

The feasibility of a morphology-based approach to teaching reading in the African languages

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Background: This investigation is necessitated by some stakeholders who believe that reading should be taught using a morphology-based approach. The endorsement of a morphology-centred approach to teaching reading is probably fuelled by desperation, invoked by the continuous poor reading performance of South African learners in Progress in International Reading Literacy Study (PIRLS) and the pronouncement that learners cannot read for meaning.

Aim: This article investigates the feasibility of teaching decoding in isiZulu and the other African languages using a morphology-based approach. It furthermore considers the overall role morphology plays in all the components of reading.

Setting: This research considers the insistence of stakeholders in early literacy across South Africa who believe that young children can be taught to read using a morphology-centred approach.

Methods: The investigation is based on both linguistic and pedagogical considerations for teaching reading in the African languages using a morphology-based approach.

Results: Young learners have no, or very limited, innate knowledge of morphemes; moreover, the identification and semantic specification of isiZulu morphemes are complicated by inter alia, the fusional nature and a lack of clear morpheme boundaries. While a morphological approach is inappropriate for teaching beginning reading, morphology has an impact on reading comprehension and language comprehension, with less influence on vocabulary building and reading fluency.

Conclusion: Like all languages using an alphabetic writing system, the orthography of isiZulu and the other African languages is based on the relationship between phonemes and graphemes, and morphology plays no role in the orthography; hence, it does not play any role in decoding either.

Contribution: This article contributes to the discussion on the use of morphology to teach early reading and the true role morphology plays in the learner's reading development.

Keywords: teaching reading in African languages; beginning reading; role of morphology in reading; morphology-based approach to reading; reading in African languages.

Introduction

There is seemingly growing support from certain stakeholders for the teaching of reading in the languages from Bantu origin using a morphology-based approach. This became evident at the National African Language Reading Programme (NALRP) Workshop held at Birchwood Hotel from 23 February 2025 to 26 February 2025.

While the poor reading competence of South Africa's children (especially those reading in an African language) necessitates an intervention to ensure that they can read for meaning by the end of Grade 3, the question is whether a morphology-based approach to teaching reading can be the catalyst to reverse this situation.

It is necessary to screen the international literature on the role of morphology in reading to ascertain whether a morpheme-based approach can be successfully implemented to teach reading (specifically decoding) in an alphabetic language. If a morphology-based approach proves to be inappropriate for teaching decoding, the next step is to determine the role of morphology on the other components of reading.

Aim

The aim of this article is to determine the feasibility of teaching reading in the African languages using a morphology-based approach. If a morphology-based approach cannot be used to teach

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reading and morphology cannot serve as the ordering principle for phonics teaching, it becomes necessary to determine and specify the role morphology plays in teaching reading in these languages.

Setting

Learners are expected to be able to read with understanding by the end of Grade 3. Since 2006, when South Africa participated in the Progress in International Reading Literacy Study (PIRLS) for the first time, its learners have consistently performed dismally. The pronouncement that South African learners 'cannot read for meaning' has misled many to believe that the problem lies at the level of reading comprehension. However, PIRLS is not a diagnostic tool, and the learners' poor performance does not indicate why learners perform poorly; it merely reveals that learners fail to adequately answer even simple questions based on a read passage. Empirical research indicates that most children cannot decode words, which means they cannot read at all (Simelane 2023; Vaz 2024).

The endorsement of a morphology-based approach to teaching reading in the African languages is probably based on three propositions. The first proposition is the pronouncement referred to above, namely that learners 'cannot read for meaning' by the end of Grade 3. The second proposition is that the African languages are highly agglutinative languages, and as such have a productive morphology. The third proposition is that morphemes have meaning and morphology will therefore facilitate learners' ability to read for meaning. The conjecture is then made that the introduction of a morphology-based approach to teaching reading will resolve the learners' inability to read. While each of the three propositions is true (even though they are not always properly understood), linking them in a causal relationship to conclude that a morphology-based approach to teaching reading will address the problem of poor reading performance by South African beginner learners is flawed. Various considerations disqualify the use of morphology for teaching reading in a language with an alphabetic orthography. Ehri (1985) pronounced as early as 1985 that even though many aspects of decoding are not yet known, what is known is that code emphasis programmes produce better beginning readers than meaning emphasis programmes.

Research methods and design

Both the feasibility of a morphology-based approach to teaching reading and the use of morphology as an organisational principle to teach phonics in the African languages are investigated from a linguistic and pedagogical basis. The literature was scrutinised for research on the role of morphology in reading and teaching reading in alphabetic languages with a particular focus on the African languages. The suitability of a morphological approach or morphological awareness to teaching beginning reading was investigated. Subsequently, the role that morphology plays in the

development of the various components of reading was considered with the goal of determining how and where morphology should be incorporated into the pedagogy of teaching reading. A limitation is that many sources fail to distinguish clearly between teaching decoding and teaching reading in general. Furthermore, there is a lack of empirical evidence on the impact of morphology on the components of reading in the African languages.

Because of the core focus of a morphology-based approach, it is necessary to define morphology properly and to describe the salient characteristics of the morphology of the African languages. It is also essential to engage with research performed worldwide on the role of morphology in reading and writing in languages with an alphabetic orthography.

A critical but concise overview is supplied of morphology and the morphology of the African languages. This is followed by an account of researchers' views on the role of morphology in teaching reading. The feasibility of a morphology-based approach to teaching reading is examined. Finally, the place and role of morphology in teaching reading in the African languages is clarified.

Ethical considerations

Ethical clearance to conduct this study was obtained from the Faculty of Education Research Ethics Committee, University of Johannesburg (No. SEM 1-2024-005).

Results

The main findings of this research are reported next under appropriate subheadings.

Basic principles of morphology

Different branches of, and approaches to, morphology and the more complex properties of morphemes are not discussed in detail in this article, neither is the impact of morphological processes on morphophonological changes in words. The focus is rather on some basic principles of morphology and a concise discussion of the role of morphology in reading. The question to be interrogated is whether a morphology-based reading programme is feasible in the African languages.

The African languages are generally classified as agglutinative languages; however, these languages are fusional rather than agglutinative as will become evident in the discussion that follows.¹

The African languages are by no means the only agglutinative and/or fusional languages. The categories, agglutinative and isolating, are two binary oppositions on

1. In agglutinative languages, the tendency is for each grammatical morpheme to denote a single grammatical function. Consider, for instance, the diminutive suffix {-ana} that seemingly denotes 'smallness' when suffixed to nouns, such as *inja* > *injana* (< *inja* + {*ana*}). On the other hand, in a fusional language, multiple grammatical functions may be expressed by a single grammatical morpheme. Consider, for instance, the morpheme {-anga} in the example *Anibonanga ixoxo* 'You did not see a frog'. This morpheme denotes the indicative mood, past tense and negative polarity. (The morpheme {-anga} operates concomitantly with the negative morpheme {a-} - the first morpheme in the verb in the example above.)

a scale with individual languages plotted somewhere on this scale in terms of their inherent morphological characteristics.

Like the African languages, Finnish and Korean are, for instance, also strongly agglutinative. Not only is Finnish a highly agglutinative language with extremely long words, it is also a language with a very complex grammar. Despite these characteristics of Finnish, and the fact that Finland only started participating in PIRLS in 2011, the Finnish learners have been among the top 10 performing countries in the PIRLS. Are the Finnish children taught beginning reading through morphology? The answer is a resounding 'no'. At the preschool level, the focus is on emergent literacy, oral language proficiency, language comprehension, and play-based preparatory activities, before the children are introduced to decoding at age 7 years. When Finnish children learn to read, phonics forms the foundation of reading instruction. Most Finnish children learn to read in the first 6 months of Grade 1, while those who experience some difficulties may take up to a year to master decoding. The children are not taught morphology at the initial stages of being taught to read; morphology is only introduced in Grade 4 and beyond.²

Let us now focus on the African languages and their morphology. A definition of morphology and the morpheme will be followed by a brief discussion of the morphology of the African languages and how morphology relates to teaching reading.

Morphology is the study of how words are made up of smaller meaningful parts called morphemes.

A morpheme is the smallest unit of form and meaning in a word that cannot be divided further (into meaningful parts).

Bauer (1992) defines the morpheme as follows:

Since morphemes have to do with both form and meaning, every morpheme must have both a form (or a series of forms) and a constant meaning. (p. 30)

According to the given definition, the grammatical form -sa- in example (1) *Basasebenza* [They are still working] is a morpheme. This morpheme has a constant form {-sa-} and denotes the (aspect of) meaning 'still' in whichever verb it appears. The above-mentioned definition also alerts us to the fact that morphemes may have variant forms.

The series of forms {isi-} and {is-} used as noun class prefixes of class 7 nouns in examples (2) *isilonda* [wound] and (3) *isandla* [hand], respectively, is a series of noun class 7 prefixes. This definition furthermore guides us to conclude that the morphemes {si-} in examples (4) *Thina siyasebenza* [We are working] and (5) *Uyasibiza* [She/He is calling us] and (6) *Isikhukhukazi siyadla* [The hen is eating] constitute different

morphemes because they express different aspects of meaning. In example (4), the {si-} is the subject morpheme of 1st person plural; in example (5), the {-si-} is the object morpheme of the 1st person plural and in example (6), the {si-} is the subject morpheme of the class 7 noun, *isikhukhukazi* [hen].

Lyons (1990) emphasises the mutual dependency between the morpheme and the word:

In the discussion of the other two 'primary' units of grammatical analysis, the word and the morpheme, we are faced with the difficulty that, whichever one we take first, we must presuppose some knowledge of the other. (p. 180)

This relationship between words and morphemes not only underscores the principle that each word category has its own morphemes but it also highlights the necessity to distinguish between orthographic and linguistic words and the requisite to recognise the linguistic word as 'the unit of description and analysis' (Kosch 2006:4). A morphological analysis will therefore account for the morphemes that occur in a particular word category, inter alia a noun, verb or pronoun and furthermore distinguish between the minimally structured word and the non-essential morphemes that may occur in each word category.

Bloomfield (1970:207), Matthews (1991:154) and Lyons (1990:101) all agree that a base-form has to be established for each word category and that the morphological processes should be described relative to that base form. Lyons (1990) describes this principle as follows:

The base-form is that form, if any, from which all the other forms of the lexeme can be derived by morphological rules of the language. (p. 101)

While it may be tempting to believe that words in the African languages are formed by simply affixing morphemes to a root, that is not so. Morphemes are affixed to the word and not to the root.³

Following a root-based description of morphology, earlier scholars, inter alia Doke (1990:135) erroneously identified the so-called verb derivative morphemes as being {-wa}, {-eka/-akala}, {-ela}, {-ana}, {-isa}, et cetera. instead of {-w-/-iw-}, {-ek-/-akal-}, {-el-}, {-an-}, {-is-}, et cetera.

Cole (1955:192) gives the same erroneous description for the verb derivative morphemes of Setswana that includes the verb final categorial morpheme as part of the derivative morpheme.

This misinterpretation was because of these scholars not realising that the verbal derivative morphemes are infixed into the word before the verb final categorial morpheme, which could be one of several morphemes depending on the mood, tense and polarity of the verb. The morpheme {-a} is the verb final categorial morpheme that appears most

²This information was corroborated by adjunct professor Reetta Niemi of the University of Helsinki in an interview on 13 March 2025 at 12:00. Prof Reetta has more than 25 years' experience in teaching (beginning) reading.

³For a discussion of the differences between a root-based and word-based morphology, refer to Posthumus (1994).

frequently and denotes the positive of the present tense of the indicative mood. In the negative of the present tense of the indicative mood, this morpheme is replaced by the verb final categorial morpheme {-i}. In the positive of the past tense of the indicative mood, the verb final categorial morpheme is either {-e} or {-ile} and finally, in the negative of the past tense, the verb final categorial morpheme is {-anga} (with {-ile} realising in specific instances).

While the first language speaker has innate knowledge of words, her understanding of morphology is at best meagre unless she has had linguistic training. If you ask a linguistically untrained isiZulu speaker what the meaning of the root {-dl-} or {-ph-} is, the typical response would be that these forms are not words. The language user does not automatically associate the root {-dl-} with the word in example (7) *ukudla* [to eat/food].

A word-based morphological approach is followed because that is the approach that yields a systematic and logically coherent account of the morphology of an African language.

Consider the example below that illustrates how the meaning of a word can be modified or extended by the application of different morphological processes to the base-form. The infinitive form is regarded as the base-form for verbs (example [8]):

ukufunda (< u-ku-fund-a) isiZulu [to learn/learning isiZulu].

umfundi (< um-fund-i) [learner].

umfundisi (< si-fund-a) isiZulu [the one who let others learn/teacher].

Sifunda (< si-fund-a) isiZulu [We learn isiZulu].

Sifundisa (< si-fund-is-a) isiZulu [We let learn/teach isiZulu].

Sisafundisa (< si-sa-fund-is-a) isiZulu [We still let learn/teach isiZulu].

Sisazofundisa (< si-sa-zo-fund-is-a) isiZulu [We will still let learn/teach isiZulu].

Sisazofundisana (< si-sa-zo-fund-is-an-a) isiZulu [We will still let learn/teach each other isiZulu].

Asizukufundisana (< a-si-sa-zuku-fund-is-an-a) isiZulu [We will not let learn/teach each other isiZulu].

African languages have a productive morphology and are highly agglutinative and fusional, which implies that the meaning of a word can be modified or extended by the addition, substitution, omission or reduplication of morphemes. It is important to observe that morphological processes in the African languages involve more than mere affixing. Consider, for instance, the singular and plural formation in nouns, which involves a substitution process as is evident in example (9) *umzali* (< um-zali) becomes *abazali* (< aba-zali [parent/parents]).

The African languages have been classified as agglutinative languages; however, they are far more fusional in nature as their morphology reveals. This means that multiple grammatical functions may be expressed by a single

grammatical morpheme. Consider, for instance, the morpheme {-anga} in example (10), *Anilibonanga ixoxo?* [Didn't you see it, the frog?]. This morpheme denotes the indicative mood, past tense and negative polarity. (Moreover, the morpheme {-anga} operates concomitantly with the negative morpheme {a-} – the first morpheme in the verb, to mark negative polarity.) The fusional nature of the morphology of the African languages complicates the analysis and mastery of morphology.

In this article, a distinction is made between three major types of morphemes, namely, grammatical morphemes, roots and stems. While some grammarians do not distinguish between roots and stems, these morphemes are distinguished as separate types of morphemes.

Grammatical morphemes are those meaningful parts of words that express aspects of meaning or grammatical function. (Consider the morphemes {uku-}, {si-}, {-is-}, {-sa-} and {-zo-} in example [8] above).

A stem is that part of a word that is left after some morphemes have been isolated and which comprises at least a root and one or more grammatical morphemes. (The part {-funda}, left after the subject morpheme {si-} and the progressive morpheme {-sa-} have been isolated from the word in example (11) *sisafunda* [we are still learning], would be a stem because it comprises the root {-fund-} and the verb final categorial morpheme {-a}).

A root, on the other hand, is that part of the word that carries the semantic load of the word and which cannot be broken down further into morphemes. The part {-fund-} in the verb *sisafunda* is the root that carries the meaning of 'learn'. The part {-hlahla} in the noun (12) *isihlahla* [tree] constitutes the root because it cannot be broken down further into morphemes.

Morphology and reading development

Reading development entails learning how a writing system encodes language. The operating principles apply to three broad aspects of learning to read, namely, becoming linguistically aware, acquiring word decoding skills, and learning to comprehend.

Verhoeven and Perfetti (2022) conclude as follows on the universal principles of reading across languages and different writing systems:

Across languages we found that learning to read builds upon a child's phonological awareness, i.e., their ability to attend to the sounds of language independent of meaning. Broadly, this awareness entails the ability to isolate words in sentences, but more narrowly, the ability to identify sub lexical units – syllables, rhymes, the beginnings of words, the ends of words, and phonemes. (p. 156)

These scholars describe phonological awareness as the ability to isolate words in sentences, and more specifically, the

ability to identify the constituents within words, namely, syllables, rhymes, the beginnings and ends of words, and phonemes, independent of meaning.

While the quote above from Verhoeven and Perfetti (2022) does not specify the role of morphology, Berninger et al. (2003) clarify the role of morphology in reading. They state that learning to read and write requires orthographic and phonological awareness, while orthographic and morphological knowledge become more prominent as older children acquire more morphologically complex words.

A morphology-based approach to teaching reading

From the sparse information available on the proposed morphology-based approach to teaching reading, it seems as if this approach does not include stems or roots but instead relies on grammatical morphemes. According to the proponents of this approach, the major consideration for introducing this approach is to address the beginner readers' inability to 'read for meaning'. While meaning-making is the ultimate goal of reading, like so many complex skills, there are various foundational skills that need to be in place to scaffold the ultimate goal. Some foundational competencies the beginner reader must acquire are cognitive development at the desired level to embark on the task of learning to read; a grade-appropriate vocabulary, an appropriate level of oral proficiency in the target language, background knowledge, alphabetic knowledge, and the necessary control of executive functions. With these prerequisites in place, the major task of the beginner reader is to convert the letters on paper into spoken language so that she can hear the words, recall them in her brain (because she has entailed them repeatedly in oral language usage before) and link the individual aural forms to their meanings and also link their meanings to those of the other words in the sentence. At this stage, meaning-making for the beginner reader is based on (1) the ability to convert letters and graphemes⁴ accurately and fluently into spoken words, pronouncing them with natural prosody (decoding), and (2) identifying and recalling the meaning of the words from her memory, obtained through oral language proficiency, vocabulary acquisition and background knowledge.

There are various factors to contemplate when considering the introduction of a morphology-based approach to teaching reading. The major considerations are: (1) Grammatical morphemes do not have independent meaning; they express aspects of meaning. Moreover, the meaning of a morpheme is activated in the context of a word. (2) The morphology of the African languages is complex. The agglutinative and fusional nature of the African languages and the absence of clearly marked morpheme boundaries make it difficult to identify and assign aspects of meaning to each morpheme.

⁴The term 'grapheme' is an umbrella term that refers to, (1) a single letter (such as 'd'); (2) the combination of letters (such as 'hl' or 'tsh') or (3) a letter with a diacritic (such as the Sesotho sa Leboa phoneme 'š' or the Tshivenda phoneme 'ḑ') that represent a single speech sound.

Different morphemes may have the same phonological form, while on the other hand, a particular morpheme may have a series of forms (morpheme variants). (3) The nature of concomitant morphemes further complicates the implementation of a morphology-based approach. (4) Many phonemes do not occur in any grammatical morphemes, yet all the phonemes have to be taught systematically for reading to be successful. (5) A proper understanding of the morphology is dependent on extensive exposure to the language and a deeper understanding of its grammar. (6) The true role of morphology in reading.

Grammatical morphemes do not have independent meaning; they express aspects of meaning

While words have independent meaning, morphemes do not. The aspects of meaning conveyed by a morpheme are determined by various factors, inter alia: (1) the word category of the word in which the morpheme appears; (2) the morpheme's position in the word; and (3) the presence of other morphemes co-occurring with the particular morpheme in the word.

The seemingly simple morpheme {-ba-} of isiZulu may be the true noun class prefix when it appears as part of a class 2 noun as in example (13) *abafana* [boys]. However, if the {-ba-} appears as the first morpheme in a verb with a class 2 or 2a noun as subject, the {-ba-} is the subject morpheme, as in example (14) *Abazali/Omkhulu baye esontweni* [The parents/grandparents {they} went to church].

If the morpheme {-ba-} occurs as the first agreement morpheme in a verb in the positive, it is a subject morpheme as in example (14) above. However, if the morpheme {-ba-} appears directly before the verb root (containing another subject morpheme), it is the object morpheme of a class 2 or 2a noun, as in example (15) *Sibabone esontweni oThembi* [We saw them {Thembi and company} at church].

In example (16), the {-ba-} is the inchoative copulative verb stem: *Lo mfana uba yiqhawwe* [This boy is becoming a warrior].

The morpheme {-ba-} may thus be the true prefix of a noun in class 2 as in example (13); the subject morpheme of a noun in class 2/2a as in example (14); the object morpheme of a noun in class 2/2a as in example (15), or the inchoative copulative verb stem as in example (16). The Foundation Phase child will have to possess intricate knowledge of isiZulu grammar to be able to tell these morphemes apart. Moreover, even if the beginner reader were able to distinguish between these morphemes, that will not enhance her decoding competence.

In examples (17) and (18), there are similar word forms (morphemes) {-nga-} (in the same position in the two verbs), namely, after the subject morpheme {u-} and before the verb roots {-fund-} and {-phum-}, respectively. However, these two forms constitute different morphemes because of the presence of other morphemes in these verbs respectively:

Example (17): *Uma ungafundi awuphumeleli* [If you don't learn, you don't succeed].

Example (18): *Ungaphumelela uma ufunda* [You can/may succeed if you learn].

In example (17), the morpheme {-nga-} is the negative morpheme of the verb in the participial mood. (This morpheme {-nga-} operates concomitantly with the verb final negative morpheme {-i} to mark the verb as being negative.) In example (18), the morpheme {-nga-} is the potential morpheme expressing a possibility. These two morphemes are thus different morphemes even though they appear in the same position and in words from the same word class. The difference in meaning is because of the presence of other morphemes co-occurring with {-nga-} in the verb.

The morphology of the African languages is complex

The morphology of the African languages is complex because: (1) most grammatical morphemes are fusional, meaning that a single morpheme may denote different aspects of meaning; (2) word parts with the same phonological form express different meanings; (3) morphemes have variant forms; (4) morpheme boundaries are often difficult to determine; and (5) concomitant morphemes signify a single aspect of meaning.

A particular grammatical morpheme expresses different aspects of meaning

A particular grammatical morpheme often expresses more than one aspect of meaning in the African languages (which is a typical characteristic of fusional languages, as mentioned earlier). Consider in this regard the verb final categorial morpheme {-i} in the verb, *asivilaphi* (example [19]): *Thina asivilaphi* [We, we are not lazy]. In this example, the morpheme {-i} marks the negative of the present tense in the indicative mood. This insight can only be gained because of a holistic understanding of the verbal categories mood, tense and polarity, which the beginner reader does not yet possess.

The so-called relative morpheme {ezi-} in example (20) *Izinja ezingezinkulu ...* [The dogs that are not big ...] also denotes multiple grammatical functions. The {ezi-} denotes the antecedent as belonging to class 10, it also marks the antecedent as plural and finally, it marks the clause as being in the relative mood.

Word parts with the same phonological form express different meanings

As indicated earlier, the word form -ba- may be the true prefix of noun class 2, the subject morpheme of a noun in class 2/2a, the object morpheme of a noun class 2a noun or the inchoative copulative verb stem.

The word form -nga- may be the negative morpheme of a non-indicative verb as in example (21) *Ngimbiza ukuze angahambi* [I call him/her so that he/she does not leave];

it may be the instrumental morpheme as in example (22) *Sihamba ngamabhasi* [We are travelling with buses]; it may be the referential morpheme as in example (23) *Sikhuluma ngaye uThembi* [We are talking about her, Thembi]; it may be the potential morpheme as in example (24) *Singakusiza* [We may/can help you], or a locative non-specificity morpheme as in example (25) *Siya ngasemfuleni* [We are going to the vicinity of the river].

The word form u- may be the preprefix of noun classes 1, 1a, 3, 15, and 17 as in example (26) *umuzi* [homestead]; the subject morpheme of 2nd person singular as in example (27) *Wena usebenza lapha na?* [Do you work here?], or the subject morpheme of a class 1/1a noun as in example (28) *UVusi uyafunda* [Vusi is learning]. (The subject morpheme of the 2nd person singular {ù-} [with low tone] and the subject morpheme of class 1/1a {ú-} [with high tone] differ tonologically; however, this distinction is not marked in the isiZulu orthography.)

Morphemes have variant forms

Thus far, the discussion focused on morphemes with easily identifiable forms, for instance, the morpheme {-ba-}. However, the morpheme {-ba-} has an allomorph. Allomorphs may be phonologically, morphologically, lexically or facultatively determined. Consider for instance the morpheme variant {-be-} that occurs as the true prefix of certain class 2 nouns, notably example (29) *abelusi* [herdsmen] or the allomorph of the subject morpheme of class 2, {be-} that realises before vowel verb stems, in cases such as example (30) *Abafana behla* (< ba-ehla) *entabeni* [The boys are descending from the mountain].

It may be tempting to label the morpheme {u-} as the subject morpheme of class 1, as in the example (31), *Umfana uyadlala* [The boy is playing]. However, the subject morpheme {u-} realises as the subject morpheme of a class 1 noun only if the verb is in the present tense positive of the indicative mood. The subject morpheme of a class 1 noun can also realise as {e-}, {a-}, {o-} or {wa:-} in the participial mood, subjunctive mood, relative mood and the remote past tense, respectively. Consider the exemplifying examples: Example (32) *Uma umfana edlala siyamyeka* [If the boy plays, we leave him alone], example (33) *Umama uculela umntwana ukuze alale* [mother sings to the child until he/she sleeps], example (34) *Umfana olele akangangi* [A boy who is sleeping, is not naughty], and example (35) *Umfana wasivakashela ngonyaka odlule* [The boy visited us last year].

Morpheme boundaries are often difficult to determine

To identify the grammatical morphemes in a word, the learner must be able to first identify the root of that word. Even this basic step may prove to be challenging because of the lack of morpheme boundary clarity in different kinds of isiZulu polymorphemic words. Identifying the root and grammatical morphemes of the word in example (36) *utshani* as u- + bu- + ani (< u-bu-ani > *ubwani > utshani [grass]) is not that obvious.

Consider examples of morpheme variants that are more challenging to analyse because of their changed forms caused by vowel juxtaposing. Consider examples (37) to (40) that contain phonologically determined allomorphs of the 'instrumental morpheme' {-nga-}:

Example (37): *Sibona ngamehlo* (< nga + amehlo) [We see with {our} eyes].

Example (38): *Sisika ngomese* (< nga + umese [ngomese]) [We cut with a knife].

Example (39): *Sisika ngomese* (< nga + omese [ngomese]) [We cut with knives].

Example (40): *Sigawula ngembazo* (< nga + imbazo) [We chop with an axe].

The instrumental 'morpheme' {-nga-} with its phonologically determined allomorphs, namely {-ngo-}, {-ngô-}, and {-nge-} are different forms of the same morpheme. A Foundation Phase learner cannot be expected to gain this knowledge merely to decode text, while these morphophonological processes have nothing to do with decoding.

Instances of morphophonological changes to consonants because of the affixing of certain morphemes are even more complex. Consider examples (41) to (45), where the affixing of the diminutive suffix (basically) {-ana}, the locative suffix {-ini}, and the passive morpheme {-w-} lead to sound changes:

Example (41): *emlonyeni* (< umlom(o) + (i)ni > *emlomweni > emlonyeni) [on/in ... the mouth].

Example (42): *isigujana* (< isigubh(u) + (a)na > *isigubhwana > isigujana) [a small clay pot].

Example (43): *Lo mgodi ugujwe* (< ugubh + w + e > *ugubhwe > ugujwe) *ingungumbane* [This hole was dug by a porcupine].

Example (44): *emthonjeni* (< umthomb(o) + (i)ni > *emthombweni > emthonjeni) [at/to ... the fountain].

Example (45): *inkatshana* (< inkab(i) + (a)na > *inkabyana > inkatshana) [a small ox].

In the examples above, involving palatalisation, the presence of a(n) (underlying) resultant semivowel /w/ or /y/ leads to the sound changes.

According to Anderson and Li (2006) and Duncan (2018), cross-linguistic variation in morpheme boundary transparency has an impact on the emergence of morphological awareness, which in turn impacts the use of morphology in reading. The impact of morphological knowledge on reading will thus be delayed in a language with a complex morphology such as isiZulu.

Even if the beginner reader were able to analyse the morphemes in words correctly and identify the form and meaning or grammatical function of each morpheme correctly, it would not facilitate decoding because the writing system is not based on morphology – reading is all about understanding the phoneme–grapheme relationships and having the competency to map phonemes onto the graphemes of the written form. The beginner reader must focus

exclusively on the phoneme–grapheme relationships when learning to decode and write in an alphabetic language.⁵

Acquiring literacy skills in a language with an alphabetic orthography (such as isiZulu) where the focus is on the relationship between phonemes and graphemes, leads to the development of metalinguistic awareness of phonemes, whereas in a language such as Chinese, where the logographic symbols correspond to whole morphemes the learners develop a metalinguistic awareness of morphemes (Duncan et al. 2006, 2013). The difference between these two types of orthographies implies that while morphology plays no role in the orthography of isiZulu and cannot facilitate decoding, it has relevance in a language such as Chinese, where the logographic symbols correspond to morphemes.

Concomitant morphemes signifying a single aspect of meaning

Another complexity relating to the morphology of the African languages is the occurrence of concomitant morphemes. Concomitant morphemes are two morphemes that act together to mark a grammatical meaning/function. There is a surprisingly high number of concomitant morphemes in the African languages. Typical examples of concomitant morphemes are the negative morphemes {a-} and {-i} of the indicative mood, present tense in an example such as in example (46) *Abaxoxi* [They are not conversing] or the negative morphemes {-nga-} and {-i} in the non-indicative moods, for instance in the subjunctive mood in an example such as example (47) *Ngimduduzela ukuze angakhali* [I am comforting her so that she should not cry]. Other examples of concomitant morphemes are the locative morphemes {e-/o-} ... {-ini} in locative derived nouns such as example (48) *ehlathini* [at/in ... the forest] and example (49) *okhunini* [at the tree stump] and the deverbatives, for instance: Example (50) *ukugijima* > *umgijimi* [to run - runner].

Many phonemes do not occur in any grammatical morphemes, yet all the phonemes have to be taught systematically for reading to be successful

Many isiZulu phonemes do not appear in any of the grammatical morphemes, notably the three click sounds /c/, /x/ and /q/ with their aspirated and voiced counterparts and the sounds /b/, /d/, /f/, /g/, /h/, /j/, /p/, /r/, /t/, /v/, /ph/ /dl/ and /tsh/.

This is yet another reason why a morphologically based approach to teaching beginning reading is incongruous. All the phonemes of the language have to be taught systematically and up-front if reading and writing is taught optimally. This will not be possible if a morpheme-based approach to teaching reading is used as the ordering principle to teach phonics.

⁵ Consider the impact a limited intervention involving a synthetic phonics programme had on Brazilian Grade 1 children's reading performance, where reading is still taught through a constructivist method using a Whole Language approach (Olalla et al. 2025).

A proper understanding of the morphology is dependent on extensive exposure to the language and a deeper understanding of the grammar of the target language

A proper understanding of morphology is only possible after the learner has been exposed repeatedly to a wide spectrum of written language forms and gained a holistic understanding of the language structures and/or has been formally taught morphology.

Would the beginner reader be expected to compose or decompose morphemes, bearing in mind that decomposing tasks are easier for younger children than composing tasks? (Berninger et al. 2010; Carlisle & Fleming 2003; Fowler & Liberman 1995; Kruk & Bergman 2013). Composing is more demanding of cognitive resources than decomposing for younger children (Carlisle 2000). Composing requires an understanding of the semantic and syntactic characteristics of morphemes and the effectual application of word formation processes (Berninger et al. 2010).

Morpheme processing in the African languages is simply too complex and diverse to serve as a basis for teaching (beginning) reading. Referring to a few grammatical morphemes in the process of teaching decoding does not constitute a morphology-based approach to teaching reading. At best, the introduction of selected morphemes would constitute morphological awareness and even then, its value is questionable as pointed out by Nation and Bauer (2023):

Short-term morphological awareness intervention studies with young native speakers do not show striking gains on measures of literacy (Nagy, Carlisle and Goodwin 2014), largely because morphological knowledge is only one of many components contributing to literacy, and because longer-term interventions are needed to help morphological awareness influence morphological processing. (p. 82–83)

The true role of morphology in reading

Many researchers have suggested that morphology plays an important role in the reading ability of both children and adults but very few specify when and how morphology should be introduced to teach reading. The contribution morphology makes to reading is indisputable; however, what is less clear is the role morphology plays in early reading. James et al. (2021) highlight two major roles that morphology plays in reading, namely to establish word boundaries and to integrate semantics and syntax in facilitating high-level comprehension:

An appreciation of morphemes – the units of meaning that make up words, such as prefixes, roots and suffixes – is strongly related to reading ability in both children and adults (see Rastle 2019, for a review). Models of reading comprehension describe two roles for morphology (Perfetti, Landi & Oakhill 2005). At a lexical level, it can support successful identification of boundaries in written words.

...

As part of the broader linguistic system, morphology integrates meaning and syntax to support higher-level comprehension processes (e.g., Perfetti & Stafura 2014). (p. 111)

Verhoeven and Perfetti (2003) explain quite eloquently that the primary decoding mechanism is a phonological mechanism and that morphological awareness and progress in reading are reciprocal and mutually facilitative. Morphological awareness develops as a consequence of reading instruction:

Clear research evidence shows that word identification in learning to read requires a phonological mechanism that generates phonological word forms. A phonological constituent applies as soon as the child begins to treat the letters of a word as having speech associated with them. However, the role of morphology in learning to read is less well understood. How children learn to recognize more complex words on the basis of their constituent parts remains to be established. Although children perceive speech and recognize words, there is nothing in that ability that makes visible the composition of the speech in terms of morphological constituents.

The relationship between awareness of morphology and progress in reading acquisition can also be seen as reciprocal and mutually facilitative in that morphological awareness develops as a consequence of reading instruction. (p. 211)

Carlisle (2000) and Nagy, Carlisle and Goodwin (2014) refer to Ehri's Phase Theory of Reading Development in echoing the idea that knowledge of morphology benefits the reader once the alphabetic principle has been secured:

According to the prominent Phase Theory of Reading Development (Ehri 2005, 2014), morphological processes influence literacy once knowledge of the alphabetic principle is secure.

... Thus, morphemes impact word reading efficiency in that they recur in print and become consolidated orthographic chunks (Ehri 2005), with, for instance, -able increasing reading efficiency across questionable, walkable and comfortable. Thus, Phase Theory considers the influence of morphology to be late emerging, treating morphemes (e.g., able) analogously to other letter patterns (e.g., ight). (p. 13)

Ehri explains that learners gain automaticity in reading, recognising letter combinations and patterns only during the 4th and final stage of their reading development (the consolidated alphabetic phase). Rather than sounding out each letter in a word individually, learners begin to recognise letter patterns and combinations and high-frequency morphemes. During this stage, readers are rapidly becoming more fluent, and reading becomes more automatic in recognising and reading words.

Rastle (2019) is one of the researchers who points out that morphology impacts word decoding only if the morphological process is semantically transparent:

One potentially important piece of data is that developing readers in primary school do not appear to show the morpho-orthographic segmentation characteristic of skilled adult readers. Masked priming experiments across English (Beyersmann, Castles & Coltheart 2012) and French (Beyersmann et al. 2015)

have shown robust morphological priming effects on word recognition for these children, but only when morphological primes have a semantically-transparent relationship with targets (e.g., darkness-DARK). (p. 51)

This finding has particular relevance for fusional languages such as the African languages, where a single morpheme can denote different aspects of meaning and morphological processes lead to morphophonological changes, inter alia, vowel coalescence and palatalisation, which complicates the identification and analysis of morphemes.

Morphological skills benefit the more skilled reader. Even for a language such as English, with a less complex morphology, Carlisle points out that morphological knowledge benefits Grade 5 learners more than Grade 3 learners because the Grade 3 learners are still developing their word recognition skills and have had less exposure to a variety of words with the same or similar morphological structure (Carlisle 2000):

At both grade levels, the morphology measures together contributed significantly to reading comprehension. The relationships were particularly strong for the fifth graders, but it is noteworthy that they were significant for the third graders, who are presumably still learning basic strategies for recognizing polysyllabic words in print. (p.184)

Reading comprehension may be the reading skill most strongly influenced by early morphological abilities (Kirby et al. 2012). Children who receive morphological training show improved reading comprehension (Arnbak & Elbro 2000; Bowers, Kirby & Deacon 2010). Reading comprehension is one of the unconstrained reading skills, which typically develops once the child can decode. This is one of the reasons why the early introduction of morphology or its introduction as an ordering mechanism for teaching phonics is nonsensical. Kruk and Bergman (2013) maintain that morphological decomposition advances through the development of reading comprehension:

Only initial reading comprehension abilities predicted later decompose ability, indicating the importance of semantic and syntactic knowledge from early reading experience on growth in morphological processing of spoken multimorphemic words. (p. 29)

While it is true that understanding the morphology of the language facilitates reading comprehension it is also true that reading develops children's understanding of morphology due to extensive exposure to the use of morphemes in different contexts.

Kruk and Bergman (2013) explain that learners start recognising morphemes and their grammatical functions because of repeated exposure to them in different word contexts. This process of increasing morphological and lexical knowledge develops in later years and is cumulative:

Skilled readers may recognize, for example, how suffixes contribute to the meaning of novel multimorphemic words by accessing similar suffixes stored in lexical representations of known words established as a consequence of repeated exposures

orally and in print to words that contain the same suffix. It is likely that the full effects of exposure to progressively more sophisticated written language on developing morphological and lexical knowledge become evident during later years and are cumulative. (p. 12)

Reading comprehension and morphological skills are typically late emerging and are mutually facilitative as pointed out by Carlisle (2000), Verhoeven and Perfetti (2003), Ehri (2005, 2014), and Nagy, Carlisle and Goodwin (2014).

Some scholars explain the enhancement of reading comprehension by morphological skills as a reader's morphological capabilities enhancing word recognition and the process of accessing semantic information of the word, freeing up working memory for meaning making and establishing relations between words in the text, which lead to enhanced reading comprehension (Bowers et al. 2010).

A skilled reader may, for instance, comprehend how a morpheme (such as {-is-}) contributes to the meaning of a novel multimorphemic word (in an example such as [51] *Ubaba wakhisa oThemba isibaya* [Father lets Themba and company build a kraal]) by comparing the morphology of this word to that of lexical items stored in memory because of repeated exposure to words containing similar morphemes previously entailed orally or in print (such as example [52] *Umama ugezisa izingane izitsha* [Mother lets the children wash the dishes]).

While a morphology-based approach to teaching reading is inapt, the introduction of morphological awareness sensitises children to the underlying morphological systems of the language, which become crucial to hone their reading (and writing) skills when they become skilled readers. In African languages, selective morphological awareness may be introduced incrementally from Grade 1 or even earlier as incidental learning to sensitise the learners to, for instance, the principles of singular and plural formation in nouns, simple noun-verb agreement and tense marking in simple verb forms. Children in the Foundation Phase will have varying degrees of knowledge about these language characteristics depending on the quality of exposure they have had to oral language usage. The introduction of morphological awareness does not form part of word decoding though.

The fusional nature and difficulty of determining the boundaries of certain grammatical morphemes of isiZulu make it challenging to identify and manipulate morphemes. Consider, for instance, the possessive word group *lomfana* in the sentence (example [53]) *Ibhayisikili lomfana liphukile* [The bicycle of the boy is broken/The boy's bicycle is broken]. Vowel juxtaposing results in a two-phase process of vowel change, namely $Ci + a > Ca$ and $Ca + u > Co$: $li+a > la$; $la+umfana > lomfana$. It is not at all obvious that the form *lo-* in *lomfana* comprises 3 morphemes, namely the agreement morpheme {li-}, the possessive morpheme {-a}, and the pre-prefix {u-}.

Verhoeven and Peretti (2022) claim that the critical questions to be answered are: (1) how do orthographic, phonological, and semantic information become available during visual word identification? (2) how do children gain morphological awareness? (3) how do children acquire sets of rules for reading and spelling multimorphemic words? and (4) to what extent can such rules be explicitly taught?

While morphology does not form part of decoding, it is essential for: (1) language comprehension; (2) vocabulary building; (3) word form prediction in reading and writing; (4) reading fluency; and (5) reading comprehension at a more advanced stage of reading. This is particularly true for highly agglutinative and fusional languages such as the African languages with their productive morphology.

Even if the beginner reader can identify certain morphological forms that will not enhance her decoding skills. The writing system of alphabetic languages (such as the African languages) is based on the principle that each distinctive speech sound is represented by a grapheme in writing. Because reading and writing are the two sides of the same coin, it is obvious that reading would be the reverse process of encoding. This means that when reading, the reader has to map the corresponding phonemes onto the graphemes of the written word and blend the phonemes to pronounce the word. Numerous scholars have indicated that the success of beginning reading depends on the child's knowledge and competency to convert written words and/or texts into spoken language.⁶ The neuroscientist, Dehaene (2009:219), among others, emphasises this crucial step in the process of learning to read. Consider his explanation of the importance of decoding:

The goal of reading instruction is clear. It must aim to lay down an efficient neuronal hierarchy, so that the child can recognize letters and graphemes and easily turn them into speech sounds. *All other essential aspects of the literate mind – the mastery of spelling, the nuances of meaning, and the pleasures of literature – depend on this crucial step.* [Author's own emphasis]

A morphological approach will have to account for all the morphological complexities mentioned above: an overwhelming task for the beginner reader (and probably even for the Foundation Phase [FP] and Intermediate Phase [IP] teacher).

The place and value of morphology in reading in the African languages

The assumption is by no means that morphology is inconsequential for reading. Morphology, like phonology, syntax, semantics and pragmatics, is important for reading. However, morphology cannot form the basis for teaching reading and does not feature as part of word decoding, which is the foundational step in beginning reading.

6. Research evidence shows that the synthetic phonics approach to teaching reading yields the best results. The basis of this approach is that the phoneme-grapheme relationships should be taught systematically and up-front before the child is expected to start reading. (The child should not be expected to read a word containing phonemes that have not yet been taught).

Systematic morphological training should start when the learners have mastered the 'basic mechanics of reading', and the focus has shifted from decoding (which is a constrained reading skill) to the other components of reading, in particular reading fluency, language comprehension and reading comprehension.

The question is not whether morphology should be part of teaching reading, but rather when and how it should be included. What is abundantly clear is that it cannot serve to teach beginning reading. More empirical research is necessary to determine when and how morphological awareness and formal morphology teaching should be introduced in a programme to teach reading in the African languages.

Levesque, Breadmore and Deacon (2021) remark as follows on the role of morphology in teaching reading:

Morphemes, the smallest units of meaning in a language, are the fundamental building blocks that encode meaning, and morphological skills enable their effective use in oral and written language. Increasing evidence indicates that morphological skills are linked to literacy outcomes, including word reading, spelling and reading comprehension. Despite this evidence, the precise ways in which morphology influences the development of children's literacy skills remain largely underspecified in theoretical models of reading and spelling development. (p. 11)

According to the prominent Phase Theory of Reading Development (Ehri 2005, 2014), morphological processes influence literacy once knowledge of the alphabetic principle is secure. Children in the Foundation Phase will have varying degrees of knowledge about these language characteristics depending on the quality of exposure they have had to oral language usage. The introduction of morphological awareness will facilitate children's understanding of some foundational principles of the morphological system of the language, which will become crucial to hone their reading (and writing) skills when they become skilled readers.

Morphological knowledge and skills are valuable to the more skilled reader; however, teaching reading using a morpheme-based approach or using morphemes as the ordering principle for teaching phonics will be detrimental rather than beneficial to the beginner reader, as has been pointed out in this article. This is borne out by various empirical studies on reading and the practice of teaching reading in other highly agglutinative languages such as Finnish.

Before a novice approach is introduced to teach a key competency, such as reading, the onus is on the champion(s) of the proposed approach to provide counterevidence to existing evidence (in this case, converging evidence of the predictive effect of phonological processing on early reading ability). Introducing a radically different approach to

beginning reading without empirical evidence to support such an approach would be irresponsible and may cause even further delays in acquiring the basic reading skills to put the child on a strong reading trajectory.

To argue that teaching reading in the African languages using the phonics approach is ineffective is a strawman argument. A proper synthetic phonics approach has not been used to teach beginning reading in the African languages. There is not even consensus on the phonemes of isiZulu nor the order in which they should be taught. There is also no comprehensive phonics programme accompanied by decodable reading texts to allow the learners to systematically practice reading the taught phoneme-grapheme relationships. Learners are also not exposed to the consonant blends or clusters in a systematic way. The introduction of the blends should be synchronised with the sequence in which the phonemes are taught.

Even though the synthetic phonics approach to teaching reading cannot be discussed in this article it is necessary to refer to it because the proponents of the morphology-based approach argue that the 'phonics approach' has failed to enable the African language speaking children to read in their Home Language. The synthetic phonics approach, which has become the gold standard for teaching reading, needs to be analysed carefully to understand why this approach yields the best results consistently, and to determine how it should be applied to teaching reading in the African languages.

Conclusion

The problem with a morpheme-based approach to teaching (beginning) reading is not only the high number of morphemes, but there is a plethora of other serious challenges with such an approach. Consider the most salient issues listed as follows:

- Teaching decoding entails the systematic and up-front teaching of all the phoneme-grapheme relationships in the target language to enable the child to convert the squiggles on paper into spoken words so that she can hear and recognise the words and associate their aural form with their meanings (which she has acquired through oral language exposure).
- The alphabetic writing system employed by the African languages is based on the principle of each phoneme being represented by a particular grapheme and is in no way governed by the morphology. In learning to read (decode), the focus should be on mapping phonemes onto graphemes.
- Young children have knowledge of words through exposure to oral language. The aim of beginning reading is to convert the written word into its spoken form. When the child hears known words, she will know their meaning, thus making sense of what she reads. This is the reason why it is imperative to use known words or explain the meaning of less-known words before beginner readers read decodable (or graded) texts. This is also the

reason why children need to read aloud. In the early stages of reading, children do not yet have conscious knowledge of morphemes. They gain knowledge of morphemes due to extended exposure to language structures in different contexts (as part of reading) and the overt teaching of morphology.

The main reason for wanting to teach reading using a morpheme-based approach is that the African languages are morphologically productive and that morphemes have meaning. The first assumption is true; the African languages have a productive morphology; however, that does not justify the use of morphology to teach reading in an alphabetic language. Morphology does not form part of decoding in alphabetic languages. Using morphemes as the basis for ordering the teaching of phonics is also unworkable because there is no direct relationship between phonemes and morphemes.

- Many phonemes do not appear in any of the grammatical morphemes. Using morphemes as a basis for teaching phonics will therefore result in gaps.
- African language morphology is complex. There is no one-to-one relationship between grammatical morphemes and their (aspects of) meaning; moreover, morpheme boundaries are not that easily distinguishable, and most grammatical morphemes have variant forms. These characteristics complicate the identification of morphemes and their meanings.
- It would be irresponsible to introduce a novel, unproven approach to teaching a foundational skill such as reading without determining its efficacy and supplying detailed guidelines on its implementation.
- A morphology-based or morphological awareness approach to teaching beginning reading is inappropriate; however, once the learners have mastered the task of decoding words (which is a constrained skill), formal morphology teaching will benefit the skilled reader on a number of levels related to reading, notably language comprehension, reading comprehension, vocabulary building, reading prediction and reading fluency.

If the alphabetic principle is used for writing isiZulu, why try to read it using an unrelated principle? Using a morphology-based approach to teaching decoding in an alphabetic language is tantamount to trying to teach a child to ride a bicycle by letting her push a wheelbarrow.

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