interest to declare.

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