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Aspects of academic language proficiency of intermediate phase teacher education students

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Background: In the intermediate phase of schooling, learners' academic success is largely dependent on their ability to read and write academic texts. Teachers need to teach academic language intentionally and explicitly. In order for teachers to do this, they themselves need knowledge of academic language and its features. Teacher education students, therefore need to be explicitly taught about academic language and provided with sufficient opportunities to develop their own proficiency.

Aim: This article aimed to explore the academic language proficiency of a cross-sectional sample of teacher education students at a Johannesburg university.

Setting: This study took place at a South African university that implements a university-accredited primary school teacher education qualification. The university is located in an urban area, but attracts students from both urban and rural contexts.

Methods: Students' test scores on a core academic language skills instrument were utilised as data for this study, with descriptive and inferential statistical analyses procedures used to make sense thereof.

Results: Findings from a cross-sectional analysis between first- and second-year students' scores indicated that students' academic language proficiency does not appear to improve after their initial year of study.

Conclusion: The article concludes with a discussion of the implication hereof for teacher education and for the profession.

Introduction

The importance of academic language for teacher education students is twofold: Firstly, when students enter university they need to use academic language to engage with content across disciplines (Boughey 2002; Case 2013; Henning, Mamiane & Pheme 2001; Lamberti 2013). Secondly, as future teachers they need to become proficient in academic language in order to teach it explicitly and intentionally to the learners in their classrooms (Bailey, Burkett & Freeman 2008; Chamot & O'Malley 1994; Schleppegrell 2012; Uccelli, Dobbs & Scott 2013).

South African students' competence in academic language has been a topic of research and discussion for a long time (Grosser & Nel 2013; Pretorius 2005). While some students are able to apply academic language conventions to read, study and write academic texts, other students struggle to do so, often because they have not learnt to do this in school. In many schools insufficient attention is paid to the development of academic reading skills and to the habits of reading purposefully for educational and recreational purposes (Lamberti 2013). Also, many students in South African universities use English as a second or third language, and in addition to learn academic discourse conventions in the various disciplines, they also have to improve their use of the grammar and syntax conventions of the English language. Academic development departments and postgraduate divisions have increasingly been giving attention to students' learning of English for academic purposes (see Seligmann 2012). Various versions of assistance have been tried at universities, ranging from specialised academic writing tutoring to writing workshops and writing retreats (Leibowitz et al. 1997). Much of this development work is generic and includes students from different disciplines in one group. This makes it hard for students to receive specific guidance, because the discourse and writing conventions in university are often discipline-specific. There are, however, examples of discipline-specific studies conducted at the university where this study took place, such as those by Lamberti (2013), who studied third-year students in Development Studies, and Seligmann (2009), who studied high school teacher education students.

There has been no study to examine the academic language proficiency of the students in the new courses in Childhood Education at the university where this study was conducted. Identifying this as a gap in the body of knowledge pertaining to students' academic language development, the management of the Department of Childhood Education initiated the testing of students' language, specifically their use of vocabulary that is regarded as essential for writing in an academic fashion. It is at this juncture that this study originated.

This article reports on the academic language proficiencies of a cross-sectional sample (n = 182) of teacher education students, focusing specifically on their use of high frequency terms, as defined by Uccelli et al. (2013), and linguistic structures that could enhance understanding of typical academic texts. The sample included two student cohorts, enrolled in the first and second-year of a 4-year Bachelor of Education degree (intermediate phase [IP]) at a Johannesburg university.

The findings of this research would be useful in determining with which academic language proficiencies students enter university, as well as in determining whether students' academic language proficiencies improve after their initial year of engaging with academic texts at a university. The findings could also be useful for university curriculum development specialists who wish to emphasise embedded academic language usage, specifically as they pertain to the disciplinary knowledge. The students who were studied had to be proficient in the use of terminology and discourse conventions of curriculum studies, child development, reading education, mathematics learning and so forth, keeping in mind that the sociocultural setting of teacher education requires proficiency in typical academic language, which Snow (2010) argues, requires specific skilfulness.

Language development as pragmatic socialisation

The study was informed by a sociocultural, pragmatics-based view of language development (including literacy development). This view holds that language is not separated from an individual's social context and that language is learnt as a result of an individual's socialisation (Halliday 2004; Snow & Uccelli 2009) and the needs that arise from various contexts throughout life. From this *position* (Ribiero 2006), language is seen as something that continuously develops throughout the lifespan and an individual constantly learns new language skills and crafts new discourses in order to cope in different social contexts, one of which is an academic context (Berman & Ravid 2009 as cited in Uccelli et al. 2015).

This study aligned with this framework because it suggests that if a person is a proficient user of language in one social context, it does not guarantee that she or he will be a proficient user of language in other social contexts. Actually, many individuals who are well prepared for face-to-face social interactions, as Cummins (1981) explains with his theory of basic interpersonal communicative skills (BICS) and cognitive academic language proficiency (CALP), struggle to engage with academic discourse successfully, because they have not had opportunities to prepare to do so (Cummins 2000 as cited in Uccelli et al. 2015:8). This could be one possible reason why there may be a difference in students' academic language proficiencies. Some students simply never had the opportunity to experience this form of (linguistic) socialisation (Henning et al. 2001). I argue that the majority of students in the sample that I studied may never have had the opportunity to develop academic English, or may had such opportunities only marginally.

Discourses, language skills and learning in schools

A study of the literature on language as communication medium in different contexts has highlighted several definitions of academic language proficiency. For the purpose of this article I refer to the early work of Cummins (1981) to define the term. He first introduced the distinction between BICS and CALP. According to Cummins (2008), BICS refers to conversational fluency and it is the informal language that people use to communicate. On the other hand, CALP refers to the extent to which a person has access to and command of the academic language used for schooling and education and is also the language a learner or student needs to use effectively in order to progress successfully through school and university. Aukerman (2007) refers to this type of language as *decontextualised language*, because there is no shared social context that learners can rely on to figure out the meaning of texts. It is assumed that students at university, and learners in schools, will learn academic discourses by exposure. Although that happens to students who have had the advantage of effective schooling in a language that they use consistently, most students in the Childhood Education programmes at the university where this study took place were not ready to read academic texts fluently and accurately and were also not able to engage with academic discourse for writing successfully. This is evident from comments made by their lecturers and in the written assignments that they submitted. If future teachers do not develop some of the basic skills of academic language (which is the language used to compose most expository and argumentative texts in school textbooks in the IP of schooling) I would argue that they will not be able to serve as role models for learners and will also not be able to mentor the 'apprentices' in their classes. IP education students are likely to teach across the school curriculum and will therefore have to serve as examples of language use in Science, Technology, Engineering and Mathematics (STEM) subjects (Basson 2017), as well as the social sciences, the language curriculum and the arts.

It is essential for learners in the IP to become proficient in academic language in order to successfully engage optimally with tasks at school, and without teachers who are competent users of (English) academic language, they may lack

opportunities to develop an awareness of the discourse and may fail to develop them. Scarcella (2003) argues that it is important for learners to learn academic language as early as possible. In the South African environment the main academic language is English, which is not a home language for the majority of schoolgoers; such learners begin their English CALP journey later than those who learn in a home language from the beginning to the end of their school careers. All learners, from Grade 4 onwards, use English as the medium to engage with text and to participate in conversation in class, except the ones who study though the medium of Afrikaans. In a report published by the Department of Basic Education (DBE 2010) on the status of the language of learning and teaching in South African public schools in 2010, it was highlighted that in 2007, 65.3% of learners were learning in English, and only 7% had English as a home language. The reading and writing of language texts, and the tasks and assessments used to evaluate learning in schools, become increasingly difficult as a child progresses, with the later grades of schooling relying more heavily on written discourse (Scarcella 2003). This is also the view of Snow (2015).

Similarly, Schleppegrell (2012) argues that in order for learners to be successful in school they need to be able to use academic language *across disciplines*. She maintains that academic language is used for 'getting things done at school' and that all learners need opportunities to develop an awareness about academic language and to practise using it. The vocabulary across the curriculum, furthermore requires that all learners become familiar with the vocabulary and language structures of different school subjects – the typical discursive devices, such as, for example the use of the subjunctive mood when formulating arguments and hypotheses in STEM subjects. Snow and colleagues (Lawrence et al. 2011) report on a project for development of academic proficiency in middle schools in Massachusetts, where word-building is seen as a tool for building academic language – coming to the conclusion that the skills have to be taught *intentionally* as discourse conventions. In the schools I know in South Africa, little attention is paid to learning the discourses across the curriculum in order for primary school learners to learn that all disciplines do not share the same conventions. For example, the textbooks in the social sciences are not written in the style of life sciences or natural sciences textbooks. There are not only vocabulary differences, but register and even genre differences (Morgan & Henning 2013).

Fillmore and Snow (2000), as cited in Scarcella (2003), and Snow et al. (2005) are of the view that learners' language and literacy 'deficiencies' stem from their difficulties with reading and writing academic English instead of difficulty with decoding single words when they read or encode when they write. They argue that one possible reason for this is that many public schools do not know what academic language is, let alone how to effectively teach it. This is precisely why teacher education students need to be *explicitly* taught about academic language and provided with sufficient opportunities to develop their own proficiency in academic language. This, I argue, would cultivate *a raised awareness about the link between conceptual understanding and the conventions of language to represent abstract concepts*. It was also part of the reasoning for this study, in which I found evidence of student competence in the use of academic language, as measured in a standardised CALP test (known as the 'core academic language skills' test, CALS [Uccelli et al. 2015]).

In the research literature (Bailey et al. 2008; Chamot & O'Malley 1994; Schleppegrell 2012; Uccelli et al. 2013) there is evidence that suggests teachers need to teach academic language intentionally and explicitly. In order for teachers to do this, they themselves need knowledge of academic language and its features, how it is taught and how it is used by teachers and learners across disciplines. They also need to be able to use it themselves. Research advocates for more attention to be paid in teacher education to prepare teachers to support the development of the academic language of their learners (Lucas, Villegas & Freedson-Gonzalez 2008, as cited in Schleppegrell 2012). In the case of the study that I undertook, the idea was to find where students' academic language competence lies.

Samson and Collins (2012) highlight some important things that teacher education students need to know in order to become effective teachers of English language learners (ELLs, or in the South African context, the students who are 'English first additional language learners'). The mentioned authors propose that teachers of ELLs need the appropriate training to be able to meet their learners' language and learning needs and to facilitate academic growth including academic language competence. One of the things they highlight is that teachers must have a working knowledge of academic language conventions and of the particular type of language used for instruction as well as for the cognitively demanding tasks typically found in textbooks, classroom assessments and those necessary for engagement in discipline-specific areas. They also propose that teachers of ELLs should be able to teach academic language explicitly – much as Snow (2009) has argued. The teachers they refer to are, in my view, similar to the student teachers we teach in primary school teacher education programmes where I work as a lecturer. Finding out what student teachers' competence is may be a step in the right direction in making them aware of the language that they will teach across the curriculum when they teach the children in the IP of the primary school.

There is also a link between language proficiency and the development of critical thinking skills. Grosser and Nel (2013) studied the relationship between the critical thinking skills and the academic language proficiency of a group of first-year students at a South African university. They note that there is a lot of emphasis on the preparation of cognitive capacity and language proficiency across outcomes that need to be achieved by students across disciplines. The researchers studied students' academic language proficiency using the English Test of Academic Literacy Levels (TALL) and an Afrikaans version, *Toets vir Akademiese Geletterdheid* (TAG), for the Afrikaans students. The academic language proficiency of

40 Afrikaans-speaking students and 49 English-speaking students (of which only six were home language speakers of English) was tested. The TALL test was developed specifically to determine the extent of students' academic preparedness before they start studying at a university. The test is based on the construct of academic literacy (language) and addresses a number of skills such as cause and effect relationships and distinguishing between main ideas and detail.

The results from the test scores revealed that there was not a big variance in the test results for both groups, which indicates that the students were more or less on the same academic language proficiency level. The authors note that the overall achievement of all students was poor, with the TALL group having an average of 38.51% and the TAG group having an average of 41.72%. The authors make the assumption that the TALL group perhaps achieved lower results because they have to complete academic tasks in a second language. They argue that the results from their study indicate that students are unable to access and interpret information at a university level. They also note that a large percentage of first-year students who want to become teachers have poor to very poor academic language skills. Grosser and Nel (2013) thus argue that the lack of academic language proficiency is a serious concern that should be addressed with interventions by the university that took part in the study.

Pretorius (2005) tracked five students over a 3-month period to observe their reading practices, attitudes and problems when it came to reading academic texts for the purpose of extracting information. She finds that students generally struggle to make sense of the academic texts that they were reading and argues that students need to be assisted in becoming more skilful and effective readers if they are to process academic texts at a deeper level.

In this discussion of some of the literature there is evidence that points towards more attention being paid in teacher education to prepare future teachers to support the development of academic language of the learners in their classes. What is missing from the South African context is evidence about the academic language proficiencies of primary school teacher education students. What makes this article different is that a standardised model was used that specifically addresses academic literacy. This article reports on research that cross-sectionally examined two cohorts of teacher education students' academic language proficiency.

The inquiry

Two student cohorts (n = 182) enrolled in the first and second-year of a 4-year Bachelor of Education degree (IP), consisting of male (49) and female (133) students at a Johannesburg university, and they were the participants in this study. The CALS test was administered to these participants (Uccelli et al. 2013). As I was interested in finding out what the CALPs of teacher education students were, the best way for me to do this was by using an instrument that tests specific academic language skills of students, although not discipline-specific. In using the CALS instrument (CALS-I), I was also able to generate data that would allow me to determine if students' academic language appears to improve after engaging with academic texts at a university – thus, after some language and discourse socialisation.

Uccelli et al. (2015:1) describe the CALS-I as follows:

> The CALS-I is a group administered instrument designed to assess CALS in Grade 4 to 8. Each CALS-I form consists of a 50-min paper-and-pencil test that includes eight tasks: Connecting Ideas, Tracking Themes, Organising Texts, Breaking Words, Comprehending Sentences, Identifying Definitions, Interpreting Epistemic Stance Markers, and Understanding Metalinguistic Vocabulary. A ninth optional task assesses degree of adherence to academic register expectations through short open-ended responses. Tasks assess students' skills through a range of multiple choice, matching, or short written responses. The CALS-I is vertically equated and normed for English proficient students attending urban schools in Grade 4–8.

The CALS-I is used to 'chart school-relevant language proficiency'. For the purpose of this study, 'school-relevant language' is considered to be the academic language required to engage successfully in academic tasks at a university level where the programmes of study are aimed at primary school teaching – so that one can assess whether the students have the competences (skills) that they will be expected to teach in schools. I argue that this is the minimum academic requirement for teachers to teach across the curriculum in South African schools from Grade 4 onwards.

The reason for using a test intended for upper primary grades is that I wished to see what the students' competence is at this level, and also whether their competence appears to improve after their initial year of study.

Table 1 shows the CALS domains and skills that are tested using the CALS instrument. These domains and skills are believed to underlie the comprehension of academic texts (see Appendix A for CALS-I task descriptions).

TABLE 1: Core academic language skills instrument: Domains and skills measured.

CALS domain	Skills measured
Unpacking dense information	The ability to comprehend and use complex words and sentences that contain concise information (e.g. nominalisations, embedded clauses, expanded noun phrases)
Connecting ideas logically	The ability to use 'connectives' common in academic texts (e.g. *consequently*, *on the one hand*, etc.)
Tracking participants and ideas	The ability to identify and produce the terms or phrases used to refer to the same participants or themes throughout a text (e.g. *Water evaporates at 100 degrees Celsius. This process* …)
Organising analytic texts	The ability to organise analytic texts (including argumentative texts and paragraph-level structures) according to conventional academic text structures
Understanding metalinguistic vocabulary	The ability to understand precise meanings, particularly the use of language to make thinking as reasoning visible (e.g. *hypothesis*, *generalisation*, *argument*)
Understanding a writer's viewpoint	The ability to understand or use markers that signal a writer's viewpoint, especially markers that show a writer's degree of certainty in relation to a claim (e.g. *certainly*; *it is likely that*)
Recognising academic language	The ability to recognise academic language when compared with more colloquial language in communicative contexts where academic language use is expected.

Source: Taken from Uccelli and Galloway 2016.

CALS, core academic language skills.

Students' scores from the CALS-I formed the data for this study. Descriptive and inferential statistical analyses were used to make sense of the data (Creswell 2009). This entailed firstly, entering the raw CALS test scores into a database. Scores for each item that was tested in each task (1–9) were entered individually. Scores for each task were then totalled. The total scores were then converted to a percentage out of 100. After scores had been entered into the Excel database, it was possible to import the dataset into SPSS Statistics and conduct descriptive and inferential statistical analyses.

In order to test the hypothesis that students' academic language proficiency improves after their initial year of study, I used a paired samples *t*-test. Before pairwise comparisons could be done between the IP students' CALS test scores, a test for correlation was done. After the test for correlation was done I determined a theoretical proposition, from which I formulated the hypothesis. I then used a paired samples *t*-test to compare the mean test scores of the first- and second-year IP students in order to determine whether their test scores appear to improve after 1 year of study and engage with academic texts at a university (and experience some socialisation into the discourse of the academy).

Findings: Engagement with academic language, or not?

The findings of the cross-sectional analysis presented in the following, show that there was no improvement in the CALS test scores of second-year students when compared to first-year students. It is important to note that this article emanated from a master's study, and the full results will be available in more detail once the dissertation is published.

Prior to doing the cross-sectional analysis between the groups, I first did a test for correlation of CALS test scores. Before testing, if there was correlation, I had to identify the null and alternative hypothesis:

> Null hypothesis (H_0): There is no correlation between the CALS test scores of first- and second-year IP students.
>
> Alternative hypothesis: (H_a): There is a correlation between the CALS test scores of first- and second-year IP students.

An alpha level of 0.05 was determined before the test was done. A *p*-value (significance level [Sig.]) less than 0.05 would therefore indicate a positive correlation between the CALS test scores of the tested groups.

Table 2 shows the results of the test for correlation.

The *p*-value (Sig.) is larger than 0.05; therefore the null hypothesis is not rejected and it can be concluded that there is no positive correlation between the CALS test scores of the first- and second-year IP students on Campus A. One explanation for why there is no positive correlation between groups could be that it was not the same group that was tested twice (e.g. before and after an intervention), but instead it was two different groups that are being compared cross-sectionally.

TABLE 2: Results of the test for correlation.

Pair	Paired samples correlations	*N*	Correlation	Sig.
Pair 1	IP first-year students on Campus A and IP second-year students on Campus A	91	0.025	0.817

IP, intermediate phase; N, sample; Sig., significance level.

After the test for correlation, I used a paired samples *t*-test to compare the CALS test scores of the IP first-year students to the CALS test scores of the IP second-year students. I hypothesised that students in their second-year of study will have a higher mean CALS test score than students in their first-year of study.

The theoretical proposition in Figure 1 was used to formulate the hypothesis:

This theoretical proposition suggests that students' year of study will have an impact on their academic language proficiency and was used to formulate the hypotheses:

> Null hypothesis (H_0): Students' academic language proficiency does not appear to improve after their initial year of study.
>
> Alternative hypothesis (H_a): Students' academic language proficiency does appear to improve after their initial year of study.

An alpha level of 0.05 was decided on before the test was implemented. A *p*-value (Sig.) less than 0.05 would therefore indicate a difference in students' CALS test scores, implying that students' academic language proficiency appears to improve after the initial year of study.

Table 3 shows the results of the paired samples test.

The results of the paired samples test shows that the *p*-value (Sig.) for the difference in students' scores is 0.600, which is higher than 0.05. The *t*-value, which is 0.526, shows the average difference in CALS test scores between IP first and second years. Therefore the null hypothesis is not rejected and the conclusion can be made that there is no statistically significant difference between students' CALS scores, which implies that students' academic language proficiency does not appear to improve after the initial year of study.

Further evidence for this conclusion is indicated in the paired samples statistics table (Table 4). In this table it shows that the

TABLE 3: Results of the paired samples *t*-test.

Pair	Paired samples test – IP students on Campus A	Paired differences				
		Mean	SD	SEM	*t*	Sig. (two-tailed)
Pair 1	IP first-year students on Campus A and IP second-year students on Campus A	0.907	16.45	1.72	0.526	0.600

IP, intermediate phase; Sig., significance level; SD, standard deviation; SEM, Standard error of the mean; *t*, T-score.

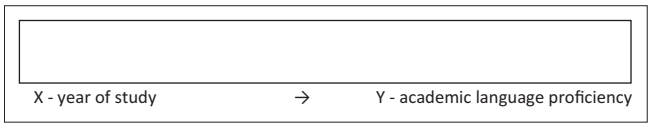

FIGURE 1: Theoretical proposition.

TABLE 4: Paired samples statistics.

Pair	Paired samples statistics	Mean	*n*	SD	SEM
Pair 1	IP first-year students on Campus A	77.01	91	11.55	1.21
	IP second-year students on Campus A	76.11	91	11.99	1.25

IP, intermediate phase; *n*, sample; SD, standard deviation; SEM, Standard error of the mean.

mean CALS test score for first-year IP students is higher than that of second-year IP students, which is another indication that students' academic language proficiency does not appear to improve after their initial year of study.

Discussion and conclusion

Both a review of the literature and the findings of this research indicate that there is evidence for more attention to be paid in teacher education programmes to prepare students to deal with the complexities of academic language (see Samson & Collins 2012). In this study it was evident that students' academic language proficiency does not improve after the initial year of study. Although the mean CALS test scores for both student cohorts were relatively high (77.01 and 76.11) it is important to note that the CALS test was created and normed for school learners from Grades 4 to 8. Therefore, I argue that students will likely continue to struggle reading academic texts fluently and using academic discourse for writing successfully. This has several implications for teacher education and the profession.

Firstly, when these students qualify as teachers they will likely be unable to teach academic language to the learners in their classrooms explicitly and intentionally. The reason for this is, as the results of this study revealed, they themselves do not know the conventions of the generic academic language skills that are required for learning in the IP, as captured in the CALS-I test. Students' scores on the CALS-I indicate that they may need extended academic language competences required to teach across the curriculum in South African schools from Grade 4 onwards. This is also what Fillmore and Snow (2000), as cited in Scarcella (2003), and Snow et al. (2005) argue: Many teachers do not know what academic language is, or how to effectively teach it. This is a matter of concern for teacher education. From the literature that I studied, I gathered that authors state unambiguously that primary school teacher education students need to become proficient in academic language because they will have to teach it by infusing it into their daily practice (Bailey et al. 2008; Chamot & O'Malley 1994; Schleppegrell 2012; Uccelli et al. 2013). In order for teacher education students to do this, they themselves need academic language competence and knowledge of its features, how it is taught and how it is used by teachers and learners across disciplines. They also need to be able to use it themselves.

Secondly, teacher education students need to be explicitly taught about academic language and provided with sufficient opportunities to develop their own proficiency in academic language to engage optimally with the world of research in education. They must be taught how to invest in scholarly thinking for reflective practice. This is a crucial issue, as students' academic success hinges on their ability to engage with academic texts across disciplines. In order for students to participate in the academic community, they must first become literate in academic language. Students' success is dependent on many variables but becoming literate in unfamiliar discourses is one way that can empower them to succeed (Graff 1999). The results from the research done in this study indicate that students' academic language proficiency does not appear to improve after the initial year of study. The difference in students' academic language competence can be explained by the sociocultural pragmatics-based view of language development. This framework (which informed this study) suggests that if a person is a proficient user of language in one social context it does not guarantee that she or he will be a proficient user of language in all social contexts.

Another serious concern is that if teacher education students do not have a more than adequate academic language proficiency, it could result in a ripple effect in their own teaching in the future, because they will not be able to effectively teach academic language and develop their learners' academic language proficiency. This type of proficiency, I would say, is a gateway to learning in the decontextualised world of print and electronic media and to personalised learning. The importance of learners becoming proficient in academic language in order to be academically successful in school, is evident in the research of Scarcella (2003) and Schleppegrell (2012). Recent research in South Africa indicates that with the exception of a wealthy minority, most South African learners cannot read, write and compute at grade-appropriate levels, with large proportions being functionally illiterate and innumerate. Spaull (2013) analyses the results from the Southern and Eastern Africa Consortium for Monitoring Educational Quality III (2010) project and highlights that 27% of South African Grade 6 learners were illiterate because they could not read a short and simple text and extract meaning from the text. The pattern is similar in the Trends in International Mathematics and Science Study (Mullis, Martin & Arora 2011), which tests the maths and science knowledge of learners. Here the results show that South Africa's performance is still the lowest of all participating countries, with the average South African Grade 9 child performing between two and three grades lower than the average Grade 8 child from other middle-income countries.

This phenomenon can be explained by Lin, Lawrence, Snow and Taylor (2016) who argue that reading comprehension is the biggest literacy challenge of the 21st century. The authors hypothesise that the success of comprehending 'deep reading' tasks is dependent on a learner's academic language proficiency. One possible reason why the sample in this study did not know the conventions of academic language, could be because they were never taught about it by their teachers; and if they are not initiated into the conventions of academic language at university, the learners in South Africa are likely to continue to struggle academically, starting in the IP, where so much learning is based on written text.

The results presented in this article indicate that teacher education students lack the academic language proficiency that is required for teaching in the IP, where they have to be exemplary users of academic language. This is a matter of concern for teacher education as well as policymakers in teacher education.

There is evidence in the literature (Lucas et al. 2008, as cited in Schleppegrell 2012) that points out that more attention needs to be paid in teacher education to prepare future teachers to attend to the development of the academic language of learners in the primary school. The information presented in this study could also be useful for university curriculum development specialists, or policymakers, who wish to emphasise embedded academic language usage, specifically as it pertains to the disciplinary knowledge.

Some authors (Chamot & O' Malley 1996; Fillmore & Snow 2000; Leibowitz et al. 1997; Snow & Uccelli 2009) have proposed various pedagogies or approaches that teacher education programmes may use to assist their students with learning the complexities of academic language. One such approach, described by Fillmore and Snow (2000), is an additional course in teacher education called, 'The Language of Academic Discourse'. This course, as the authors describe, focuses on the language used in teaching and learning school subjects, especially the structure of academic discourse and how this register contrasts with that of informal communication. They argue that such a course would show how language production and language understanding interact with content learning – science, social science, mathematics and so on – and how learners' language development is promoted or not based on how language is used in instructional activities.

I argue that CALS have to be taught across the curriculum in teacher education programmes and it is essential to integrate CALS across disciplines in teacher education with an accent on academic language.

In the Department of Higher Education and Training's nationwide research and development programme, Primary Teacher Education, one of the goals is the advancement of teacher education students' language and literacy competence. The teacher education authorities are beginning to address this issue.

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To address ethics in this research I worked in accordance with the prescribed set of procedures of the university. The specific measures I took included:

- Applying for overall ethics approval via faculty processes.
- Requesting informed consent from participants to be part of the research.
- As part of informed consent, I explained the ethics procedure to participants prior to the start of writing the core academic language skills test and I stated that the data would only be used for the purpose of this study and would be reflected in a research report, which may be viewed by others.
- That the findings would not expose the identities of the participants or the name of the university in which they were studying. I also treated participants' scores with a strong measure of confidentiality and information obtained was discussed only with my research supervisors, who also are cognisant of ethical measures.

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Competing interests

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

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Appendix starts on the next page →

APPENDIX A: Core academic language skills instrument task descriptions.

Tasks	Skills measured	Sample items	Additional examples
Unpacking dense information: complex words and complex sentences	Skill in breaking down complex words	The administrator reads a morphologically derived word followed by an incomplete sentence, and students are asked to complete the sentence by extracting the base from the derived word (e.g. *Ethnicity. The city has many ____ groups.*)	*invasion, durability, contribution*
	Skill in understanding complex sentence structures	The administrator reads a sentence, and students are asked to select the picture that corresponds to the target sentence. Four pictures are presented, three of which depict sentences altered by a grammatical element (e.g. *The sheep the girl looks at is running.*).	*expanded noun phrases, centre-embedded clauses*
Connecting ideas logically	Skill in understanding school-relevant words that connect ideas	Students are asked to select the missing marker from among four options (e.g. *Kim was sick ___ she stayed home and did not go to school. – otherwise, yet, in contrast, as a result.*)	*consequently, nevertheless, in conclusion*
Tracking participants and themes	Skill in tracking references throughout a text	Students are asked to match the underlined text with its antecedent by selecting among three options (e.g. *China resisted the move for change. In 1989 students protested to demand changes, but the army opposed these changes. Troops were sent to stop the movement.*).	*tracking references for concrete participants, events, abstract ideas*
Organising analytic texts	Skill in argumentative text organisation	Students are asked to order four to six fragments of a brief essay (introduced by conventional markers; e.g. *in my opinion*, *one reason*, *in conclusion*) in order to display a conventional argumentative text structure.	*Some think …* *Others think …* *The first reason …* *The second reason …*
Understanding metalinguistic language	Skill in understanding words that label or qualify language or thinking moves	The administrator reads two sentences from an informational article followed by a one-sentence reaction from a respondent. Students are then asked to select which word best describes the respondent's reaction from among four options (e.g. paraphrase, generalisation, hypothesis, contradiction).	*counterclaim, evidence, precise*
Interpreting writers' viewpoints	Skill in interpreting markers that signal a writer's level of certainty about a claim	The administrator reads a 'scientist's' claim that includes a stance marker, and students are asked how sure they think the scientist is about the claim made (e.g. *Certainly, the rock is from space.*). Students select from among four options to answer the question (e.g. *Is this scientist sure that the rock is from space? Yes, maybe yes, maybe no, no*).	*impossible, presumably, conclusively*
Recognising academic register	Skill in identifying more academic versus more colloquial language	Students are asked to select the most academic definition from a set of three definitions of the same familiar word.	*umbrella, clown, debate*

Source: Taken from Uccelli and Galloway 2016.