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Identifying morphological errors in the English of Deaf learners in Lesotho

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Background: Morphological awareness (MA) is widely recognised as contributing to successful reading and reading comprehension. Despite this, research examining the nature of morphological errors among second-language (L2) English learners remains limited, particularly among Deaf learners.

Objectives: This study identified and classified English MA errors made by Deaf learners in Lesotho and determined the most prevalent error types and their possible underlying sources.

Method: Data were collected from 26 Deaf learners in Grade 3 to Grade 7 at a school for Deaf learners in Lesotho. Learners completed five MA tasks assessing inflectional and derivational morphology. A taxonomy was developed to identify and classify the morphological errors.

Results: Overall performance on the MA tasks was low, providing important context for the high frequency of errors. Learners achieved a mean score of 15% for inflectional awareness and 26% for derivational awareness. The analysis identified intralingual errors, including overgeneralisation and the incomplete application of English morphological rules. Some errors appeared to be interlingual and may have resulted from transfer from Lesotho Sign Language (LSL) and Sesotho. These included the use of a zero morpheme, which may reflect transfer from LSL, and the addition of a word-final vowel, which may reflect the influence of Sesotho.

Conclusion: Learners experienced substantial difficulties in applying English inflectional and derivational morphology. The identified error patterns reflect an incomplete understanding of English morphological processes, task-related factors, cross-linguistic transfer, limited explicit instruction in morphology, and the possible influence of learners' multilingual repertoires.

Contribution: These findings provide insight into the morphological challenges faced by Deaf learners in developing English MA and highlight areas for targeted educational support.

Keywords: morphological awareness; error analysis; second-language acquisition; interlingual errors; intralingual errors; Deaf literacy; literacy; Lesotho Sign Language.

Introduction

Literacy remains a major global educational concern, particularly for learners with hearing loss (World Bank 2025). Efforts to improve literacy among this group align with key international frameworks developed by organisations such as United Nations Educational, Scientific and Cultural Organization (UNESCO 2016), United Nations International Children's Emergency Fund (UNICEF 2025) and the World Federation of the Deaf (2018). These frameworks consistently advocate for inclusive education systems that provide equitable, high-quality learning opportunities for all learners, including those who are Deaf[1] or hard of hearing.

Across Africa, numerous studies have documented a growing literacy crisis, with many learners struggling to acquire foundational reading and writing skills (Kelly, McKinney & Swift 2020; Le Nestour, Moscoviz & Sandefur 2021; Magongwa 2010; Piper et al. 2018; Pritchett & Viarengo 2021). Lesotho faces similar challenges, with low literacy levels among both hearing and Deaf learners. In response, the government has implemented a policy that promotes automatic grade progression, allowing learners to progress to the next grade regardless of their academic performance.

1.In this article, the term 'Deaf' with a capital 'D' is used to denote the socio-cultural and linguistic group of people who are deaf; 'deaf' with a lowercase 'd', on the other hand, is used to refer to the medical or audiological condition of deafness.

While this policy aims to curb dropout rates, it has inadvertently contributed to a further decline in literacy development (Phosisi 2019). Recent research by UNESCO (2024) highlights the extent of this problem, showing that 97% of learners in Lesotho cannot read and understand age-appropriate texts by the age of 10.

In response to the literacy crisis, researchers in South Africa have investigated several metalinguistic skills that underpin successful reading and writing, including Morphological Awareness (MA), Phonological Awareness (PA), Word Recognition, and Oral Reading Fluency (Daries, Bowles & Schaefer 2022; Probert 2019; Schaefer, Probert & Rees 2020; Spaull, Pretorius & Mohohlwane 2020). Among these, MA has received comparatively less attention than the other metalinguistic skills. Morphological awareness refers to the ability to recognise and manipulate morphemes – the smallest units of meaning in a language – and the morphological structures they form (Carlisle 2003; Kuo & Anderson 2006; McBride-Chang et al. 2005). For example, the word *trees* consists of two morphemes: (1) the root *tree* and (2) the suffix *-s*, indicating plurality. A growing body of research has demonstrated that MA plays a significant role in the development of literacy skills (Deacon & Kirby 2004; Kuo & Anderson 2006; Levesque & Deacon 2022; Nagy et al. 2003; Nunes, Bryant & Bindman 2006). More recent studies have shown that MA has a strong independent effect on reading comprehension across various languages, even when other metalinguistic factors are controlled for (Desrochers et al. 2018; Pan et al. 2016; Schaefer et al. 2020).

This relationship between MA and reading comprehension has also been observed among both Deaf and hearing learners in Lesotho. Tšehla (2024) found that while English MA was significantly correlated with reading comprehension ($r > 0.7$), both Deaf and hearing learners demonstrated low levels of MA and performed poorly on English MA tasks. These findings highlight a need for deeper investigation into the types and sources of MA errors made by Deaf learners.

The present study identifies and analyses the common English MA errors made by Deaf learners in Lesotho. Lesotho is a small country in Southern Africa with a population of approximately 2.4 million people (World Bank 2026). Approximately 1.8 million people speak Sesotho (Makutoane 2022), making it the most widely spoken language in the country. Deaf children in Lesotho may be exposed to some Sesotho input at home through residual hearing, as not all experience complete hearing loss. They are typically exposed to Lesotho Sign Language (LSL) only when they attend one of the four schools in Lesotho that cater for Deaf learners.

At these schools, learners are also exposed to written Sesotho and to English through formal education, both of which may influence their English morphological development.

Understanding the nature of these errors is important, as identifying specific areas of morphological difficulty may inform the development of targeted morphological instructional strategies (Trussell & Easterbrooks 2017).

An error analysis of Deaf learners' performance on MA tasks can provide valuable insights into the specific linguistic challenges they face and can guide the development of more effective teaching methods to improve MA instruction and literacy outcomes. Given Deaf learners' limited exposure to spoken English morphology, examining their actual errors may provide a clearer understanding of which aspects of English morphology present particular difficulty. Accordingly, this study seeks to answer the following two research questions:

- What are the most common types of MA errors made by 26 Deaf learners in Grade 3 to Grade 7 in Lesotho when learning English as a second language?
- What are the possible sources of the MA errors made by these learners?

Morphological awareness

As outlined in the Introduction, MA refers to learners' ability to recognise and manipulate the smallest units of meaning in a language and the morphological structures they form (Carlisle 2003; Kuo & Anderson 2006; McBride-Chang et al. 2005). In this study, the focus is specifically on inflectional and derivational morphology, as these are the processes assessed in the MA tasks administered to the learners.

Morphemes can be classified as either free morphemes, which can occur independently as words (e.g., *table* and *cloth*), or bound morphemes, which must attach to other morphemes (e.g., *-s* and *-er*). English includes several morphological processes, including inflection, derivation, and compounding. Inflectional morphology modifies a word's grammatical form without changing its grammatical class (e.g., adding the past tense marker *-ed* to the verb *jump* to form *jumped*). Derivational morphology involves the addition of bound morphemes that change a word's meaning or grammatical category (e.g., adding *-er* to the verb *sing* to form the noun *singer*).

Research indicates that Deaf learners often face greater challenges in developing MA than their hearing peers (Gaustad et al. 2002; Gaustad & Kelly 2004; Trussell & Easterbrooks 2017). This difficulty may arise because MA in English is generally acquired through exposure to both spoken and written language (Deacon et al. 2023; Kirby et al. 2012). Spoken language input supports the development of MA by making English morphological alternations perceptually salient, such as changes in pronunciation when plural or tense morphemes are added (e.g., the plural *cats* /s/ versus *dogs* /z/). Deaf learners, however, primarily encounter English through written input, which may delay the development of MA and, consequently, their reading and writing proficiency.

These challenges in inflectional and derivational morphology have important implications for literacy development because MA is closely associated with learners' ability to comprehend written texts, as discussed in the following section.

English morphological awareness and reading comprehension

Research across languages suggests that learners with higher levels of MA tend to demonstrate stronger reading comprehension skills (Chan 2023; Desrochers et al. 2018; Lee, Wolters & Grace Kim 2023; Zhang et al. 2023). Because morphemes are the smallest units of meaning in a language, learners who can recognise and manipulate them are better equipped to understand how words are formed and what they mean. This awareness supports vocabulary growth, the decoding of complex words, and ultimately, deeper comprehension of written texts (Rothou & Padeliadu 2015).

Morphological awareness may support reading comprehension in several ways. At the word level, it facilitates the recognition, decoding, and interpretation of morphologically complex words (James et al. 2021; Levesque, Kieffer & Deacon 2017). At the sentence and text levels, morphological information may support the integration of lexical meaning with grammatical information during higher-level comprehension processes (James et al. 2021).

The contribution of MA to reading should also be considered alongside PA, which refers to the ability to recognise and manipulate the sound structures of language. Although the two skills are related, research suggests that they make distinct contributions to literacy development (Deacon & Kirby 2004). While PA is particularly important during the early stages of reading development, MA continues to develop across the school years and contributes to reading outcomes beyond that of PA (Deacon & Kirby 2004; Kirby et al. 2012; Schaefer et al. 2020).

Research on learners acquiring English as a second language also supports the relationship between MA and reading comprehension (Casalis & Louis-Alexandre 2000; Zhang & Koda 2013). Jeon (2011) assessed English reading comprehension alongside phonological decoding, vocabulary knowledge, listening comprehension, metacognitive reading awareness, and MA. The findings revealed that MA was a significant predictor of English reading comprehension, even after accounting for the other contributing factors.

This relationship between MA and reading comprehension is also evident among Deaf learners (Nielsen, Luetke & Stryker 2011; Trussell & Easterbrooks 2015; Zhang et al. 2023). In a study by Falk et al. (2017), which assessed 45 Deaf learners in Grade 3 to Grade 8 in the United States, researchers examined the relationships among English phoneme detection, silent word reading fluency, MA and reading comprehension. The results revealed a significant correlation between learners' MA and their English reading comprehension, even after controlling for phoneme detection and silent word reading fluency.

In Lesotho, Tšehla (2024) investigated the relationship between English MA and reading comprehension among Deaf and hearing learners in Grade 3 to Grade 7. The study, which examined learners' performance on inflectional, derivational, and compound morphology tasks, found that both groups performed poorly on these tasks, which corresponded with weak reading comprehension. These findings underscore the need to understand why learners in Lesotho struggle with MA. The first step towards this understanding is to identify and analyse the specific types of morphological errors they make, as this can shed light on the underlying causes. It is well established that second-language (L2) learners commonly produce linguistic errors at the levels of syntax, semantics, phonology, and morphology. However, research focusing specifically on morphological errors remains limited, particularly among Deaf learners. This study therefore seeks to address this gap.

Theoretical framework

This study employs error analysis to explore the nature and causes of morphological errors made by Deaf learners in Lesotho, as well as their implications for literacy development. Error analysis is a linguistic approach used to investigate the errors learners make during L2 learning. It involves identifying, describing, and explaining learners' errors to uncover underlying factors in L2 learning (Saville-Troike 2006). This approach recognises that errors are not solely the result of first-language (L1) interference but may also reflect learners' developing knowledge of the target language (Corder 1967). Morphology is particularly well-suited to error analysis because it involves overt, rule-based marking, allowing learner errors to be observed directly in how morphemes are added, omitted, or modified.

Error analysis argues that errors made by L2 learners generally stem from two main sources: interlingual and intralingual interference (Saville-Troike 2006). Interlingual errors arise from the influence of the learner's L1 when producing the target language, particularly in areas where the two languages differ (Saville-Troike 2006).

Studies dating back to the 1950s have demonstrated that L2 learners' morphological, syntactic, and phonological errors often mirror patterns from their L1 (Perkins & Zhang 2022). For instance, if the morpheme order or grammatical structure of the learner's L1 differs from that of the target language, the learner may unintentionally apply L1 patterns to L2 production. A Sesotho-speaking learner of English, for instance, may omit the English plural suffix and produce forms such as *many dog*, reflecting transfer from a language in which number is not marked through word-final inflection. Similarly, differences in phonological or phonotactic systems may influence learners' production.

Intralingual errors, by contrast, are not directly attributable to cross-language transfer but arise from learners' developing knowledge of the target language. Such errors may therefore reflect developmental processes common in language learning, such as overgeneralisation and simplification, rather than indicating an absence of linguistic knowledge or ability (Saville-Troike 2006). For example, learners may overgeneralise regular morphological patterns by producing forms such as *he goed home* or omit required tense marking in forms such as *yesterday she walk home*. Both errors reflect difficulties in the developing application of English tense morphology.

Morphological error analysis has been widely applied in studies of L2 English learners' written production and provides the methodological foundation for the present study. Previous research has shown recurring error patterns in learners' use of both inflectional and derivational morphology, including the omission of tense and plural markers, the overgeneralisation of regular rules, and the misapplication of derivational affixes (Dinamika & Siregar 2020). These studies demonstrate that error analysis can reveal how learners acquire, apply, or avoid morphological rules, as well as distinguish between interlingual and intralingual sources of difficulty. However, despite its extensive use in L2 English research, morphological error analysis has rarely been applied to Deaf learners, whose access to spoken input, reliance on sign language and multilingual environments may shape morphological development in distinct ways.

Error analysis therefore provides a valuable framework for understanding how Deaf learners process and acquire English morphology. By examining the types and possible sources of the morphological errors learners produce, researchers can gain insight into recurring areas of difficulty (Corder 1967). Identifying specific areas of morphological difficulty may, in turn, inform the development of more targeted instructional support for Deaf learners (Trussell & Easterbrooks 2017).

In the present study, a taxonomy was developed to identify and systematically classify the MA errors made by Deaf learners in Lesotho. These errors were categorised into specific types, including repeat of stimulus, incomplete grasp of rule and overgeneralisation (see Appendix 1). These categories provide a structured approach for analysing learners' errors and interpreting the linguistic and cognitive processes underlying their morphological performance.

Research methods and design

This study employed a non-experimental, descriptive cross-sectional case study design. Data were collected from Deaf learners at a single point in time within a particular educational context in Lesotho. The cross-sectional design provided a snapshot of learners' MA at the time of data collection, while the non-experimental design reflected the study's aim of describing learners' performance rather than examining causal relationships. The case study strategy enabled an in-depth examination of this bounded educational context.

The study adopted a primarily qualitative approach supported by descriptive quantitative analyses. Learners' responses were analysed qualitatively by identifying, coding, and classifying morphological error types. The quantitative component consisted of descriptive statistics, including frequency counts for each error category and summary measures of learners' performance across the five MA subtasks. Together, these analyses provided a comprehensive description of learners' MA and the nature of the errors they produced.

Participants

Data were collected from 26 Deaf learners in Grade 3 to Grade 7 (10 girls and 16 boys), with a mean age of 14.2 years. The relatively high mean age reflects common systemic factors affecting Deaf education in Lesotho, including delayed school entry and interruptions in schooling, which often result in learners being older than would typically be expected for their grade level. The relatively small sample size reflects Lesotho's education policy, which limits each grade to a maximum of 10 learners. All participants were L1 users of LSL and used English as the language of instruction. The learners were from a government-funded Catholic school for the Deaf.

The school is located in the Berea District, approximately 30 km from Maseru, the capital city. The school operates as a boarding school, drawing learners from across the country. Instruction is provided by hearing teachers who use a combination of LSL, Signing Exact English, fingerspelling, and lipreading in the classroom. Ethical approval was obtained prior to data collection (see Ethical considerations).

Instruments and procedures

Participants were asked to complete five written tasks that assessed their MA. These included a *wugs* task, a test of inflectional morphology on pseudo-verbs, a morpheme identification task, a sentence analogy task, and a word analogy task.

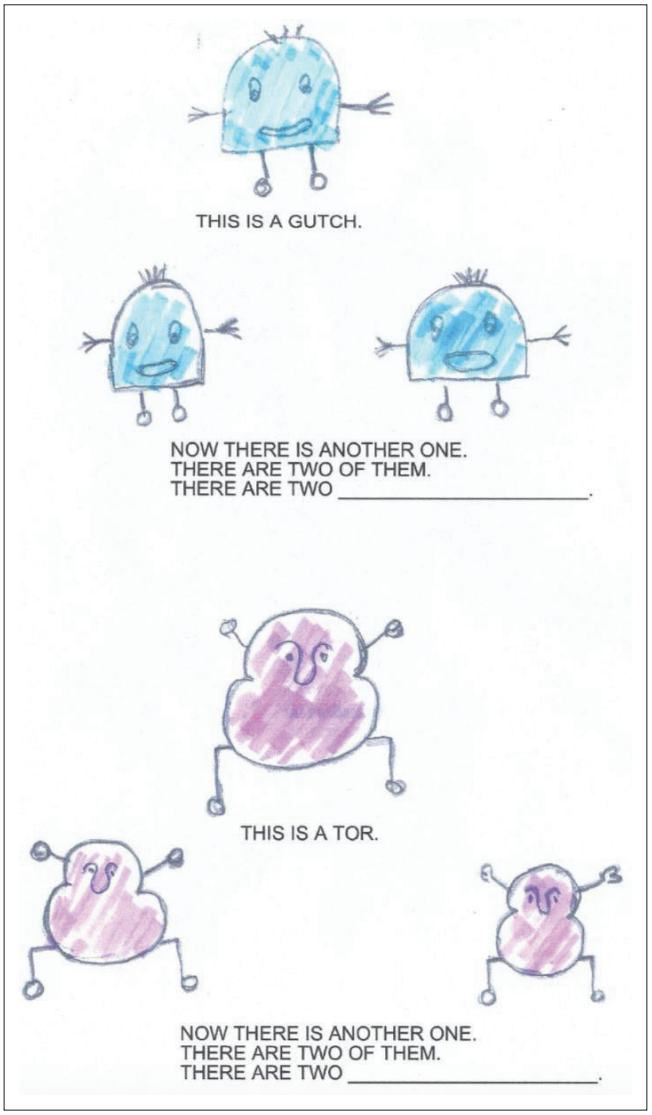
Participants were assessed individually in an empty classroom at the school. They were given task sheets with written instructions and examples; however, an interpreter also signed both the instructions and the examples to ensure that the learners fully understood the tasks. Learners responded in writing.

Wugs task

The *wugs* task, originally developed by Berko (1958), was used to assess learners' inflectional awareness, specifically their ability to pluralise nouns in English. Although first

introduced by Berko, the *wugs* task remains widely used in MA research because it requires learners to apply morphological rules to non-words rather than familiar vocabulary. Participants therefore could not rely on memorised word forms but instead had to demonstrate their knowledge of the underlying pluralisation rule by applying it to unfamiliar lexical items (Berko 1958; Melloni & Vender 2022). In the original *wugs* task, learners were first shown an image of an imaginary creature with the caption *This is a wug*. They were then shown a second image depicting two of the same creatures and asked to provide the plural form, *wugs*. A similar procedure was followed with another pair of imaginary creatures labelled *gutch*; when shown two of these creatures, the expected response was *gutches* (see Figure 1).

Unlike Berko's original study (1958), which used oral responses, participants in the present study provided written responses because they were Deaf learners. The task consisted of five items, each requiring the learner to provide the plural form of a noun according to the English pluralisation rule.



Source: Tšehla, P.M., 2024, 'English morphological awareness and reading comprehension in deaf and hearing Grade 3 to 7 learners from Lesotho', MA thesis, Department of Linguistics and Applied Language Studies, Rhodes University, viewed 04 August 2026, from https://researchrepository.ru.ac.za/server/api/core/bitstreams/4e15272a-1ace-488d-99d9-3e29e0d458cc/content

FIGURE 1: An example from the *wugs* task.

Test of inflectional morphology on pseudo-verbs

This task assessed learners' awareness of English verb inflection, particularly tense marking. Learners were shown a picture depicting an action together with a written sentence frame (see Figure 2), which they were required to complete by inflecting a pseudo-verb. For example, *Yesterday the man tufed. Today he is* _____. The expected answer was *tufing*, demonstrating the learner's ability to apply the appropriate tense inflection. Other items required learners to add the suffix -ed to form the past tense of pseudo-verbs. The task consisted of five items.

Morpheme identification task

The morpheme identification task required learners to demonstrate their understanding of English derivational morphology (McBride-Chang et al. 2005). Learners were given 10 morphologically complex English words and instructed to segment them into their smallest meaningful units using slashes. For example, *unkindness* → *un/kind/ness*.

Sentence analogy task

Based on Nunes et al. (2006), this task assessed learners' ability to inflect irregular English verbs into the past tense. Learners were presented with five sentence analogies similar to the following: *The dog barks at Thabo. The dog barked at Thabo. The dog drinks water. The dog* _____ *water.* The expected answer was *drank*.

Word analogy task

This task assessed learners' derivational awareness, specifically their ability to form agentive nouns from verbs



Source: AI-generated illustration created by the authors using ChatGPT, 05 August 2026

Yesterday the man tufed. Today he is _____.

FIGURE 2: Reconstructed illustration of the format used in the test of inflectional morphology on pseudo-verbs. The illustration is not the original image presented to participants.

by adding the suffix *-er*. Learners were given short sentences such as *Thato farms. He is a* _____. The expected answer was *farmer*, formed by adding the suffix *-er* to the base verb *farm*. This task also consisted of five items.

Data analysis

The analysis began with a detailed examination of the actual errors produced by the participants. An inductive coding approach was adopted, whereby the coding framework was developed from the data rather than based on existing categories. Each distinct error type was identified directly from the learners' responses, and similar errors were then grouped. The emergent groups were classified and assigned descriptive category names based on their shared characteristics. After establishing the categories, the frequency of errors within each category was calculated to determine the most and least common error types.

The responses were coded by a single researcher. Coding consistency was enhanced through repeated review of the coded data and revision of categories where necessary. Where responses were ambiguous or could potentially fit more than one category, they were reviewed in relation to the specific task instructions before being assigned to the most appropriate category or, where necessary, to a newly created category.

The resulting descriptive patterns were then used to address the two research questions. The distribution of error types across the tasks directly answered the first question by identifying the most frequent and recurring MA errors. To address the second question, each error category was examined in relation to known intralingual processes (such as overgeneralisation and incomplete rule application) and possible interlingual influences from LSL and Sesotho. This interpretive analysis provided possible explanations for the observed error patterns.

Ethical considerations

Ethical approval was obtained from the Rhodes University Ethical Standards Committee (Ethics Number: 2022-5702-7142), the Lesotho Ministry of Education, and the school principal and teachers before data collection began. Consent was obtained from the learners' guardians, while assent from learners with signed consent forms was secured through an LSL interpreter. The interpreter communicated the details of the biographical questionnaire in LSL and recorded the learners' responses. To ensure confidentiality, all participants were assigned pseudonyms (e.g., A1, A2 and A3).

Results

Before analysing the specific error types, learners' overall performance on the MA tasks is presented to contextualise the prevalence and distribution of errors. The distribution of error categories across the tasks reveals systematic patterns in how learners responded to different morphological demands. Although the results are reported descriptively, the prevalence of error types across the tasks provides preliminary insight into learners' sensitivity to morphological structure and the strategies they employed when their morphological knowledge was incomplete.

Performance on the morphological awareness tasks

Overall performance on the MA tasks was low. As shown in Table 1, learners achieved a mean inflectional awareness score of 15.1% (Mean [*M*] = 2.27, standard deviation [SD] = 2.66) and a mean derivational awareness score of 26.0% (*M* = 3.90, SD = 3.47). At the level of the individual subtasks, mean scores were 23.8% for the *wugs* task, 1.6% for the sentence analogy task, 23.7% for morpheme identification, and 30.8% for the word analogy task. The extremely low mean for the sentence analogy task reflects the fact that no participant scored more than 1 out of 5 on this task.

Internal consistency of the composite inflectional and derivational awareness measures was assessed using Cronbach's alpha, calculated from the scores on the subtasks comprising each measure. The inflectional awareness measure demonstrated moderate reliability ($\alpha = 0.61$), while the derivational awareness measure demonstrated similar reliability ($\alpha = 0.66$). These values may reflect the relatively small sample size ($N = 26$), together with the fact that each composite measure combined several complementary tasks assessing different aspects of MA.

Errors made on inflectional awareness tasks

The results illustrate the distribution of learners' error categories, as classified in Appendix 1. Table 2 presents the frequency and within-task percentage of each error category identified in the inflectional awareness tasks. A total of 144 errors were recorded across the sample. Repetition of the

TABLE 1: Means, standard deviations, minimum and maximum scores for Morphological Awareness tasks ($N = 26$).

Morphological awareness tasks	Maximum possible score	Mean	Mean (%)	SD	Min	Max
Inflectional awareness	15	2.27	15.1	2.66	0	8
Wugs	5	1.19	23.8	1.02	0	3
Test of inflectional morphology on pseudo-verbs	5	1.00	20.0	1.82	0	5
Sentence analogy	5	0.08	1.60	0.27	0	1
Derivational awareness	15	3.90	26.0	3.47	0	12
Morpheme identification	10	2.37	23.7	1.75	0	7
Word analogy	5	1.54	30.8	2.53	0	5

Source: Tšehla, P.M., 2024, 'English morphological awareness and reading comprehension in deaf and hearing Grade 3 to 7 learners from Lesotho', MA thesis, Department of Linguistics and Applied Language Studies, Rhodes University, viewed 04 August 2026, from https://researchrepository.ru.ac.za/server/api/core/bitstreams/4e15272a-1ace-488d-99d9-3e29e0d458cc/content

SD, standard deviation; Min, minimum; Max, maximum.

stimulus was among the most frequent error categories across all three tasks.

Errors made on derivational tasks

Errors on the derivational awareness tasks differed qualitatively from those observed on the inflectional awareness tasks. Table 3 presents the frequency and within-task percentage of each error category identified in the derivational awareness tasks. A total of 193 errors were recorded across the sample. The most frequent error categories were 'arbitrary marking within the word' in the morpheme identification task and 'repeat of stimulus' in the word analogy task.

Discussion

The very low MA performance observed across all subtasks provides important context for the error patterns discussed below. The high prevalence of certain error types across tasks reflects broader difficulties with both inflectional and derivational morphology rather than isolated difficulties with individual task items. These low scores align with the broader literacy challenges documented in Lesotho and indicate weaknesses in learners' English morphological knowledge.

In the *wugs* task, the most frequent error category was the 'incorrect realisation of the plural morpheme'. Learners commonly pluralised semi-regular pseudo-nouns by adding *-s* instead of the required *-es*. For instance, the plural of *gutch* was often written as *gutchs* rather than *gutches*. This pattern suggests that, while learners had acquired the more common plural marker *-s*, they had not yet mastered the conditions governing the use of *-es*. The errors may therefore reflect intralingual overgeneralisation, in which a familiar and productive target-language rule is extended to contexts where an alternative form is required. This interpretation is consistent with previous research on L2 acquisition, which shows that learners frequently overgeneralise target-language rules during the developmental stages of language learning (Ellis 1994).

A similar pattern was observed in the sentence analogy task, where 'overgeneralisation' emerged as one of the most frequent error categories. Learners applied the regular past-tense morpheme *-ed* to irregular verbs, producing words such as *drinked* instead of *drank*. These responses suggest that

TABLE 2: Error categories and their frequencies in the inflectional awareness tasks.

Tasks	Category of error	Example	*n*	% within task
Wugs task	Completely incorrect	*ar* (random word given)	1	1
	Incorrect lexical item used	*wugs* instead of *cras*	2	3
	Repeat of stimulus	*cra-cra; gutch-gutch; tor-tor*	26	37
	Incorrect realisation of the morpheme	*kazh-kazhs* instead of *kazh-kazhes*	42	59
Total	-	-	71	100
Test of inflectional morphology on pseudo-verbs	Completely incorrect	*jlin* (random word given)	1	4
	Incorrect tense	*Yesterday it flamp*; *yesterday she knop*	3	11
	Repeat of stimulus	*flamping-flamping*; *glinging-glinging*	22	81
	Additional vowel in word-final position	*motti* instead of *mott*	1	4
Total	-	-	27	100
Sentence analogy task	Overgeneralisation	*writes-writesed*; *drink-drinked*	17	37
	Repeat of example	*I run, she walked* instead of *she ran* (from example '*I walked, she walked*')	6	13
	Repeat of stimulus	*Writes-writes*; *sees-sees*	23	50
Total	-	-	46	100
Total errors	**-**	**-**	**144**	**-**

Source: Tšehla, P.M., 2024, 'English morphological awareness and reading comprehension in deaf and hearing Grade 3 to 7 learners from Lesotho', MA thesis, Department of Linguistics and Applied Language Studies, Rhodes University, viewed 04 August 2026, from https://researchrepository.ru.ac.za/server/api/core/bitstreams/4e15272a-1ace-488d-99d9-3e29e0d458cc/content

TABLE 3: Error categories and their frequencies in the derivational awareness tasks.

Tasks	Category of error	Examples	*n*	% within task
Morpheme identification	Arbitrary marking within the word	*disres/pectful*; *rew/rite*	127	80
	Incomplete identification of morphemes	*unkind/ness* or *un/kindness* instead of *un/kind/ness*	13	8
	Lexical isolation	*uncomfor/table*; *misbe/have*; *ill/egal*	18	12
Total	-	-	158	100
Word analogy task	Repeat of stimulus	*sing-sing*; *farm-farm*	16	46
	Repeat of example	*Thato works on a farm. He is a teacher.* Taken from the example, *If I teach, I am a teacher.*	5	14
	Incomplete grasp of the rule	*bakes-bakeser*; *drives-driveser*; *writes-writeser*	9	26
	Additional vowel in word-final position	*sing-singe*; *farm-farme*; *writes-writese*	5	14
Total	-	-	35	100
Total errors	**-**	**-**	**193**	**-**

Source: Tšehla, P.M., 2024, 'English morphological awareness and reading comprehension in deaf and hearing Grade 3 to 7 learners from Lesotho', MA thesis, Department of Linguistics and Applied Language Studies, Rhodes University, viewed 04 August 2026, from https://researchrepository.ru.ac.za/server/api/core/bitstreams/4e15272a-1ace-488d-99d9-3e29e0d458cc/content

learners recognised the need to mark the past tense but applied the productive regular rule rather than retrieving the appropriate irregular form. Such errors may therefore reflect incomplete knowledge of irregular past-tense forms, the greater productivity of the regular *-ed* pattern, or limited exposure to and reinforcement of irregular forms. Notably, these errors occurred across all grade levels, including the higher grades. This may suggest limited exposure to or reinforcement of irregular forms during instruction. However, as information regarding learners' previous morphological instruction and exposure to specific English forms was not collected, the contribution of instructional experience cannot be determined from the present data.

The second most frequent error category in the *wugs* task was 'repeat of stimulus'. This error was not limited to the wugs task. The 'repeat of stimulus' was the predominant error category in the pseudo-verb, sentence analogy and word analogy tasks. In the morpheme identification task, learners were required to segment words by marking morpheme boundaries with slashes, making direct repetition of the stimulus impossible in the same way.

Several alternative explanations may account for 'repeat of stimulus' errors. Some learners may have misunderstood the task instructions or been uncertain about the required morphological transformation and therefore reproduced the stimulus unchanged. Others may have adopted effort-minimising response strategies, prioritising task completion over careful analysis. Another possible interpretation is that learners may have believed that a zero-morpheme should be applied to inflect or derive the words. These explanations cannot be distinguished based on the written responses alone.

The 'repeat of stimulus' category accounted for 81% of the errors in the test of inflectional morphology on pseudo-verbs. This pattern may reflect transfer from LSL, as verbs in LSL are not inflected for tense. Learners may therefore have retained the unchanged verb form rather than applying the required English tense marking. However, repetition may also reflect uncertainty regarding the task demands, difficulty applying English tense morphology to unfamiliar pseudo-verbs, or limited knowledge of the required inflectional rule. Unfortunately, the present data cannot determine whether this pattern resulted primarily from LSL influence, developing English morphological knowledge, task-related factors, or a combination of these influences. Further research is required to identify more precisely the underlying cognitive, linguistic, and pedagogical factors contributing to the high frequency of this error among Deaf learners.

Another less frequent error category was 'repeat of example'. This occurred in both the sentence analogy and word analogy tasks, where learners reproduced the examples provided in the instructions and presented them as their answers. As with the repetition of the stimulus, this pattern may reflect a misunderstanding of the task demands or effort-minimising response strategies. However, because learners reproduced the instructional example rather than leaving a target word morphologically unchanged, this error cannot readily be explained in terms of a zero morpheme or possible transfer from LSL. It appears more likely to reflect difficulty distinguishing the worked example from the item requiring a response.

The word analogy task also revealed errors that may reflect influence from LSL. Learners sometimes added the suffix *-er* to an already inflected verb without first modifying the base form. For example, in response to *She writes. She is a* _____, some learners wrote *writeser* instead of *writer*.

One possible explanation is transfer from a nominalisation process in LSL, in which a verb is compounded with the sign PERSON to form an agentive noun. In LSL, verbs are not inflected before nominalisation; the same verb sign is used regardless of person or number. For instance, both *write* and *writes* are represented by the same sign WRITE, and the noun *writer* is realised as the compound WRITE^PERSON. Because this process does not require modification of the verb form, learners may not have recognised the need to remove the English inflectional *-s* before adding *-er*. Similar transfer of sign-language grammatical features into L2 writing has been reported across several sign languages, including American Sign Language (Wilbur 2000; Wolbers et al. 2013), French Sign Language (Niederberger 2008), and Catalan Sign Language (Menéndez 2010). However, this error pattern may also reflect an intralingual process in which learners recognised *-er* as an agentive suffix but had not yet fully acquired the morphological rules governing its attachment to the verb stem. The available data cannot determine whether these errors arose from LSL transfer, from incomplete knowledge of English derivational morphology, or from an interaction between the two.

Furthermore, some learners added a final vowel to English words – an error pattern that may reflect influence from Sesotho. This error was classified as 'additional vowel in the word-final position' and was observed in both the test of inflectional morphology on pseudo-verbs and the word analogy task. In the test of inflectional morphology on pseudo-verbs, when learners were prompted with the sentence *Thabo is motting. Tomorrow he will* _____, some produced responses such as *mote* or *motti*. Similarly, in the word analogy task, learners were asked *Thato works on a farm. He is a* _____, and instead of writing *farmer*, some produced responses such as *farmo* or *farme*. Sesotho words, particularly verbs, typically end in vowels. These responses may therefore reflect the influence of familiar Sesotho word-structure patterns on English word formation. However, these errors may also reflect uncertainty regarding English orthographic conventions or attempts to represent unfamiliar word forms using more familiar spelling patterns. Further evidence regarding the nature and extent of

individual learners' exposure to Sesotho would be required to substantiate this interpretation.

The possible influence of LSL and Sesotho observed in this study is consistent with research on L2 acquisition, which shows that learners often draw on prior linguistic knowledge when learning an additional language. Research on cross-linguistic influence indicates that features of a learner's L1 can shape error patterns in the target language (Ellis 1994; Odlin 1989). For Deaf learners in Lesotho, exposure to LSL as their L1 and Sesotho as an ambient language may therefore contribute to the development of English MA.

In the morpheme identification task, the most prevalent error category was 'arbitrary marking within the word'. This task required learners to indicate morpheme boundaries by inserting slashes within words; however, learners frequently placed slashes at seemingly random locations, without a consistent pattern (e.g., *punis/hment* or *punishm/ent* instead of *punish/ment*).

This error category accounted for 80% of all errors in the task, suggesting substantial difficulty recognising and segmenting morphemes. The second most common error category was 'lexical isolation', in which learners identified familiar lexical items embedded within words. For example, learners marked *have* in *misbehave* instead of *mis/behave*, and *table* in *uncomfortable* rather than *un/comfort/able*. The final error category was 'incomplete identification of morphemes', where learners correctly identified some morphemes but failed to identify others (e.g. *un/kindness* instead of *un/kind/ness*). Collectively, these patterns, particularly the high frequency of arbitrary marking, indicate considerable difficulty identifying morpheme boundaries. One possible explanation is limited exposure to explicit morphology instruction. However, because information regarding learners' previous morphology instruction was not collected, this interpretation cannot be confirmed. The errors may also reflect limited familiarity with the segmentation format used in the task or broader difficulties with metalinguistic analysis. Nevertheless, previous research indicates that explicit morphology instruction can strengthen learners' metacognitive awareness of morphological processes (Zhang & Koda 2013).

Across the tasks, the consistency of the error patterns suggests that learners' difficulties were not task-specific but reflected broader gaps in English morphological knowledge. Frequent repetition of stimuli and examples, incorrect rule application, and error patterns potentially consistent with cross-linguistic influence collectively suggest difficulties in applying English inflectional and derivational rules. These patterns may reflect an interaction among developing morphological knowledge, task comprehension, instructional experience, and learners' multilingual repertoires.

Several limitations should be considered when interpreting the findings of the present study. First, the relatively small sample size limits the extent to which the findings can be generalised to the broader population of Deaf learners in Lesotho and beyond. However, this should also be considered within the context of research involving Deaf learners, who represent a relatively small and specialised educational population served largely by only four schools. Consequently, recruiting large samples for empirical research is inherently challenging. Second, although participants were drawn from different grade levels, the number of learners within each grade was too small to permit meaningful statistical comparisons of developmental differences in MA. Future research with larger samples could investigate whether inflectional and derivational awareness develop differently across grade levels. Finally, the study was conducted within a single school for Deaf learners. Although this reflects the limited number of specialised educational settings available in Lesotho, future research involving multiple schools, where possible, and larger samples would help establish the broader applicability of the findings.

Conclusion

This study examined and categorised the MA errors produced by Deaf learners in Grade 3 to Grade 7 in Lesotho. The error analysis identified intralingual errors, including, overgeneralisation and incomplete application of rules, while some errors appeared to be interlingual and may reflect transfer from LSL and Sesotho. Learners demonstrated persistent difficulties applying English inflectional and derivational rules, including those governing both regular and irregular nouns and verbs. They also produced responses such as repetition of the stimulus and arbitrary marking when identifying morphemes. Collectively, these patterns suggest that learners' errors reflect an interaction among developing morphological knowledge, task-related demands, instructional experience, and their multilingual linguistic repertoires. They further indicate that explicit attention to MA may not yet be receiving sufficient emphasis alongside other metalinguistic skills.

Some learners retained unchanged word forms in contexts requiring inflection or derivation, while others added final vowels to English words. These patterns may be consistent with structural features of LSL and Sesotho, respectively. However, alternative explanations, including incomplete knowledge of English morphological rules, uncertainty regarding task demands, and unfamiliarity with English orthographic conventions, remain equally plausible. Further research incorporating detailed information regarding learners' language exposure and instructional experiences is required to clarify the extent to which cross-linguistic influence contributes to these error patterns. Nevertheless, the findings highlight the importance of recognising the multilingual and multimodal linguistic environment in which Deaf learners in Lesotho acquire English. Morphological instruction should therefore acknowledge learners' language backgrounds while explicitly supporting the recognition and application of English inflectional and derivational rules.

Lesotho continues to face significant literacy challenges among its learners, underscoring the potential value of explicit English morphological instruction as a means of supporting literacy development. Research has shown that explicit morphological instruction can improve a range of language and literacy outcomes, including reading comprehension, spelling, word recognition, and vocabulary development (Goodwin & Ahn 2013; Trussell & Easterbrooks 2015). Further research is needed to evaluate the effectiveness of explicit MA interventions within the Lesotho context. If such instruction proves beneficial, its implementation for Deaf learners, and potentially for hearing learners, could contribute meaningfully to improving literacy outcomes and addressing the country's broader literacy challenges. By providing the first detailed analysis of the specific morphological errors produced by Deaf learners in Lesotho, this study offers an empirically grounded linguistic foundation to guide the development of targeted, explicit morphological instruction.

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The authors declare that they have no financial or personal relationships that may have inappropriately influenced them in writing this article.

CRediT authorship contribution

Puleng M. Tšehla: Conceptualisation, Data curation, Formal analysis, Funding acquisition, Investigation, Methodology, Validation, Visualisation, Writing – original draft, Writing – review & editing. Tracy N. Bowles: Conceptualisation, Formal analysis, Methodology, Project administration, Supervision, Validation, Visualisation, Writing – review & editing. Ian Siebörger: Conceptualisation, Formal analysis, Methodology, Project administration, Supervision, Validation, Visualisation, Writing – review & editing. All authors reviewed the article, contributed to the discussion of results, approved the final version for submission and publication, and take responsibility for the integrity of its findings.

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Data availability

The data supporting the findings of this study are not publicly available because they contain information that could compromise participant privacy. However, they are available from the corresponding author, Puleng M. Tšehla, upon reasonable request.

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Appendix 1

TABLE 1-A1: Error taxonomy.

Task	Category of error	Explanation	Example
***Wugs* task**	Completely incorrect	Random word given	*Ar*
	Incorrect lexical item used	Used a different lexical item from the one being assessed	Wrote *wugs* instead of *cras*
	Repeat of stimulus	Wrote out the stimulus instead of a response	1. *There are two of them* 2. *cra-cra*; *gutch-gutch*; *tor-tor*; *niz-niz*; *kazh-kazh*
	Incorrect realisation of the morpheme	Wrote *–s* instead of *–es*	*kazh-kazhs* instead of *kazh-kazhes*
A test of inflectional morphology on pseudo-verbs	Completely incorrect	Random words given	Jlin
	Incorrect tense	Wrote incorrect tense	*Yesterday it flamp*; *yesterday she knop*
	Repeat of stimulus	Wrote out the stimulus instead of a response	*Flamping-flamping*; *glinging-glinging*
	Additional vowel in word-final position	Adding vowel /i/ at the end of the word	*Motti* instead of *mott*
Morpheme identification	Arbitrary marking within the word	Randomly marked words	*Disres/pectful*; *rew/rite*
	Incomplete identification of morphemes	Did not identify all morphemes	*Unkind/ness* or *un/kindness* instead of *un/kind/ness*
	Lexical isolation	Isolated lexical items within words	*Uncomfor/table; misbe/have; ill/egal*
Sentence analogy	Overgeneralisation	Adding past tense morpheme *-ed* or plural morpheme *-s* where it does not apply	*Run-runned*; *write-writesed*; *drink-drinked*; *-s* to all words
	Repeat of example	Copied the example given	*Walked* instead of *ran* (from *I walked, she walked*); *barked* instead of *drank* (from *the dog barks at Thabo, the dog barked at Thabo*)
	Repeat of stimulus	Rewrote the stimulus given	*Writes-writes*; *writes-write*; *sees-see*
Word analogy	Repeat of stimulus	Rewrote the stimulus given	*Sing-sing; farm-farm*
	Repeat of example	Copied the example given	*Thato works on a farm. He is a teacher*. Taken from the example, *If I teach, I am a teacher*.
	Incomplete grasp of the rule	Added *-er* incorrectly	*Bakes-bakeser*; *drives-driveser*; *writes-writeser*
	Additional vowel in word final position	Adding vowel /e/ at the end of the word	*Sing-singe*; *farm-farme*; *writes-writese*

Source: Tšehla, P.M., 2024, 'English morphological awareness and reading comprehension in deaf and hearing Grade 3 to 7 learners from Lesotho', MA thesis, Department of Linguistics and Applied Language Studies, Rhodes University, last viewed 04 August 2026, from https://researchrepository.ru.ac.za/server/api/core/bitstreams/4e15272a-1ace-488d-99d9-3e29e0d458cc/content