

Working article: A vocabulary journey with Foundation Phase teachers

Elizabeth J Pretorius

Research Fellow, Department of Linguistics and Modern Languages, University of South Africa

Sarah Murray

Centre for Social Development, Rhodes University

BACKGROUND

In this document we reflect on the English vocabulary development of Foundation Phase (FP) teachers who were formally involved in an early reading intervention programme, the Zenex Literacy Project (henceforth referred to as the Zenlit Project) funded by the Zenex Foundation from 2015-2017. Teacher vocabulary development was not the main focus of the project. The primary goal of the project was to improve FP teachers' reading instruction, reading assessment practices, routines and the print-richness of their classrooms in order to improve the literacy performance of their Grade 1-3 learners. In site visits prior to the implementation of the project, teachers expressed a desire for support to improve their English language proficiency. Because this was beyond the purview of the project, it was decided to accommodate their request in a way that was more in line with the literacy focus of the project. To this end, a vocabulary component was included in the project as an exploratory avenue to help the teachers develop their own vocabulary in both their home language (HL) and in English additional language (AL), and thereby also indirectly improve their language proficiency. Given the importance of vocabulary in language proficiency in general and reading development in particular in any language, the rationale was that if teachers are made aware of how vocabulary develops and what factors support or impede vocabulary growth, then they can help their learners develop rich vocabularies in both their HL and AL in FP.

In this paper we describe our exploratory in-service vocabulary journey with the teachers; we outline the vocabulary intervention within the broader literacy project and the teachers' uptake of this component of the project and changes in their vocabulary growth over the three-year period of the project. An examination of the relationship between teacher vocabulary knowledge and learner performance is an aspect that we leave for future research.

OVERVIEW

Vocabulary knowledge can serve as an indicator of language proficiency. An important aspect of Foundation Phase teachers' knowledge is their proficiency in the languages (home and additional) that they teach. The richness of a teacher's language can impact on the learners in the classroom. Very little research has been done on teachers' vocabulary knowledge in South Africa. Because there are currently no standardised vocabulary assessments in African languages, an English vocabulary test based on word frequency levels was used as a first step in exploring teacher vocabulary in early schooling. In this working paper we reflect on the English vocabulary development of a group of FP teachers who were part of an early literacy intervention project in three provinces. Support for improving literacy practices and vocabulary was provided to the FP teachers via quarterly workshops over a three-year period, and their vocabulary growth was documented during this time, using the Vocabulary Levels Test (Nation 2006). The effect of factors such as language (English Home Language vs EAL), urban vs rural location, age, and status (HOD vs teacher) on vocabulary growth was examined. The EAL teachers in the Eastern Cape and Kwazulu-Natal were isiXhosa and isiZulu speakers respectively, whereas those in the Western Cape were predominantly English home language (EHL) speakers. For teachers who remained in the project for three years there was a large effect size on English

vocabulary. As expected, the teachers assessed in their home language (HL) knew more words at each frequency level as well as overall. There were no significant differences between urban and rural EAL teachers, and no clear age advantage emerged. However, HODs had higher overall mean vocabulary levels than teachers. Vocabulary growth varied across teachers, irrespective of EHL or EAL. Based on these promising outcomes, pointers for future research in this area are suggested.

Introduction

In the field of language and literacy there are several markers or indicators that are used to characterise proficiency or detect a potential problem area. For example, assessment of phonemic awareness can help to identify children who might have problems with decoding (Spear-Swerling 2004; Kilpatrick 2015), and a sentence or nonword repetition task can identify children with language impairment (Archibald & Joanisse 2009; Gagiano & Southwood 2015). Vocabulary is also a marker variable as it shows strong associations to other areas of verbal skill such as listening comprehension, reading comprehension and writing (Alderson 2005; Helman & Burns 2008; Stæhr 2008), academic performance (Dickinson & Tabors 2001; Scheepers 2014) and general knowledge (Cunningham & Stanovich 2001; Dougherty, Stahl & Stahl 2012). In the formal learning context, learners who know more words tend to perform better than learners who know fewer words, whether in one or more languages. Nurturing vocabulary development is thus beneficial in the educational context. Because vocabulary is an indicator of verbal proficiency, it has been fairly extensively studied across the decades. Much of this research has focused on the vocabulary development of pre-primary, primary and high school children as well as university students, but very little research has been done on teacher vocabulary (Corrigan 2010; Creighton 2022).

There has been a large body of research over the past thirty years showing that the home environment determines to a large extent children's language proficiency and their vocabulary profile (the extent of their word knowledge and the kinds of words they know) in the preschool and early school years (Storch & Whitehurst 2002; Biemiller 2003; Farkas & Beron 2004; Pan, Rowe, Singer & Snow 2005; Corrigan 2010; Fernald, Marchman & Weisleder, 2013; van Hees & Nation 2017). Surprisingly, there has been far less research on the effects of the classroom environment, specifically the effects of teachers' language on children's language or literacy development in the primary school years.

Similarly, there have also been ongoing debates and research in education about teacher knowledge (their content, pedagogic and curriculum knowledge) and its effects on learner

performance. Part of teacher knowledge includes proficiency in the language of learning and teaching, be it HL or an additional language (AL). Yet, surprisingly, there has also been relatively little research in this domain, especially in the South African context. Performance on a vocabulary test can serve as an indicator of a teacher's proficiency in a language used as a language of learning and teaching (LoLT) in a particular education context. It can also serve as an indicator of the *potential* richness of language that learners will be exposed to in the teacher's classroom.

Given that FP teachers in South Africa spend much of the day with their class and teach numeracy, language and literacy and life skills, their learners are exposed to 5-6 hours of 'teacher talk' a day. It seems reasonable to assume that how and how much teachers talk in their classrooms and the words they use can influence their learners' language and vocabulary development. It is also not unreasonable to suppose that children's language development will benefit more from teachers with larger, richer vocabularies than those with smaller, more constrained vocabularies.

Much of what is known about vocabulary and the effects of sociocultural and socioeconomic factors on its development is based on word acquisition in a primary or home language. Increasingly, longitudinal crosslinguistic research has provided insight into the vocabulary development of bilinguals (Bialystok, Luk, Peets & Yang 2010). However, the body of evidence derived from this research is usually from the global North, where the context is a western, educated, industrialised and rich one (Heindrich, Heine & Norenzayan 2015). The contexts of low and middle-income countries (LMIC) are typically multilingual, multicultural societies with greater poverty levels and wealth disparities, and fewer education resources such as books and other print-based materials. Vocabulary research in such contexts is much sparser or even non-existent, which means that longitudinal data to track typically developing vocabulary trajectories are not yet available. In addition, it is difficult to determine whether the linguistic, sociocultural, socioeconomic and education factors that have been shown to affect vocabulary growth in one or more languages across the life span in global North contexts do so in similar or different ways in LMIC contexts.

Teacher knowledge, teacher vocabulary, teacher talk and early schooling

Discussions of knowledge of words can be rather tricky and nebulous as they depend on how words are defined and counted (single words, word families¹, multiword units); languages also differ in their notions of what constitutes a word, depending on the morphosyntactic nature of the grammar. The sentence *Kusebusuku efama* ('It is night on the farm') contains two words in isiZulu but six in English. Furthermore, a person's knowledge of words can range from having a deep understanding of the meaning of some words in particular domains to a rather shallow grasp of the meaning of words across various domains. How then do we reliably measure vocabulary knowledge? A brief overview of some of the main issues in vocabulary research follows below, before we review vocabulary in relation to teacher knowledge and teacher talk.

Vocabulary and its development

Vocabulary refers to knowledge of words and their use, in a HL or any other language known by a person. This knowledge includes knowledge of the form of words (how they sound or look in writing), their meanings, their functions (whether they are nouns, verbs, qualifiers, etc), their connotations and social usage (their associations and when it is appropriate to use certain words in certain contexts), and their links to other languages (e.g. the isiZulu word *indaba* used in South African English) (Schmitt, 2010). We can have knowledge of single words (*weather, rain, climate*), phrases (*global warming, the greenhouse effect*), idiomatic or metaphoric expressions (*keep your eyes glued to the screen*), proverbs (*don't let the sun set on your anger*) and collocations (e.g. knowing that *volcano* can be associated with words like *eruption, ash, lava, crater, etc.*).

Vocabulary develops in two main ways. The first and most enduring route for word learning is through *incidental* exposure to new words, either via oral or written modes, for example from everyday conversations, playing with friends, watching TV, and from reading. It is estimated that most of the words we learn in a lifetime come from this route, either orally or through written language (Cunningham 2005). In the first 10 years of our lives, most of the new words we learn come from exposure to oral language. Once we become skilled readers, then most new words are acquired through written texts (books, newspapers, magazines, the internet),

¹ A word family refers to the inflexional and derivational word forms derived from a word stem (Schmitt, 2010). Thus *global, globally, globalisation, globalise* all belong to the same word family. The assumption is that knowledge of one of the members of the word family will increase the chances of knowing the meanings of the other words in the family.

since written language contains a much wider range of words at different frequency levels (Hayes & Ahrens, 1988; Cunningham & Stanovich 2001). People who do little reading during and after school are thus less likely to develop their vocabulary as much as people who are regularly exposed to written language.

The second route is through *explicit learning* or *focused instruction* (e.g. explicitly teaching new words or vocabulary strategies to learners; deliberately taking note of new words encountered and finding out their meanings from another person or dictionary). Even though not as many words can be learned through explicit instruction as through incidental learning, instruction that explicitly builds new words and teaches vocabulary strategies (e.g. teaching word parts or morphology; showing learners how to infer meaning from context) in either a HL or an AL helps to raise awareness of words and deepen word knowledge.

Word frequency is a major factor in vocabulary acquisition – high frequency words tend to be acquired before mid and low frequency words. The digitisation of language has led to the establishment of large electronic databanks and the rise of corpus linguistic research, which has provided strong empirical evidence of the frequency with which words are used and the contexts in which they typically occur. This has led to the identification of different word frequency levels, ranked according to sets of 1,000 word levels, ranging from *high frequency* words (the 1,000-3,000 most common words used in every day conversational contexts and words that occur commonly across a variety of written texts), *mid frequency* (words that fall within the 4,000-9,000 most frequent words) and *low frequency* words (words that occur in the 10,000-25,000 and beyond bands of frequency) (Schmitt & Schmitt, 2014). Mid and low frequency words tend to occur more often in written than everyday oral discourse. In English, for example, the combined BNC/COCA corpus (100 million words of the British National Corpus (BNC) and the 450 million-word Corpus of Contemporary American English (COCA) provides 25 lists of 1,000-word families in order of frequency. They make up the most frequently used 25,000 words in English (Nation 2012). This provides a very strong evidential basis of how words are used in English.

Laufer (2010) found that words within the 1,000-3,000-word frequency levels covered almost 91% of the BNC. If knowledge of proper nouns (e.g. personal and geographic names) is added to this percentage, then approximately 93% coverage of a fiction text can be achieved with

knowledge of the 3,000 most frequent words. Schmitt and Schmitt (2014) support the argument that a base of 3,000 high-frequency words enables basic communication in English.

Vocabulary size (or breadth) refers to how many words a person is estimated to know, while *vocabulary depth* refers to how well the words are known (Nation 2013; Van Hees & Nation, 2017). A distinction is also made between *receptive vocabulary* (words we 'know' when we listen or read) and *productive vocabulary* (words we actively use when we speak or write). Receptive vocabulary knowledge is always greater than productive vocabulary knowledge.

Measures of vocabulary typically include words derived from the different frequency levels. For example, Nation's Vocabulary Levels Test (VLT) (2006; 2013) assesses knowledge of words at five different frequency levels, namely the 2,000, 3,000, 5,000 and 10,000 word levels as well as academic words (non-technical words commonly used across different disciplines such as *analyse, distinguish, estimation*). Because words at the mid and low frequency levels occur more in written and formal spoken modes (e.g. formal schooling and academic discourse) than informal spoken modes, a measure of vocabulary knowledge at the different frequency levels (e.g. performance on the VLT) provides an indirect measure of literacy practices, since people who seldom read are unlikely to know many words at the mid and lower word frequency levels. This applies to both HL speakers and to intermediate and advanced learners of an AL. Across languages, vocabulary size increases with age (Scheepers 2014; Simonsen et al., 2014).

Another important factor in vocabulary development is that of *exposure*, i.e. how often a new word is encountered and the likelihood of learning it (uptake) so that it becomes part of receptive or productive word knowledge. The quantity of language that children hear correlates with vocabulary size (Hoff-Ginsberg 1991; Hart & Risley 2003; Weisleder & Fernald 2013). Research from reading provides converging evidence that anywhere between 6-16 exposures to a new word in a text can lead to learning it (Zahar et al, 2001; Van Hees & Nation 2017). However, oral language seems to require a much higher incidence of exposure. Brown, Waring and Donkaewbua (2008) found that at least 30 encounters with a new word in oral classroom discourse were required for learning to occur. New words may not be as easily processed in memory in the ephemeral here-and-now nature of spoken language, while seeing a new word in written form in a text seems to confer a memory advantage.

Teacher knowledge

Discussions about teacher knowledge and its effect on learners usually revolve around distinctions between various types of teacher knowledge. Based on Shulman's (1986) original work in this area, three main types of teacher knowledge are usually identified: teacher content or disciplinary knowledge (knowledge about a subject, such as reading or mathematics); pedagogic content knowledge (knowledge about how to teach a specific subject, such as how to help learners understand texts at a deeper level, or how to teach fractions); and curriculum knowledge (knowledge about a given curriculum within an education system and how to align one's teaching with the curriculum requirements).

Knowledge of language in general and vocabulary knowledge in particular are important components of teacher content knowledge (Moats 2007; Taylor 2019), especially for language and reading teachers. However, surprisingly little direct research has been done in this domain. Assessing teachers across 969 schools in the USA, Ehrenberg and Brewer (1995) found that teachers' scores on a vocabulary test were significantly related to learner gains in vocabulary. In the field of English Second Language teaching, Irvine-Niakaris & Kiely (2015) found that experienced ESL teachers' content knowledge of language, texts and assessment principles were strongly related to their pedagogic content knowledge.

Closer to home, researchers have analysed the results of the Southern African Consortium for Monitoring Educational Quality (SACMEQ 2007), where Grade 6 teachers across 14 African countries who participated in SACMEQ were given the same Mathematics and English reading comprehension tests as the learners (e.g. Spaul 2011; Altinok 2013; Taylor & Taylor 2013). The results showed a relationship between teacher content knowledge and learner performance in both mathematics and reading. However, further analyses of the data found that the relationship between content knowledge and learner performance was also related to the socioeconomic status of schools. For example, Taylor and Taylor (2013) found much stronger relationships between teacher knowledge and learner performance when teachers showed strong content knowledge; however, degrees of mediocre teacher knowledge were consistently related to poor learner performance (i.e. learners performed equally poorly irrespective of whether their teachers showed only some or large gaps in content knowledge). Altinok (2013) found that teachers with higher reading scores tended to teach in schools with higher socioeconomic status.

Findings more indirectly related to teacher content knowledge (by way of language and literacy proficiency) come from studies that assessed English language competence. For example, university BEd students performed more poorly on the National Benchmarks Test project (which assesses academic literacy of university students) compared to students in other degree programmes (Cliff 2015). More recently, in an assessment of BEd students' proficiency in English across six universities in South Africa, Roberts, Moloï & Mort (2024) found little difference in performance on the assessment between first-year (n=1,177) and fourth-year BEd students (n=731). They recommend that more work needs to be done in building English language and literacy proficiency in initial teacher education programmes. Research on student teachers' language and literacy proficiency in African HLs is currently underway in the PrimTed project and should yield useful data. In a study of the reading attitudes and habits of 171 FP teacher trainees, Rimensberger (2014) found a discrepancy between the students' positive attitudes to reading and their actual reading habits. Although they claimed that reading was important, they seemed to do little of it. Rimensberger (2014:6) argues that teacher trainees who lack "an intrinsic motivation to read" are unlikely to become effective teachers of reading. Although vocabulary was not included in Rimensberger's study, it is possible that teacher trainees who do little reading are likely to have smaller vocabularies than those who read more.

Teacher talk and early schooling

Variation in the amount and kind of language that children are exposed to in the home environment predicts their language proficiency and reading ability in the early school years and their subsequent vocabulary growth in primary school (Hoff-Ginsberg 1991; Huttenlocher et al. 2002; Weisleder & Fernald 2013). Given the amount of time children spend in school, it is reasonable to assume that the language they are exposed to in classrooms will also affect their subsequent language and vocabulary development. This is particularly so in the early school years when children are reliant on oral language exposure to learn new words. When children are not yet independent readers and cannot read books on their own, they are dependent on parents and teachers for exposure to oral language and written texts containing new words.

There are two main exposure factors in the classroom that affect children's language and vocabulary development, viz. through teacher storybook reading, and through the richness of teacher talk in the classroom and the kinds of words that they use. There have been more

research findings from the effects of teacher storybook reading than from teacher talk, particularly teacher vocabulary.

Research has shown that exposure to language via teacher storybook reading activities can impact on children's language (Cunningham 2005). This is mainly because written language contains more complex grammatical structures than spoken language and it encompasses a far wider variety of words than spoken language, containing a repertoire of words across the frequency ranges. This is reflected even in children's books, which contain a wider range of words, and more words from the mid frequency levels, than every day oral language (Cunningham & Stanovich 2001), and where the complexity of vocabulary found in children's books is greater than that of adult conversation, (Hayes & Ahrens, 1988). Once children have become skilled decoders they can acquire new words through their own reading. However, until then, they are reliant on parents, caregivers or teachers to expose them to new words beyond their everyday conversations.

Although there is robust evidence that teacher storybook reading activities generally foster vocabulary growth in young children, not all children seem to benefit equally (Coyne et al. 2004; Carlise et al. 2013). Children with weaker vocabularies or children at risk for learning or reading difficulties have been found to be less likely to learn new words from listening to stories (Robbins & Ehri 1994; Penno, Wilkinson & Moore, 2002; Simmons et al., 2004). In response to this finding, there has been a drive for richer teacher talk and more explicit vocabulary instruction in the early grade classrooms to complement storybook reading activities (Biemiller & Slonim, 2001; Van Hees & Nation 2017). Huttenlocher et al. (2002) found that children who are exposed to more complex words and language structures acquire more complex structures than those children who are exposed to simpler structures. Regular exposure to less frequent, more sophisticated words that children are unlikely to hear in everyday discourse, and the extent to which teachers explicitly teach vocabulary in the early grades are thus factors that can play decisive roles in learners' subsequent language and vocabulary development. Yet these are domains that have surprisingly not yet been well explored.

Dickenson and Tabors (2001) found that much of teacher talk is about the 'here and now' which relies on common everyday words from the high frequency levels. Almost 99% of words used with younger children by parents and teachers come from the 3,000 most frequent words (Tabor, Beales & Weizman 2001). Similar findings have been found locally. In a small study

involving eight Grade 3 teachers, Stoffelsma (2019) recorded and analysed their classroom discourse and found that their teacher talk contained predominantly high frequency words. The only time that teachers used words beyond the 3,000-word frequency level was during Read Alouds, when teachers read storybooks that contained words from the mid frequency ranges. The teachers did not spontaneously use words from the mid frequency levels when speaking to their learners.

It makes sense that adults largely adjust their lexical input to the level of children, but if children are not exposed to words beyond this level, then their vocabulary is bound to develop slowly. Beck and McKeown (2007) argue that children are capable of learning sophisticated words if exposed to rich teacher talk. Teachers can socialise children to use more sophisticated and academic words through rich teacher talk and vocabulary instruction (Stahl & Nagy 2006). Furthermore, teachers who not only create word-rich classrooms but who have high vocabulary expectations of their learners can influence the reading and vocabulary development of their learners (Wolf, Gottwald & Orkin, 2009).

Research in USA classrooms found that while explicit vocabulary instruction in classrooms with older children occurred regularly and quite often, vocabulary instruction in the younger grades was, surprisingly, not common at all. In the Language Arts block of 120 minutes where language, reading and writing activities occur, the amount of time teachers explained words ranged from 0 to 8 minutes. The average time spent on vocabulary instruction was 0.43 minutes (Connor, Jakobsons, Crowe & Majors 2009). Research has found that teachers who stimulate word curiosity in their learners and raise their awareness of words, and who help learners recognise the morphological basis of words develop their learners' word growth (Biemiller, 2005; Van Hees & Nation, 2017). To date we have not come across any studies in South Africa that have explicitly examined how often systematic vocabulary instruction occurs in FP classrooms, in either HL or FAL. In her observations of reading instruction in five Grade 1 Xitsonga classrooms, Khosa (2021) found that while teachers often explained the meaning of words on phonics flashcards, these tended to be high frequency Xitsonga words that children were likely to know anyway.

Corrigan (2010) looked at preservice teachers' vocabulary levels in the USA and found significant correlations between their performance on the vocabulary assessment and the lexical diversity and sophistication of the books they chose to read to learners. When selecting

books for Shared Reading, preservice teachers with more advanced vocabulary levels chose books with a richer and more sophisticated range of words than teachers with lower vocabulary levels. Those with more advanced vocabulary also displayed teacher talk with more diverse and unique language. In sum, Corrigan (2010) found that preservice teacher vocabulary varied, and this influenced the linguistic input they provided to their learners and the sophistication of the books they chose to read to the learners.

Vocabulary and CAPS

The curriculum for FP, as expressed in the Curriculum Assessment Policy Statements (CAPS), provides guidelines for how language and literacy should be taught, with 15-minute slots assigned to various activities in the daily 1.5 hours assigned to HL language and literacy. Although it stresses the importance of vocabulary, there is no specific slot for vocabulary instruction as it is assumed that vocabulary instruction is integrated across all numeracy, literacy and Life Skills teaching/learning activities. CAPS does not provide any specific benchmarks for HL vocabulary, although it does so for EFAL; by the end of Grade 3, EFAL learners should know at least 2,500 – 3,000 high frequency words in English (CAPS for EFAL 2011, pp 22).

It is in this context that the vocabulary component of the Zenlit project was undertaken. Because there were no standardised vocabulary tests yet in the African languages, the teachers' vocabulary development was assessed and monitored in English, using the VLT (described below). It was administered to the teachers at the beginning (2015) and towards the end of the project (2017). Five questions that were of interest were the following:

1. What did the teachers' vocabulary look like at the start and end of the project and were there significant changes in teacher performance on the VLT from 2015-2017?
2. How did the vocabulary profiles of EHL and EAL teachers differ in terms of frequency levels?
3. How did the vocabulary profiles of the EAL teachers differ in urban/rural schools?
4. How did the vocabulary profiles of the teachers differ in terms of age and position (teacher/HOD)?
5. What was the uptake of the vocabulary component of the project by the teachers?

The first four research questions are addressed quantitatively while the last research question is of a more qualitative nature.

Methodology

The intervention context

The Zenlit Project was implemented over three years, from 2015-2017, in 21 schools across three provinces, namely KwaZulu-Natal (KZN), Eastern Cape (EC) and Western Cape (WC). The schools in KZN were rural schools, while those in the EC and WC were urban township schools². All the schools served low socioeconomic communities.

In our interactions with the FP teachers at the start of the project, we found that on the whole teachers all readily stated that they taught vocabulary, but their vocabulary instruction seemed to be ad hoc and ‘on the fly’ in that they explained words as they deemed fit, and they often seemed to explain meanings of words in a text that the children were likely to know anyway because of their common usage. In EAL, the most obvious form of vocabulary instruction was giving the HL equivalent of an English word. Vocabulary instruction was interpreted principally as ‘explaining the meaning of a word’. Sometimes this was extended to ‘asking children to make a sentence with the new word’. The teachers did not raise awareness of words, seemed to have very little knowledge of vocabulary strategies that could be taught to learners, seldom kept records of words that they explicitly taught, had no targets for teaching a specific number of words per day/week/term, and seldom if ever assessed vocabulary that they had taught during the week. Often, teachers associated vocabulary teaching with EAL rather than the HL, the assumption being that children knew words in their HL but not in EAL. Initially, there were very few HL or bilingual labels or word walls in the classrooms, and phonics flashcards seemed to be the only artefacts that were explicitly used to support recognition of new words and occasionally, their meanings. Vocabulary thus seemed to be an aspect that everyone agreed was very important, but very few teachers knew much about vocabulary development, and hardly anyone taught it systematically or assessed it.

² The schools in the Western Cape were in Mitchells Plain and had English as the LoLT, with Afrikaans offered as a First Additional Language (FAL). The schools in KZN and EC had isiZulu and isiXhosa as HL and English as First Additional Language

Nature of the project

All the FP teachers in the selected project schools were involved in the project, together with the FP Heads of Department (HODs). They were all given course materials on early reading development and instruction to improve their content and pedagogic content knowledge of reading and they attended 2-day literacy workshops three times a year in Terms 1-3 during the three years. In addition, they were each given two sets of bookshelves to set up reading corners in their classrooms, one for HL and one for EAL, and sets of storybooks in HL and EAL, and each school was given a laminating machine for teachers to make flashcards and posters. Storybooks in the HL and EAL for use in the classroom were topped up during the three years.

The project was premised on a coaching model, where literacy coaches were trained by the project in both reading and coaching, and each was assigned 3-4 schools which they visited on a weekly basis to support the FP teachers. The coaches visited the teachers in their classrooms, gave them constructive feedback on their routines and literacy practices, and ensured that the topics and suggested activities dealt with in the workshops were followed up by the teachers. The HODs were given additional training in literacy leadership, relationship building and administration via a course, workshops and coaching.

A vocabulary component was included in the project, the rationale being that if teachers focused on improving their own vocabulary in both their HL and AL and were made aware of how vocabulary develops and what factors support or impede vocabulary growth, then they would be better placed to help their learners develop rich vocabularies in both their HL and AL. Although the teachers' vocabulary was only assessed in English, they were constantly encouraged throughout the project to build their vocabulary in their HL as well as the FAL that they taught in FP.

The teachers

All the FP teachers and HODs in the selected project schools participated in the project workshops which included the vocabulary component. All the teachers in KZN reported to be HL isiZulu speakers and likewise the those in the EC were all HL isiXhosa speakers. In the WC, the teachers taught at schools in Mitchell's Plain, where 67% reported to be English home language speakers; 33% reported to speak Afrikaans at home, or to use both English and Afrikaans. Because the Afrikaans group of teachers was small, all of the teachers in the WC are grouped as HL English speakers in this study.

The teachers participated in the vocabulary assessment voluntarily. The number of teachers whose vocabulary was assessed at the start (2015) and end (2017) of the project differed somewhat across the years. Not all teachers were present when the vocabulary assessments were administered at both test points. Some teachers retired during the course of the project, some were moved to other schools, while new teachers came in at different points during the duration of the 3-year project. Table 1 shows the number of teachers (including HODs) to whom the VLT was administered at the start of the project in 2015 and again at the end of the project in 2017.

Table 1: Number of teachers in project per province and those whose vocabulary was assessed in both 2015 and 2017

Province	No of teachers administered VLT in 2015	No of teachers administered VLT in 2017	No of same teachers administered VLT in both years
KZN	62	53	44
EC	63	65	48
WC	81	78	53
Subsample: Total of same teachers assessed in 2015 and 2017			145

Due to attrition rates during the course of the project, not all the teachers were present for both tests. The final column shows the subsample of same teachers who were present for the VLT assessments at both the start and end of the project. The data analysis derives from this subsample (n=145). Table 2 shows the frequency of teachers in the age categories across the sample in 2015.

Table 2: Distribution of teachers according to age categories

20s	30s	40s	50s	60s
6	12	45	68	12

As can be seen, most of the teachers were in their 40s and 50s; there were very few young teachers (n = 6) who were still in their twenties.

The vocabulary component of the project

Throughout the project various learning materials, support and motivational mechanisms were established to help foster reading and vocabulary awareness amongst the teachers. For example:

- Learning support material by way of a fairly substantial module unit (133 pages) on vocabulary (*Module A3: Teacher development: Building vocabulary in HL and EAL*³) was provided to all FP teachers, HODs and coaches in the project. This was complemented by a workshop session early in the project on the notion of word frequency levels, the nature of vocabulary development, its central role in reading comprehension and the factors that support or hinder its growth.
- The project provided each teacher with an A5 notebook to serve as their personal dictionary, where new words they encountered, in both HL and AL, were recorded and meanings given (in HL or AL). They were expected to carry these notebooks with them and use them regularly, as a reference and for learning the new words. These books were occasionally checked by the coaches, and were taken in at one of the workshops, checked by the literacy specialists (to see how words were being recorded and how many) and handed back the next day.
- Each teacher was provided with a copy of the *Cambridge Advanced Learners Dictionary*. This dictionary signals which word entries are high frequency words, thus alerting users as to which words are important to know. When the dictionaries were handed out at one of the workshops, a series of activities and handouts were designed to familiarise the teachers with the dictionary, and example activities were provided to show how dictionary skills could be taught to learners (cf. Module A3).
- The project provided each classroom with a Xhosa-English, Zulu-English or English-Afrikaans dictionary appropriate for FP learners.
- The coaches helped to motivate and support the teachers in their personal and classroom vocabulary development.

³ Module A3 on vocabulary is available for downloading at the Zenex Foundation website: <https://www.zenexfoundation.org.za/the-expert-reading-teacher-reference-materials/early-grade-resources-for-the-classroom/>

- After each vocabulary assessment, children's storybooks were given as prizes at the workshop to five teachers who had performed well or who had shown steady progress in their vocabulary development.
- To encourage the teachers to read more, a *Coaches' Book Club* was started informally, where a book was donated at each workshop to the coaches, who each read the book and distributed it (and any other books of interest or relevance) to teachers. However, as more new literacy content and material was introduced into the project, this became difficult to sustain and it petered out.
- In all, 8 of the 11 two-day teacher workshops included a vocabulary component, where different aspects of vocabulary development were explained, discussed, modelled and practised, e.g. vocabulary strategies, dictionary skills, etc.
- At the feedback sessions of each workshop, teachers were encouraged to share their personal attempts to increase their vocabulary or reading skills.

Vocabulary assessment: The productive Vocabulary Levels Test

Given the hundreds of thousands of words that exist in each language and the varying contexts in which vocabulary develops, vocabulary assessment is a challenging domain. Because vocabulary assessment instruments and development norms have not yet been established in the African languages, and because very little attention has been focused on vocabulary research in the South African context, it was decided to use existing instruments available in English.

To this end the productive Vocabulary Levels Test (VLT) was used, developed by Laufer and Nation (1999) and modified later by Nation (2006; 2013). The VLT measures vocabulary knowledge at five levels of word frequency: 2,000 (Level 1), 3,000 (Level 2), 5,000 (Level 3), academic words (Level 4), and 10,000 (Level 5). Because the VLT assesses vocabulary knowledge at the different frequency levels as well as academic words, it can be used for both English HL and EAL testees, since frequency levels and academic words remain fairly consistent, irrespective of whether one is an EHL or EAL user. The VLT is particularly useful for EAL learners as it assesses their knowledge of the most commonly used English words at the 2,000 and 3,000-word frequency levels as well as common academic words used in written English. Since HL speakers usually acquire high frequency words early in their vocabulary

development, the VLT is useful for assessing testees academic word knowledge as well as their vocabulary knowledge is at the mid and low frequency ranges.

Version A of the VLT was used in 2015, while a combination of test items from Versions A and C were used in 2017. According to Nation (2006), all versions of the productive VLT correlate strongly, indicating inter-test reliability. The tests are also claimed to be developmentally valid, with increases in vocabulary development across the frequency levels as grades/ages increase (Nation 2006; 2012).

The test is in the form of a modified cloze test, i.e. target words occur in the context of a sentence, with the first 2-3 letters of the target word provided, followed by a gap that must be filled by the testee, e.g.

She shouted at him for spoi_____ her lovely evening.

[Answer: *spoiling*]

There are 18 items at each frequency level, and a testee's score at each frequency level provides a rough estimate of how many words they are likely to know at that level. Mastery is set at 85% (Nation & Laufer 1999). Because the VLT assess vocabulary knowledge at five different 'levels' within the frequency continuum, it is used to estimate vocabulary knowledge, i.e. how many words, approximately, a testee knows across the frequency range. Increases in scores on the VLT over time should therefore reflect increases in vocabulary knowledge at specific frequency levels. Because the majority of words at the 4,000 level onwards occur primarily in written language, increases at the 5,000, 10,000 and academic word levels (Levels 3-5) are more likely to occur if teachers increase the amount of reading that they do.

Since Grade 3 EAL learners should know at least 2,500 – 3,000 high frequency words in English by the end of FP (CAPS 2011: 22), one would expect FP teachers to show mastery of the most frequent words in English (i.e. at the 2,000-word level).

All the sentences in the VLT were scrutinised and, where necessary, modified or tweaked to adapt them more readily to the South African context. If an item at one specific level in one version was deemed unsuitable for the South African context, its counterpart was borrowed from the same level in another version of the VLT. Many of the items were thus shared between the two versions. In this study, Version A and C of the VLT showed high inter-test correlation

($r = .91$), significant at the 0.01 level (two tailed). In other words, performance on Version A showed a similar vocabulary profile as performance on Version C, indicating test reliability.

Assessment and scoring

Version A of the productive VLT was administered to all teachers (and coaches) in January 2015 at the start of the Zenlit Project, and Version C in July 2017 towards the end of the project. The paper-based tests were administered at the start of the 2-day workshop period, when teachers were feeling fresh. Although an hour was allocated for the assessment, the teachers completed the test within 45 minutes. Biographic information concerning the testee's home language, age and grade taught was requested at the start of the test. Using Cronbach's alpha, the reliability scores for Version A and C of the VLT were .81 and .94 respectively, showing high reliability.

Because this is a productive not a receptive test of vocabulary level (i.e. it assesses to some extent depth of knowledge and not just recognition of a word as in a receptive test), half marks were given if the correct word form was given but it was incorrectly used in the context. For example, in *Yesterday it was very hot and the ice me in the freezer*, in this sentence context, the word *Yesterday* clearly signals pastness, so the correct target word form is *melted*. If the present tense *melts* was used instead of *melted*, despite there being an explicit past tense marker in the sentence context, then only half a mark was given. The respondent is thus given some credit for knowing the correct word (reflecting vocabulary knowledge) but does not yet use its form correctly (reflecting vocabulary depth) so is not scored the full marks.

All the teachers received personalised feedback and comments on their performance in the VLT a day after they wrote it, as shown in the feedback slip below. They were encouraged to use their scores to set themselves vocabulary goals for the year ahead, as shown in Table 3.

Table 3: Feedback to teachers on the vocabulary assessment

Dear _____

Thank you for participating in the Vocabulary Language Quiz. Your 2015 score is as follows:

Vocabulary level	Score Jan 2015	Goal Score
Section A 2,000 word level (high frequency)		
Section B 3,000 word level (high frequency)		
Section C 5,000 word level (mid frequency)		
Section D Academic words (across content subjects)		
Section E 10,000 word level (low frequency)		
TOTAL		

Strengths and areas needing attention:

Please enter the scores that you hope to achieve when next you write the vocabulary test.

The Zenlit team wishes you every success with your vocabulary building efforts in the year ahead!

January 2015

Results

As stated earlier, teacher numbers vacillated over the three years, with some teachers retiring or moving to other schools and new teachers coming in. Although vocabulary data from 270 teachers is in the data set, only the vocabulary performance of a subsample of 145 teachers who participated in both the 2015 and 2017 assessments are presented.

Question 1: *What did the teachers' vocabulary profile look like at the start and end of the project and were there significant changes in teacher performance on the VLT from 2015-2017?*

Table 4 below shows the mean performance of all 145 teachers (this includes teachers and HODs) per province at each of the vocabulary levels. The scores are expressed as percentages at each level. 'Overall mean' is a composite score, a percentage mean derived from a total of the five levels. Standard deviations are given in brackets for overall mean.

Table 4: Foundation Phase teachers' vocabulary development across the provinces 2015–2017(n=145)

Word frequency level	KZN (n=44)		EC (n=48)		WC = (n=53)		Frequency level
	2015	2017	2015	2017	2015	2017	
Level 1 2,000	81.8	85.2	87.1	88.4	93.2	95.3	High
Level 2 3,000	54.6	64.7	69.7	72.5	84.9	88.2	
Level 3 5,000	33.8	43.6	48.4	55.6	78.9	84	Mid
Level 4 Academic words	47.9	52.4	53.4	58.8	70.1	76.4	
Level 5 10,000	4.3	7.3	12	10.8	38.2	44	Low
Overall mean % (Std dev)	43.9 (11)	50.6 (12.8)	54.1 (9.3)	57.2 (9.9)	73.1 (11.1)	77.6 (9.4)	

Only teachers in the EC and WC showed mastery level (85%) of high frequency words at the 2,000-frequency level at the start of 2015 and the end of 2017, and WC teachers at the 3,000-frequency level. Performance was much lower at the mid- and low frequency levels. In terms of vocabulary growth, as can be seen, there was an increase in the overall mean across the provinces as well as the mean at each frequency level (except for the EC mean at the 10,000 level, which dropped from 12 to 10.8). The important question is whether these increases in vocabulary performance show statistically significant differences from 2015 to 2017, and more importantly from an intervention perspective, what the effect size in the teachers' vocabulary growth was per province. Since there were no teachers in control schools who completed the VLT to serve as a counterfactual, statistical significance within the project school was measured using paired t-tests, and Cohen's *d* was used to measure effect size, to determine magnitude of observed differences within the groups from one time to another. General guidelines for interpreting Cohen's *d* are small (0.2), medium (0.5) and large (0.8) effect sizes respectively.

As stated earlier, of the *same* teachers who wrote the VLT levels test in 2015 and then again in 2017 (n = 145), their overall vocabulary mean was higher in 2017 than in 2015. A paired t-test showed that the difference between the overall vocabulary means for 2015 and 2017 was statistically significant for each of the provinces:

KZN (n=44) $t = -9.141$, $df = 43$, $p < .0005$

EC (n=48) $t = -14.127$, $df = 47$, $p < .0005$

WC (n=53) $t = -14.029$, $df = 52$, $p < .0005$

The magnitude of the differences in the means (i.e. effect size) was also large for each of the provinces:

KZN 95% CI: 8.64 – 13.53, $d = .97$

EC 95% CI: 7.33 – 9.76, $d = .93$

WC 95% CI: 10.14 – 13.53, $d = 1.21$

These results indicate that of the core of teachers who remained in the project for the three years, there was a large impact on the size of their vocabulary from 2015 to 2017.

Question 2: How did the vocabulary profiles of EHL and EAL teachers differ in terms of frequency levels?

As to be expected, the English HL teachers in the WC knew more words at each of the frequency levels as well as overall. As can be seen from Table 4 above, the EHL and isiXhosa EAL teachers showed mastery at Level 1 at the start of the project, but only the EHL teachers achieved mastery at Level 1 and 2 at the end of the project. The isiZulu EAL teachers achieved mastery of level 1 words at the end of the project. Generally, knowledge of words increased at each level from 2015-2017 across EHL and EAL teachers. As to be expected, the slowest word growth across the provinces occurred at the low frequency Level 5, with EHL teachers achieving 5.2% growth and the isiZulu EAL teachers 2.5%. The isiXhosa EAL teachers showed a small decline in knowledge of low frequency words. Although they started from a low base, the isiZulu teachers showed the greatest increase of vocabulary knowledge at Level 2 (9.1%) and Level 3 (9.5%). In other words, even though they only showed mastery of words at the high 2,000-word frequency level by the end of the project, their knowledge of words at the high 3,000 and mid 5,000 frequency levels had increased by almost 10% each.

Although there were provincial differences in the vocabulary performance of the EAL teachers, these may reflect location effect, hence the next question:

Question 3: How did the vocabulary profiles of the EAL teachers differ in urban/rural schools?

All the EAL teachers in KZN were in rural schools while those in the EC were all in urban schools in Gqeberha. At face value, the descriptive statistic means reflect the teachers in rural schools performing at lower vocabulary levels at each frequency level than their urban

isiXhosa counterparts. However, there was much variation in performance within and across the provinces, with weak as well as strong EAL vocabulary performers in both rural and urban schools. Independent samples Kruskal-Wallis tests showed that there were no significant differences in vocabulary performance between the rural and urban EAL teachers in 2015 ($KW = -7.089, p = 0.25$) nor in 2017 ($KW = .307, p = 0.96$). The initial gap of 10.2% between them in 2015 narrowed by the end of the project to 3.1% in 2017.

Question 4: *How did the vocabulary profiles of the teachers differ in terms of age and position (teacher/HOD)?*

Vocabulary performance was aggregated across the sample of 145 teachers. The box and whisker plots in Figure 1 show median vocabulary scores across the five age categories, as well as performance at the 25th percentile and 75th percentiles (lower and upper end of boxes respectively), while the whiskers show maximum and minimum performance.

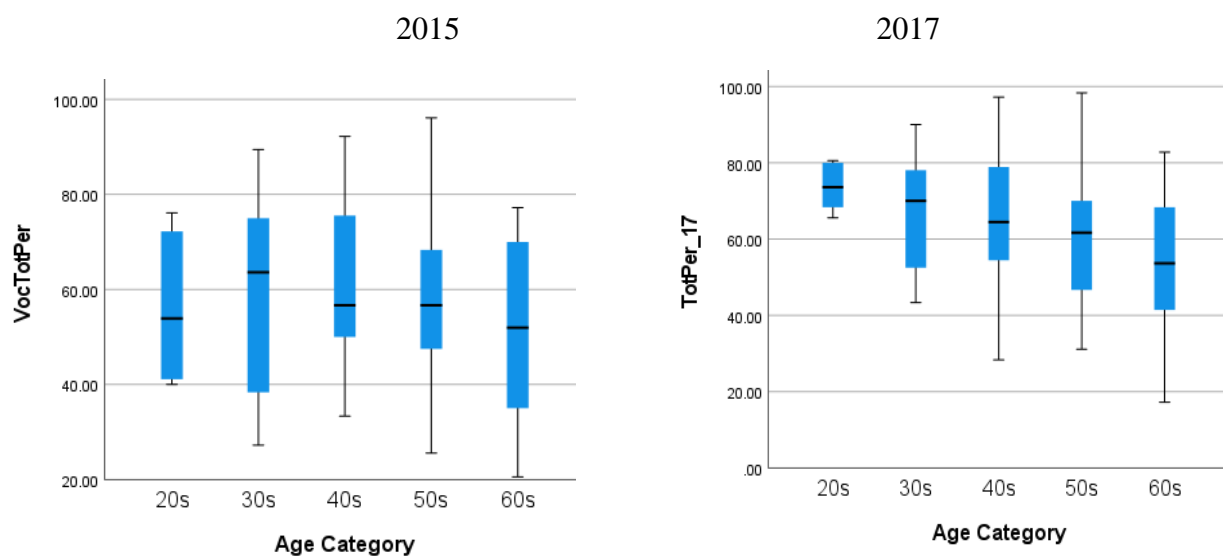


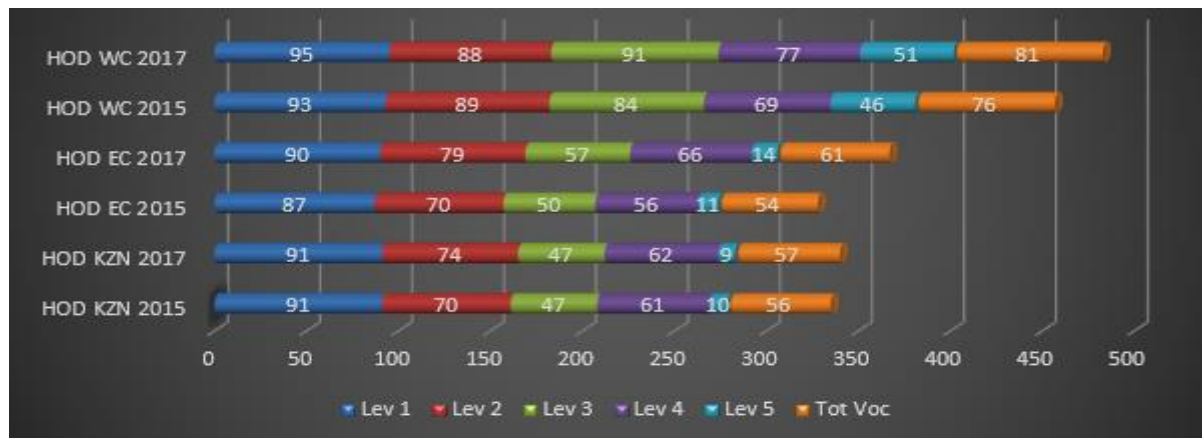
Figure 1: Box and whisker plots of vocabulary performance across age groups

As can be seen, there was much variation within and across the age categories and no clear age advantage emerged. Independent samples Kruskal-Wallis tests showed no significant differences between the age groups in either year: 2015 $KW=2.38$ (df 4), $p = 0.66$; 2017 $KW=9.10$ (df 4), $p = 0.059$.

Regarding differences in vocabulary performance between HODs and teachers in FP, the results are disaggregated in Figure 2 and 3 below. The vertical axis shows province and year, while the different colours in the bar graph represent the different vocabulary levels. The

orange 'TotVoc' portion at the end of each bar indicates the composite overall mean score. Figure 2 below shows HOD vocabulary growth from 2015 to 2017 across all three provinces.

Figure 2: HOD vocabulary performance across provinces



As can be seen from Figure 2, the HODs showed steady increases in vocabulary growth in the WC and EC, but only mildly so in KZN. The HODs in WC had the highest vocabulary scores at the start of the project in 2015, and they maintained this advantage, increasing overall by 5% by the end of the project, from a mean of 76% to 81%. They also show mastery (i.e. 85% or more) at the first three frequency levels. The HODs in EC showed improvements at each of the frequency levels, and their overall vocabulary score increased by 6%, from 54% to 61%. Their knowledge of academic words showed a 10% improvement. The HODs in KZN showed a small overall increase of 1% from 2015-2017. There was a 4% increase at the 3,000 frequency level. Across all three provinces, the HODs showed mastery of the most frequent word level, Level 1. They also had higher overall mean vocabulary levels than the teachers (7% higher in KZN, and 6% in EC and WC). This suggests that their appointment as HODs does reflect some language proficiency advantage.

Figure 3 below shows differences in the teachers' vocabulary performance from 2015 to 2017.

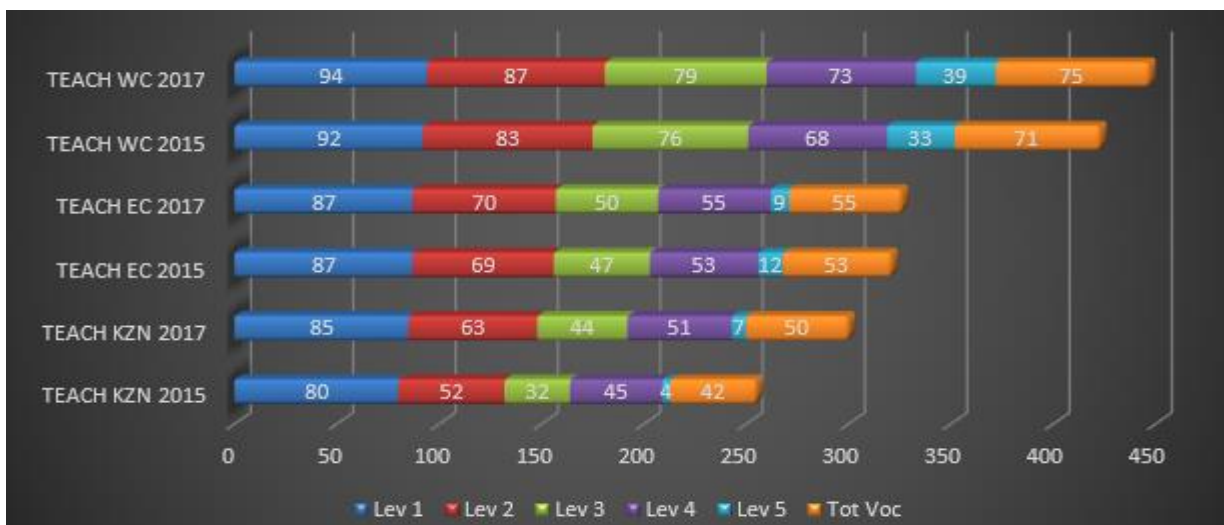


Figure 3: Teacher (excluding HODS) vocabulary performance across provinces

Teacher vocabulary knowledge increased in all provinces, although the overall growth was smaller in EC (2%) than in WC (4%), and highest in KZN (8%). At the start of the project, mastery level was attained in Level 1 by teachers in WC and EC and by 2017, mastery in Level 1 was attained by all three provinces. In 2015, teachers in KZN did not attain mastery at Level 1, but they did so by 2017, increasing from 80% to 85%. They also showed a remarkable 11% increase at Level 2. By 2017, teachers in WC had attained mastery level at both Level 1 and Level 2, while in the EC and KZN, the EAL teachers attained mastery at Level 1 only – the 2,000 most common words in English.

Uptake of the vocabulary component

We now turn to the more qualitative aspect of the study: *What was the uptake of the vocabulary component of the project by the teachers?* This question was addressed via both quantitative and qualitative data.

Vocabulary growth varied across teachers, irrespective of EHL or EAL, suggesting uneven uptake. Some teachers showed relatively small overall increases of around 4-6%, while others showed much larger increases. Several teachers said that being tested and receiving a breakdown of their vocabulary size motivated them to increase their word knowledge. The largest increase was a EHL Grade 3 teacher in the WC who in 2015 had an overall score of 41% which she said “was a wake-up call” for her. By 2017 her overall score was 72,7% — a 31.6% gain. Many of the teachers who made gains of between 12-25% displayed enthusiasm and determination in increasing their word knowledge and when asked what had motivated

them, referred to factors such as making an effort, deciding to read more, deliberately going to a library, reading more storybooks (to their own children at home and to their learners), and looking up words they didn't know instead of ignoring them as they had in the past. Across all the provinces, a common response was that the vocabulary component of the project made them 'more aware'. Raising awareness is always one of the first steps in changing behaviour. Another factor that possibly contributed to vocabulary growth was the fact that the teachers were all engaged in more reading activities in their classrooms due to the larger literacy project intervention. Engagement with children's storybooks on a regular basis in class can increase the chances of word learning not only for learners but also teachers, especially those whose HL is not English.

Table 5 below shows some of the more significant gains made by individual teachers between January 2015 and July 2017.

Table 5: Vocabulary growth of individual teachers

	Total vocab % Jan 2015	Total vocab % Jan 2017	Gains
KZN T1	30	55	25
KZN T2	30.5	45.5	15
KZN T3	27.2	54.4	27.2
KZN T4	68.8	88.8	20
EC T5	40	65.5	25.5
WC T6	49.4	68.3	18.8
WC T7	41	72.7	31.6

As can be seen, some of the teachers, especially those in rural KZN, started from a low vocabulary base. Teacher 3, for example, at the start of the project was initially shy to speak English, but with the support of her coach, she embraced the project ideas, especially those relating to classroom routines and activities such as Shared Reading, Group Guided Reading and Paired Reading. After 2015, the HOD decided to shift her to Grade 1 so that the learners could get off to a good reading start in her class. By 2017 her overall English vocabulary score had increased from 27.2% to 54.4% and she was far more confident and at ease in using English. Teacher 4 in KZN started off from a much higher base at 68%, but the VLT results she received in 2015 spurred her on to greater heights, obtaining a score of 88% in 2017. She became an avid reader, both personally and in her class (the other teachers started calling her Oprah because she liked books so much), and she read stories to her Grade 3 learners every day.

However, it is important to bear in mind that there was also much variation in terms of the teachers' own personal vocabulary development, attitudes and trajectories. Some teachers were disinclined to make an effort, possibly because they were not interested or motivated to do so, they may have found it too effortful, or because they preferred to focus their energy on trying to improve their classroom literacy practices. The coaches all reported that on the whole there was not good uptake of the teachers adding new words to their personal vocabulary books. Their efforts may have been more focused on changing their classroom practices. Some teachers preferred using their phones for recording new words rather than the vocabulary notebook.

Qualitative observational data relating to the appearance and use of words in the classrooms provide some evidence of how teachers *applied* their vocabulary knowledge in their classroom practice.

- The use of vocabulary cards and word walls became more visible in classrooms.
- Most of the classrooms across the provinces became more print rich.
- Learner vocabulary notebooks were used in classes across the provinces. In 2016 and 2017 all FP learners across the schools were issued with notebooks for recording new words used during the week.
- Although all learners had these books, entries in these notebooks varied quantitatively and qualitatively across schools, with some notebooks showing regular entries and use, with words and meanings or examples, and others showing sporadic use, usually reflecting mainly single words written in list like fashion.

Discussion

Vocabulary knowledge is an indicator of language proficiency, whether in a HL or an AL. Given that FP teachers spend up to 5 hours a day with their learners, it stands to reason that the richness and quality of 'teacher talk' in the classroom may affect learner language and literacy development. The quality of teacher talk is influenced by the breadth and depth of teachers' vocabulary. However, very little research has been done in this domain in the South African context. Due to the current lack of vocabulary assessments in African languages and the ready availability of vocabulary measures in English at different frequency levels, the vocabulary component of the Zenlit Project provided an opportunity to start exploring aspects of FP teacher

vocabulary knowledge by documenting teacher vocabulary profiles in English at the start and end of a 3-year intervention with FP teachers. We summarise the main findings below.

- The results showed that the FP teachers who participated in the project over the 3-year period showed significant increases in overall vocabulary size, with large size effects across all three provinces. Both the results of the VLT tests and anecdotal evidence from the coaches bear testimony to some of the changes that occurred. It is encouraging to note that increases occurred at each frequency level, for both EHL and EAL teachers. Vocabulary acquisition occurs throughout our lives, so it is plausible that teachers' vocabulary knowledge is naturally incremental over the years. However, when such vocabulary growth shows statistically significant increases, across all three provinces, as in this study, then the findings tentatively suggest that an explicit in-service vocabulary intervention may help to improve FP teachers' language proficiency. However, the study was not specifically designed to examine the impact of the vocabulary component of the project on teacher vocabulary knowledge. It is possible that the teachers' exposure to the larger literacy intervention, the presence of storybooks in their classrooms and the increase in reading activities also contributed to an increase in English vocabulary knowledge. Further research is needed with randomised control trials to determine in what way in-service vocabulary interventions can affect teacher vocabulary development.
- It was not surprising that English HL teachers performed higher on the VLT than the EAL teachers. Not only did they have overall higher scores, they also knew more words at the mid (5,000 word) and low (10,000 word) frequency levels. However, it is to be noted that there were also some English HL teachers who scored very poorly on the VLT. Moreover, it was encouraging to note that several EAL teachers achieved high overall scores (above 80%), in some cases outperforming English HL teachers. Such results indicate that proficient EAL teachers do not necessarily have a vocabulary disadvantage compared to their English HL peers.

By the end of the project all the FP teachers showed mastery of Level 1 words (the 2,000-word frequency level), with English HL teachers also showing mastery at Level 2 (the 3,000-word frequency level).

There is currently no available data on FP teacher vocabulary knowledge locally or elsewhere, so it is not possible to say how these English HL and AL teacher profiles are similar to or different from other FP teachers. These profiles could serve as a tentative starting point for comparative studies interested in teacher vocabulary growth. It would be interesting to see how these results compare to BEd students in FP programmes and whether vocabulary interventions at pre-service level can help to increase teacher trainee vocabulary levels. The Zenlit project was involved in schools that serve disadvantaged communities, so these vocabulary profiles may also reflect socioeconomic factors associated with teachers' content knowledge. Using SACMEQ data, Altinok (2013) found that teachers with higher reading scores tended to teach in schools with higher socioeconomic status. Wider use of the VLT would help to ensure a more reliable and consistent way of measuring teacher or teacher trainee vocabulary profiles which in turn would make it easier to track and compare progress across studies.

- The urban/rural factor did not show statistically significant differences among the EAL teachers in the EC and KZN. This may be due to the intervention context, since many of the isiZulu teachers who taught in rural schools commuted to the schools daily from larger KZN urban centres. In LMIC education contexts, the rural-urban divide is reflected in school performance. Further research is needed to establish the urban/rural impact on vocabulary development by identifying EAL teachers who grew up and attended schools in rural areas as opposed to urban areas.
- Surprisingly, no significant differences in vocabulary knowledge between age groups emerged. This is contrary to research findings which show that age confers a vocabulary advantage — we continually learn new words throughout our lifetime (Simonsen et al., 2014; Scheepers 2014). Teachers in their 40s or 50s would be expected to know more words than teachers in their 20s or 30s starting out on their teaching journey. The age finding in this study may be due to the small subsample of 145 teachers. With regard to position, it was interesting to note that across the three provinces, FP HODs had stronger vocabulary profiles than FP teachers. This tentatively suggests that teachers who assume leadership positions in the FP display stronger language proficiency than their peers. However, more data is needed to corroborate such an interpretation,

- Regarding the uptake of the vocabulary component of the project by the teachers, it was found that while all the FP teachers seemed to be more aware of the importance of vocabulary in their classrooms, some teachers responded more enthusiastically to the call to build their vocabulary than others. They did this by deliberately reading more in their personal lives and by reading more storybooks with their learners or with their children at home. They also reported that were more intentional about learning new words and looked up the meaning of unknown words as opposed to ignoring them as they had in the past. However, some of the teachers in the project seemed to prefer to channel their energy into focusing on the classroom practices recommended by the larger literacy intervention, so developing their own language proficiency was relegated to the back burner, so to speak. Thus, building a vocabulary component explicitly into a preservice BEd programme and monitoring student progress over time might provide a more effective way of building early teacher language proficiency.

Together these findings point to the potential of an in-service vocabulary intervention for developing teachers' vocabulary and thus their language ability, which lies at the core of the disciplinary knowledge of FP teachers and is recognised as such in the Knowledge and Practice Standards for Primary Teacher Education Graduates: Language and Literacy (PrimTEd 2020). One cannot help but wonder at the long-term effects of teachers' vocabulary on learner vocabulary. For example, one of the new Grade 1 teachers in WC who joined the project in 2017 obtained an overall vocabulary mean of 39%, even though she was an English HL speaker. In contrast, one of her Grade 1 colleagues scored 98% on the same VLT. Such disparities in vocabulary knowledge between teachers raises questions about their effect on learners' own vocabulary development, whether in the HL or an AL. Studies that examine the relationship between teacher vocabulary knowledge and learner language development in both HL and AL is an area that awaits further research in our schooling context.

There is also a need for the development of vocabulary tests based on frequency levels for all South African languages and the country's bilingual education context to assist higher education institutions to monitor BEd students' progress and provide them with support throughout the 4-year degree cycle. Given that CAPS recommends knowledge of 2,500-3,000 words for EAL learners by the end of Grade 3, knowledge of commonly used words up to the 3,000 frequency level might be a desirable minimum basic vocabulary for FP teachers who are not HL English speakers but who are expected to teach English as a First additional language

(EFAL). The same would also apply to other FALs such as Afrikaans, isiXhosa, etc. where knowledge of the most frequent words in an AL enable basic communication in that language.

Cautionary notes

There was no teacher ‘control group’ for the vocabulary component of the Zenlit Project. It would be interesting to see how (and if) vocabulary grows over time in EHL and EAL teachers who are left to their own devices, so to speak, and are not involved in a literacy intervention in general or exposed to a vocabulary intervention in particular.

The project monitored the vocabulary aspect by assessing the teachers’ growth in their vocabulary knowledge at the different frequency levels, but not how they use vocabulary in the classroom (which would give an indication of both the size and depth of their vocabulary knowledge⁴). This has implications for how teachers help to develop language skills in their learners, to prepare them for the more challenging learning demands of the Intermediate Phase.

Although in this project the learners’ literacy levels were assessed, their vocabulary per se was not assessed so it was not possible to examine whether teacher vocabulary levels affected learner vocabulary over the course of a year. An examination of the relationship between teacher vocabulary knowledge and learner performance is an aspect that we leave for future research. Attention to how vocabulary activities and assessments could feasibly be incorporated into interventions is an area for further consideration, as is the design of reliable and valid instruments for measuring learners’ vocabulary development across all school languages in South Africa.

Conclusion

Improving teacher vocabulary levels is an area that warrants far more serious attention than it has hitherto received in the South African schooling context. Because performance on a vocabulary test is a good indicator of language proficiency (Helman & Burns 2008; Stæhr 2008), explicit attention should be given to HL and AL vocabulary development in both pre-service and in-service education. Including a vocabulary component into a literacy intervention

⁴ Only a small subsample of teachers’ vocabulary use in the classroom were examined in this regard. Although the findings are interesting, the sample is too small for drawing general conclusions – see Pretorius and Stoffelsma (2022).

aimed at FT teachers has the potential to increase teachers' vocabulary size, and also indirectly their language proficiency and confidence in using the language.

Although it is probably fair to say that *awareness* of vocabulary issues and the need to foster its development in the classroom was greater after the project than before, there is a need to investigate more closely which vocabulary teaching and learning strategies are more effective for our schooling context. The establishment of vocabulary norms and the extent to which FP teachers and learners can grow their vocabularies within the course of a school year are also issues that await further local research attention.

Attention to the frequency levels of words in African languages, the development of vocabulary assessments in African languages based on frequency levels, and the way in which the complex morphology of agglutinating languages affects vocabulary development in African languages are also areas that merit urgent attention.

Acknowledgements

The authors would like to thank the Zenex Foundation for the generous support received during the project. Special deep thanks to all the HODs, teachers and coaches in the Zenlit project who travelled on this vocabulary journey with us and from whom we learned so much.

References

- Altinok, N., 2013, The impact of teacher knowledge on student achievement in 14 sub-Saharan African countries. Background paper prepared for the Education for All Global Monitoring Report 2013/4 Paris: UNESCO <http://unesdoc.unesco.org/images/0022/002258/225832e.pdf>
- Archibald, L.M.D. & Joannis, M.F., 2009, 'On the sensitivity and specificity of nonword repetition and sentence recall to language and memory impairments in children', *Journal of Speech, Language, and Hearing Research* 52(4), 899-914.
- Bialystok, E., Luk, G., Peets K.F. & Yang, S., 2010, 'Receptive vocabulary differences in monolingual and bilingual children', *Bilingualism, Language and Cognition* 13(4), 525-531.
- Biemiller, A., 2003, Teaching vocabulary in the primary grades: Vocabulary instruction needed. In J. F. Baumann & E. J. Kame'enui (Eds.), *Vocabulary instruction: Research to practice*, pp. 28–40, New York: Guilford.
- Biemiller, A. & Slonim, N., 2001, 'Estimating root word vocabulary growth in normative and advantaged populations: Evidence for a common sequence of vocabulary acquisition', *Journal of Educational Psychology*, 93, 498–520.
- Carlise, J.E., Kelcey, B. & Berebitsky, D., 2013, 'Teachers' support of students' vocabulary learning during literacy instruction in high poverty Elementary Schools', *American Educational Research Journal* 50(6), <https://doi.org/10.3102/0002831213492844/>
- Cliff, A., 2015, 'The National Benchmark Test in Academic Literacy: How might it be used to support teaching in higher education?' *Language Matters* 46(1), 3–21.

- Connor, C. M., Jakobsons, L., Crowe, E., & Majors, J.G., 2009, 'Instruction, student engagement, and reading skill growth in Reading First classrooms', *The Elementary School Journal*, 109, 221–250.
- Corrigan, R., 2010, 'Effects of pre-service teachers' receptive vocabulary knowledge on their interactive read-alouds with elementary school students', *Reading and Writing*, DOI 10.1007/s11145-009-9223-5.
- Coyne, M.D., Simmons, D.C., Kame'enui, E.J., & Stoolmiller, M., 2004, 'Teaching vocabulary during Shared Storybook Readings: An examination of differential effects', *Exceptionality*, 12(3), 145–162.
- Creighton, G., 2022, 'Congruence between teachers' spoken discourse and students' vocabulary levels: Is the gap too wide?', *Language Matters*, 53:1, 63-80, doi: 10.1080/10228195.2022.2066157
- Cunningham, A.E., 2005, Chapter 3: Vocabulary growth through independent reading and reading aloud to children. In *Teaching and Learning Vocabulary, Bringing Research to Practice*, edited by E. H. Hiebert & M. L. Kamil. Mahwah, New Jersey: Lawrence Erlbaum.
- Cunningham, A.E. & Stanovich, K.E., 2001, 'What reading does for the mind', *Journal of Direct Instruction*, Summer: 137-149.
- Department of Basic Education,. 2011, Curriculum and Assessment Policy Statement (CAPS) Foundation Phase Grades 1-3, English First Additional Language. Pretoria: Department of Basic Education, Republic of South Africa.
- Dickinson, D.K., & Tabors, P.O., 2001, *Beginning literacy with language*. Baltimore, MD: Brookes.
- Ehrenberg, R.G., & Brewer, D.J., 1995, 'Did teachers' verbal ability and race matter in the 1960s? Coleman revisited', *Economics of Education Review*, 14(1), 1–21.
- Farkas, G. & Beron, K., 2004, 'The detailed age trajectory of oral vocabulary knowledge: Differences by class and race', *Social Science Research*, 33(3):464-497.
<https://doi.org/10.1016/j.ssresearch.2003.08.001>.
- Fernald, A., Marchman, V. A. & Weisleder, A., 2013, 'SES differences in language processing skill and vocabulary are evident at 18 months', *Development Science*, 16, 234–248. doi: 10.1111/desc.12019
- Gagiano, S. & Southwood, F., 2015, 'The use of digit and sentence repetition in the identification of language impairment: The case of child speakers of Afrikaans and South African English', *Stellenbosch Papers in Linguistics*, 44, 37-60 doi: 10.5774/44-0-187
- Hart, B. & Risley, T., 1995, *Meaningful differences in the everyday experiences of young children*. Baltimore, MD: Brookes.
- Hart, B. & Risley, T., 2003, 'The early catastrophe: The 30 million word gap by age 3', *American Educator* 22, 4-9.
- Hayes, D. P. & Ahrens, M., 1988, 'Vocabulary simplification for children: A special case of 'motherese'', *Journal of Child Language*, 15, 395–410.
- Helman, L.A. & Burns, M.K., 2008, 'What does oral language have to do with it? Helping young English-language learners acquire a sight word vocabulary', *The Reading Teacher*, 62(1):14-19. [<https://doi.org/10.1598/RT.62.1.2>].
- Henrich, J., Heine, S., & Norenzayan, A., 2010, 'Most people are not WEIRD', *Nature* 466:29. doi: 10.1038/466029a
- Hoff, E., 2003, 'The specificity of environmental influence: socioeconomic status affects early vocabulary development via maternal speech', *Child Development*, 74, 1368–1378. doi: 10.1111/1467-8624.00612
- Hoff-Ginsberg, E., 1991, 'Mother-child conversations in different socioeconomic and communicative settings', *Child Development*, 62 (4), 782-796.
- Huttenlocher, J., Vasilyeva, M., Cymerman, E. & Levine, S., 2002, 'Language input and child syntax', *Cognitive Psychology*, 45, 337–374. doi: 10.1016/s0010-0285(02)00500-5
- Irvine-Niakaris, C & Kiely, R., 2015, 'Reading comprehension in test preparation classes: an analysis of teachers' pedagogical content knowledge in TESOL', *TESOL Quarterly* 49(2): 369-392.
- Khosa, M., 2021, Early Reading Development in Xitsonga: A Study of Learners and Teachers in Grade 1 Xitsonga Classrooms in Limpopo Province. Unpublished doctoral thesis, Pretoria: University of South Africa.

- Kilpatrick, D.A., 2015, *Essentials of assessing, preventing and overcoming reading difficulties*. Hoboken (NJ): Wiley.
- Laufer, B., 2010, 'Lexical Threshold revisited: Lexical text coverage, learners' vocabulary size and reading comprehension', *Reading in a Foreign Language* 22 (1): 15–30.
- Laufer, B., & Nation, P., 1999, 'A vocabulary-size test of controlled productive ability', *Language Testing* 16 (1): 33–51. <https://doi.org/10.1177/026553229901600103>
- Moats, L., 2009, 'Knowledge foundations for teaching reading and spelling', *Reading and Writing: An Interdisciplinary Journal*, 22, 379–399.
- Nation, I.S.P., 2006, 'How large a vocabulary is needed for reading and listening?' *The Canadian Modern Language Review*, 63(1), 59-81.
- Nation, I.S.P., 2012, 'The BNC/COCA word family lists', Accessed April 4, 2022. https://www.wgtn.ac.nz/_data/assets/pdf_file/0005/1857641/about-bnc-coca-vocabulary-list.pdf.
- Nation, I.S.P., 2013, Learning Vocabulary in Another Language. Edited by C. A. Chapelle & S. Hunston. Second ed, *Cambridge Applied Linguistics*. Cambridge: Cambridge University Press.
- Pan, B., Rowe, M., Singer, J. & Snow, C., 2005, 'Maternal correlates of growth in toddler vocabulary production in low-income families', *Child Development*, 76, 763–782.
- Penno, J.F., Wilkinson, I.A.G. & Moore, D.W., 2002, 'Vocabulary acquisition from teacher explanation and repeated listening to stories: Do they overcome the Matthew effect?', *Journal of Educational Psychology*, 94, 23–33.
- Pretorius, E.J. & Stoffelsma, L., 2022, The potential for word growth in Grade 3 in disadvantaged urban schools: factors that facilitate or impede the transition to Grade 4. In Van der Walt, C & Pfeiffer, V. (eds) *Multilingual classroom contexts: Perspectives from the chalk face*. SunMedia.
- Rimensberger, N., 2014, 'Reading is very important, but ...: Taking stock of South African student teachers' reading habits', *Reading & Writing* 5(1), Art. #50, 9 pages.
- Robbins, C. & Ehri, L.C., 1994, 'Reading storybooks to kindergartners helps them learn new vocabulary words', *Journal of Educational Psychology*, 86, 54–64.
- Roberts, N., Moloi, Q.M. & Mort, T., 2024, 'Assessing student teachers' knowledge of English to inform curriculum design in initial teacher education', *South African Journal of Childhood Education* 14(1), a1538. <https://doi.org/10.4102/sajce.v14i1.1538>
- Scheepers, R.A., 2016, 'The importance of vocabulary at tertiary level', *Journal for Language Teaching* 50(1), 53–77. <https://doi.org/10.4314/jlt.v50i1.3>
- Schmitt, N. & Schmitt, D., 2014, A reassessment of frequency and vocabulary size in L2 vocabulary teaching', *Language Teaching*, 47(4), 484–503. <https://doi.org/10.1017/S0261444812000018>
- Shulman, L., 1986, 'Those who understand: Knowledge growth in teaching', *Educational Researcher*, 15(2), 4–14.
- Simonsen, H.G., K.E. Kristoffersen, D. Bleses, S. Wehberg & Jorgensen, R.N., 2014, 'The Norwegian Communicative Development Inventories: reliability, main developmental trends and gender differences', *First Language*, 34 (1):3–23.
- Spaull, N., 2011, A preliminary analysis of SACMEQ III South Africa. Stellenbosch: Stellenbosch University working paper: 11/11.
- Spaull, N., 2013, 'Poverty & privilege: Primary school inequality in South Africa', *International Journal of Educational Development*, 33(5), 436–447. <https://doi.org/10.1016/j.ijedudev.2012.09.009>
- Spear-Swerling, L., 2004, A road map for understanding reading disability and other reading problems: Origins, prevention and intervention, in *Theoretical models and processes of reading* (5th ed.), edited by R.B. Ruddell & N.J. Unrau. Newark, De.: International Reading Association:517–573.
- Stæhr, L.S., 2008, 'Vocabulary size and the skills of listening, reading and writing', *Language Learning Journal* 36(2), 139–152. https://doi.org/10.1080/09571730_802389975
- Stahl, S., & Nagy, W., 2006, *Teaching word meanings*. New Jersey: Erlbaum.
- Stoffelsma, L., 2019, 'English vocabulary exposure in South African township schools: PitALLs and opportunities', *Reading & Writing*, 10(1). <https://doi.org/10.4102/rw.v10i1.209>
- Storch, S. & Whitehurst, G., 2002, 'Oral language and code-related precursors to reading: Evidence from a longitudinal structural model', *Developmental Psychology*, 38, 934–937.

- Tabors, P., Beals, D. & Weizman, Z., 2001, You know what Oxygen is? Learning new words at home. In D. Dickinson & P. Tabors (Eds.), *Beginning literacy with language. Young children learning at home and school* (pp. 93–110). Baltimore, MD: Brookes.
- Taylor, N., 2019, Inequalities in teacher knowledge in South Africa. In N Spaul & JD Jansen (eds). *South African Schooling: The enigma of inequality* (pp109-125). Springer. <https://doi.org/10.1007/978-3-030-18811-5> .
- Taylor, N. & Taylor, S., 2013, Teacher knowledge and professional habitus. In N Taylor, S van der Berg & T Mabogoane (Eds.), *Creating effective schools: Report of South Africa's National School effectiveness study* (pp. 204–233). Cape Town: Pearson.
- Van Hees, J. & Nation, P., 2017, *What every primary school teacher should know about vocabulary*. Wellington: NZCER Press.
- Weisleder, A. & Fernald, A., 2013, 'Talking to children matters: early language experience strengthens processing and builds vocabulary', *Psychological Science* 24, 2143–2152. doi: 10.1177/0956797613488145
- Wolf, M., Gottwald, S. & Orkin, M., 2009, 'Serious word-play: How multiple linguistic emphases in RAVE-O instruction improve multiple reading skills', *Perspectives on Language and Literacy*, 2009, AL1, 21-24.
- Zahar, R., Cobb, T. & Spada, N., 2001, 'Conditions of vocabulary acquisition', *The Canadian Modern Language Review*, 57, 541-572.