The impact of an academic reading programme in the Bachelor of Education (intermediate and senior phase) degree

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Research regarding the academic reading load experienced by first year students at universities in South Africa indicated that students are woefully under-prepared to deal with this load as they have limited reading experiences and strategies. This led to the implementation of an academic reading programme at a university of technology. In order to measure the impact of this academic reading programme, a sequential explanatory mixed-method model was designed to determine if the reading programme had led to any significant gains in reading speed and reading comprehension. The results of the empirical study indicated that the academic reading programme improved reading speed whilst maintaining comprehension.

Introduction

Research indicates that both local and international first year students struggle with the reading load that is required at tertiary level (Van Schalkwyk 2008; Bharuthram 2006:269; 2012:205; Falk-Ross 2002). Bharuthram (2006:268) states that students 'enter tertiary institutions with limited reading experiences and strategies.' Lecturers at a university in the Western Cape also experienced this. It seemed that the problem was two-fold, namely (1) students struggled to get through the amount of reading (slow reading speed) and that (2) they struggled to comprehend texts at tertiary level. In a similar environment (a university of technology in South Africa) Bharuthram conducted a study on the development of reading strategies in higher education and came to the conclusion that curriculums or programmes should be developed through which reading can be taught explicitly. She also emphasised the urgency of addressing reading in higher education in South Africa (Bharuthram 2006:269). In support of this, Pretorius (2002:194) states the following: 'The longer the reading problem is ignored, the more the intellectual potential of current and future generations of students goes untapped'. A reading programme was thus developed on the above-mentioned campus to assist our students with the improvement of their reading speed and comprehension, with the ultimate goal of helping them to cope with their studies.

Background and development of the programme

In October 2009, four faculty members attended a training course in reading instruction. This led to the development of an academic reading strategy instruction programme for first year students, which was implemented in 2010. This initial programme was implemented for the first years, who were able to attend it on a voluntary basis. It addressed comprehension skills, particularly those used in the completion of comprehension tests and identifying main ideas in texts, as well as reading speed through eye exercises that the students had to do during class and at home. However, the accurate measurement and monitoring of students' reading speed proved to be a problem. The students also seemed to struggle with the transfer of what they had learned in the comprehension component of the programme to their studies. By the end of the first two years the lecturers realised that the improvement of reading at all levels across the curriculum, whether the participants were weak readers or strong readers, was not covered in the existing programme and that it had to be changed to accommodate the needs of the students.

In order to monitor students' reading speed and immediate comprehension more accurately, we invested in the programme *Readers are Leaders* (cf. Description of the programme). For aspects regarding the comprehension strategy development component of the programme Klopper's study (2012) – an on-going study was used as the basis for the changes, which were implemented in the academic reading programme. Klopper's (2012) study revealed that effective comprehension strategy instruction required definite steps if it was to be successful. Both the reading speed and reading comprehension components of the programme were revised and resulted in the current programme. Two of the important changes that were made to the reading programme were

(1) a computer-mediated reading programme (*Readers are Leaders*) was bought in order to enhance reading speed and comprehension and (2) the selection of relevant academic texts to use during academic reading strategy instruction in the comprehension component was implemented.

Conceptual framework and review of literature

Traditional definitions of reading comprehension often focus on successful decoding and the ability to answer questions after reading (Zimmermann & Hutchins 2003:7). However, research has shown that, although successful decoding is essential for a good reader, over time reading comprehension is much more than just decoding (Zimmermann & Hutchins 2003:5; Pressley 2006:321). The aforementioned researchers claim that the thinking processes of the reader, the learning that takes place, the mastering of new information, the expansion of knowledge and the subtle connection with the thoughts of the unknown are equally important as decoding. The goal of reading is, after all, to read and understand, not only to decode successfully.

For the purpose of this article, Snow's definition of reading comprehension will be used: '… the process of simultaneously extracting and constructing meaning through interaction and involvement with written language' (Snow 2002:xiii).

Research over the past three decades has shown that explicit instruction in reading comprehension strategies is invaluable in the development of proficient readers (Zimmermann & Hutchins 2003:5; Johnson 2005:1). Duke and Pearson (2002), Zimmermann and Hutchins (2003), Pressley (2006), Harvey and Goudvis (2007), Keene and Zimmermann (2007), Kelley and Clausen-Grace (2007), and Block and Parris (2008) each give a list of strategies they view as most successful to use for instruction. There appears to be consensus regarding the use of the following strategies: goal setting, scanning, activating prior knowledge, predicting, monitoring of comprehension, questioning, visualising, drawing inferences, connecting, summarising and evaluating.

Research has shown that explicit instruction strategy use stands central in effective comprehension instruction (Block, Gambrell & Pressley 2002:9, 26; Snow 2002:33; Zimmermann & Hutchins 2003: 5; Pressley 2006:335; Harvey & Goudvis 2007:31; Bharuthram 2012:206; Klopper 2013:202). The question is, however, what is the best way to teach these strategies explicitly?

Klopper (2013:223) claims that effective comprehension strategy instruction within the South African context requires an introductory reading course at first year level because of the lack of exposure to reading instruction in South African schools. During such an introductory course, the concept of metacognition should be introduced and working definitions of specific reading strategies should be formulated in order to lay a foundation for this kind of reading strategy instruction.

Pressley (2000) states that there are a number of well researched methods for enhancing reading comprehension, one of which is transactional strategy instruction (also known as instruction through the gradual release of responsibility). He describes this as follows:

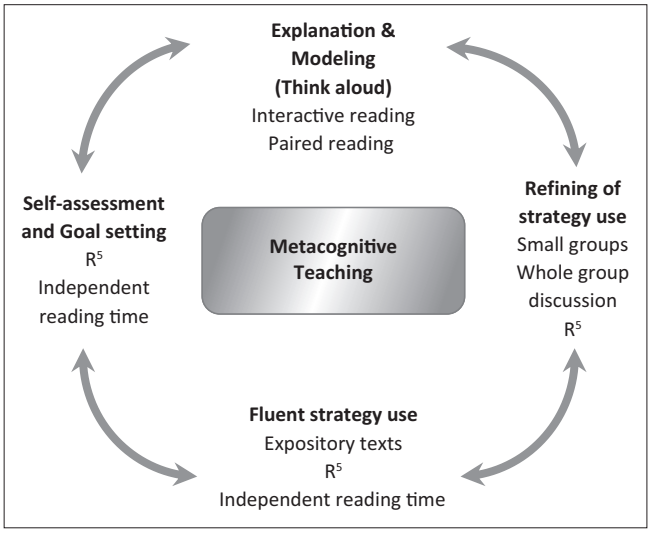
> Student and teacher transactions with text are the heart of this form of instruction, with classroom discourse consisting of teachers providing support and guidance to students as they attempt to use strategies to learn regular elementary content. (Pressley *et al.* 1992:513)

This form of instruction is recommended by Keene and Zimmerman (2007:76), Block *et al.* (2002:96), Duke and Pearson (2002:3), Snow (2002:33), McLaughlin and De Voogd (2004:38), Harvey and Goudvis (2007:32), Block and Parris (2008:27), Au (2009), McKeown, Beck and Blake (2009:220) and Meyer (2010:501).

The following components, in this order, are essential to this form of reading strategy instruction:

- A comprehensive explanation of the focus strategy and how it is to be used.
- Modelling of the focus strategy by the teacher.
- Scaffolded instruction, where students practice the use of the strategy with help and guidance from the teacher.
- With the gradual release of responsibility from teacher to student, the students become more confident in the use of the strategy.
- Independent strategy use where students use the focus strategy on their own in a variety of contexts.

It can therefore be stated that transactional strategy instruction is a method of instruction that supports the development of self-regulating readers who can actively use strategies used by proficient readers to construct meaning from a text within a variety of contexts (Pressley 2006:320; Block & Parris 2008:162). Pressley (2006:334) describes the aim of strategy instruction as follows: 'The goal with



Source: Adapted from Kelley, M. & Clausen-Grace, N., 2007, 'Comprehension shouldn't be silent', International Reading Association, Newark.

FIGURE 1: The Metacognitive Teaching Framework (MTF).

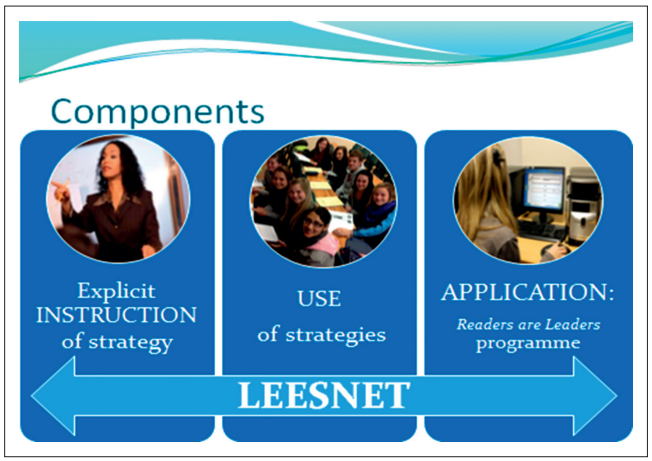


FIGURE 2: Academic reading program.

comprehension strategies instruction, however, is to teach students to take over their own reading and thinking.'

Klopper (2013:223) states that effective comprehension instruction can indeed be obtained through transactional instruction, providing that the foundation is laid through an explicit explanation of what metacognition is and how that will assist the struggling reader to become a proficient reader. She also suggests that strategy instruction which is integrated with the use of academic texts should be done in conjunction with strategy instruction, which is offered in isolation (2012:108). A model well-suited for this kind of instruction is the Metacognitive Teaching Framework (MTF) developed by Kelley and Clausen-Grace (2007:6).

Description of the academic reading programme

In 2012/2013, the academic reading programme (see Figure 2) was prescribed and became compulsory for all first year education students in the General Education and Training (GET) and Further Education and Training (FET) bands of the Bachelor of Education degree. These two groups amounted to approximately 280 students. Students were divided into smaller groups of 16 – 20 students per group for two contact periods per week. The groups were divided between four lecturers.

Reading comprehension

According to the Metacognitive Teaching Framework, the following strategies were chosen for the explicit reading strategy instruction and use of strategy component (see Figure 2) of this academic reading programme. The strategies were: prediction, questioning, monitoring of comprehension, connecting and summarising (Kelley & Clausen-Grace 2007:6).

The students attended two lesson periods of 45 minutes contact time each week, which were used for the explicit instruction component of the programme. The first few lessons formed a unit consisting of an introduction to metacognition, as well as the five strategies that were to be covered during the year.

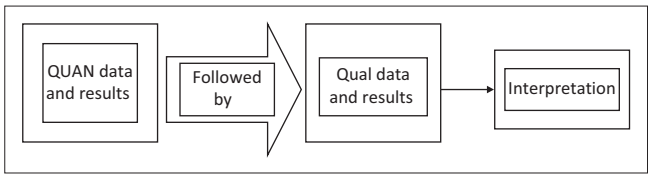
Once the working definitions of the reading strategies had been formulated, the following strategy instruction cycle was followed, using the Metacognitive Teaching Framework:

i. Period 1: The explicit instruction of a strategy, e.g. prediction, questioning, association, monitoring of understanding or summarising, using transactional instruction (cf.-Conceptual framework). Approximately 5 weeks were spent on each strategy.
ii. Period 2: Exercises were done, focusing on how the strategies are interwoven and work together to create understanding. The aim of these exercises was to help students with the integration of the different strategies for the construction of meaning and for them to realise that strategies do not stand in isolation (as might be deduced from the instruction of a focus strategy). The exercises we used were:
   - → 'Reciprocal Teaching'. While reading through a text, each student is given the role of predictor, questioner, summariser, connecter or clarifier to act out. While one reads the text out loud, they all then work together and play their part to understand the text fully (Stricklin 2011:620).
   - → 'Question Answer Relationship'. Students learn that there is a relationship between a question and where the answer is found. For higher order thinking questions the answers may come directly from the text as well as indirectly and various other information sources (Raphael, Highfield & Au 2006:13–14).
   - → The implementation of 'R5'. This is a process where students have time to (1) Read and Relax in class, (2) Reflect and (3) Respond in a journal to what they have read, (4) Rap 1, where they talk in pairs about their use of strategy, and (5) Rap 2, where the pairs give feedback to the class about each other's use of each strategy (Kelly & Clausen-Grace 2006, 2007:13).

Transactional strategy instruction is used throughout the programme, where the lecturer demonstrates a strategy, works through it with the students and then leaves the students to work in pairs and eventually alone. The texts are specifically chosen to engender working from simple to complex reading strategies, where the initial text is an easier text and the participants work up to reading a difficult text, often a subject related academic text. Here, texts in English are often used indicating that the taught strategies are applied to varying levels of academic difficulty.

Reading speed

As mentioned in the description of the background and development of the project, the computer- based reading and language programme '*Readers are Leaders*' was used for this component of the academic reading programme (see Figure 2). The focus of '*Readers are Leaders*' is on the improvement of reading speed and immediate comprehension. It aims to equip students with the ability to handle the reading load expected of a student at tertiary level. We installed the program on 50 computers



Source: Brannen, J., 2005, 'Mixed methods research: A discussion paper', NCRM methods review papers, viewed on 05 October 2009, from http://www.ncrm.ac.uk/publications/documents/ MethodsReviewPaperNCRM-005.pdf

FIGURE 3: The sequential explanatory mixed-method design.

on campus and at residences where students could work independently at their own pace.

The program has 15 levels of content, with the expectancy that first year students should be able to read on level 13 with an 'on the line' comprehension level of 80%. In the beginning of the year, each student does a calibration exercise on level 12 in order to determine the participant's reading level. This level was chosen for calibration according to the *Readers are Leaders* requirements, and it is the level desirable for a student who has passed grade 12. Based on their performance, each student was moved to the appropriate level by his or her lecturer, using a scale provided by *Readers are Leaders* (cf. Appendix A). The students then had to do three exercises per week, in their own time (an exercise takes about 15 minutes to complete). Each lecturer managed their own class levels according to the scale in Appendix A. For example, when the student read on level 7 and reached the required reading speed for level 8 and scored 80+% on the comprehension component, they were moved up to level 8. Using this program enabled us to measure each individual's progress more accurately.

Methodology

The aim of this study was to determine the effect of an academic reading programme on the reading comprehension and reading speed of the first year Bachelor of Education (B. Ed) (Intermediate and Senior phase) students at a University of Technology in the Western Cape. In order to meet the aim of this study, a sequential explanatory mixed-method was designed (Ivankova, Cresswell & Stick 2006:7).

The purpose of this research design was to seek elaboration, enhancement, illustration and clarification of results from the quantitative design with results from the qualitative design (also called complementarity). In essence, the two data sets were compared in order to generate complementary insights that created a bigger picture (Sydenstricker-Neto 1997; Niglas 2000:4; Brannen 2005:12; Tashakkori & Teddlie 2008:103). The purpose of this research project was to determine the impact of the reading programme on the participants' reading speed and comprehension (the quantitative phase), and to identify the benefits and challenges experienced by the participants (the qualitative phase). Using the sequential explanatory mixed methods design (Byrne & Humble 2006:4), the researchers employed the dominant quantitative analysis phase as the first stage of the research cycle, which in turn informed the subsequent qualitative analysis phase: QUAN →qual (Brannen 2005:14) (see Figure 3).

A sequential explanatory mixed-method design (Brannen 2005:14; Ivankova *et al*. 2006:9) was used in order to answer the following research questions:

1. Has the academic reading programme improved the students' reading speed and reading comprehension? The following sub-questions were also posed:
2. Does a relationship exist between the number of reading exercises completed and the increase in words per minute (reading speed) and reading comprehension?
3. What are the students' perceptions of the reading programme and the strategy instruction they receive?
4. What do students find beneficial when using this programme?
5. What challenges do students face when participating in this programme?

Participants

The participants in this study comprised all the B. Ed (Intermediate and Senior Phase) first year students (N = 93) at a specific university in the Western Cape. Using non- probability convenience sampling, the students at this particular university were selected for participation in this study due to the fact that: (1) all the students were in their first year and (2) all the participants had been registered for the academic reading programme. The qualitative phase of this study relied on voluntary participation. Half of the participants (N = 49) voluntarily completed an online questionnaire, which used open-ended questions, in order to qualitatively probe the participants' experiences.

Data collection instruments and analysis

Two instruments were used to collect the data from the participants in this study in order to answer the research questions that had been posed. The first instrument was a quantitative pre-test post-test assessment of the participants' reading comprehension and reading speed. The second instrument was a qualitative online questionnaire, which employed open-ended questions in order to identify the benefits and challenges experienced by the students.

The quantitative phase of this study involved gathering data (reading speed and reading comprehension scores) from the reading programme '*Readers are Leaders*'. These were statistically converted by means of the SPSS Inc. (2009) computer software program in order to obtain related scores for the purpose of quantitative interpretation. The statistical analyses of the data involved the inferential analysis of the factor scores: means, and standard deviations, the calculation of the practical significance (effect sizes) and the correlations between variables.

The data from the qualitative questionnaire were analysed using Atlas.ti, which formatted the codes into themes. The researcher was then able to analyse and discuss the codified

categories in order to organise, identify and synthesise the themes and sub-themes found in the data. Atlas.ti is acknowledged as a reliable software program that is capable of consistent qualitative data-analysis (Smit 2002:74).

Validity and reliability in the quantitative phase

In order to ensure validity in the quantitative phase of this study, the following measures were taken. Test Validity, or face validity was ensured by taking into account the degree to which our test or other measuring device is truly measuring what we intended it to measure (Vos *et al.*, 2007:160; Leedy & Ormrod 2010:92). Predictive Validity (Kennet-Cohen, Bronner & Cohen 2003) was ensured as the measurement of reading speed and reading comprehension were valid as part of a recognised reading programme (*Readers are Leaders*), and a high reading level predicts the fact that the participant can read at a certain speed while maintaining a certain level of reading comprehension.

In order to test reliability, any other researcher should be able to conduct the same research, using the same instrument, with the same setting, conditions and constraints, yielding the same results (Blaxter, Hughes & Tight 1996:200; Vos *et al*. 2007:163)). This was ensured in this study; by using *Readers are Leaders*, a recognised academic reading programme, which is able to test reading speed and reading comprehension, within controlled conditions. Test-Retest Reliability refers to the test's consistency among different administrations (Leedy & Ormrod 2010:93). In order to determine the coefficient for this type of reliability, the same test was given to a group of subjects on at least two separate occasions.

Trustworthiness in the qualitative phase

In qualitative research, credibility, dependability and confirmability are sought to ensure that the qualitative research process is reliable and dependent (Shenton 2004:63).

Credibility

Within the arena of qualitative research, validity is described as credibility (Struwig & Stead 2001:143). Certain steps were taken to ensure the credibility of the research process based on guidelines laid out by Shenton (2004):

- Strength of expertise: The strength of these researchers' expertise lies in the fact that they have all taught reading strategies at schools and at university.
- There was rigorous monitoring of progress and meetings with supervisors.
- Thorough review of literature to determine the aim of the study and to verify the results.
- Thorough description of the phenomenon that was being studied so that it can be understood within the relative context.
- Using a recognised research method or design.
- Honesty of the participants is encouraged by the fact that they are not forced to participate and that the researchers were open and sincere with them (pp. 65–68).

Dependability

The dependability of the study indicates the degree to which a study measures the consequentiality of the data (Shenton 2004:64). Dependability was ensured by implementing the following steps:

- Verification of the transcriptions of the questionnaire can be produced.
- In-depth discussions with experts in the field of academic reading resulted in agreement on the codes that would be used for the analysis of the data in Atlas.ti.

Confirmability

Confirmability of the study indicates the neutrality of the data set (Poggenpoel & Myburgh 2004). Reported confirmability was ensured by the fact that the results of the data were garnered from an independent analyser, in this instance Atlas.ti. (Muhr 1997) and direct quotes or references from the questionnaire confirmed that the reported questions were indeed answered in the questionnaire.

Ethical considerations

Adherence to relevant ethical aspects of research, which are embodied in individual and professional codes of conduct of a specific university in the Western Cape, were accounted for during the development and conduct of the empirical investigation. The rights and expectations of participants were respected, anonymity and confidentiality were granted, deception was avoided and the purpose of the research was made clear to the participants. The research was also conducted in such a manner so as to minimise any intrusion or disruption to the educational welfare of the participants. Permission was obtained from the university's ethics committee in order to conduct this research.

The only risk of harm that was identified was the following: students' dignity may have been compromised due to the fact that the students' may not have wanted their reading levels broadcast for all to see. As such, reading scores were held in confidence and measures of improvement or failure were not disclosed to anyone other than the participants. The questionnaire was also filled in anonymously in order to protect the dignity of the student.

The participants were recruited from the first year ISP group for 2013. There were 93 students in this group. All the participants took part in the pre and post-test of reading results as part of their course work. The qualitative questionnaire was filled in voluntarily and it was explained to the participants that they only had to fill in the online questionnaire (at the end of the year), which was placed on the university's LMS (Learning management system) Blackboard.

There was a specific plan in place for the protection of data, in order to ensure the confidentiality and anonymity of the participants in this study. The plan was as follows: the use

TABLE 1: Inferential statistics (N = 93).

Variable	Mean		Minimum		Maximum		Standard deviation		Median	
	Pre-test	Post-test	Pre-test	Post-test	Pre-test	Post-test	Pre-test	Post-test	Pre-test	Post-test
Words per minute	154.12	226.30	75.0	106.0	304.0	584.0	35.8410	91.1216	150	200
Comprehension	68.28	66.38	30.0	30.0	100	100	17.1707	17.0191	70	70
Exercises completed	46.23		24.0		70.0		8.8295		48	

TABLE 2: Spearman's rho calculations of correlation between variables.

Correlations (Spearman's rho [ϱ])	Method	Number of exercises	Words increase	Comprehension difference
Number of exercises	Correlation Coefficient	1.000	.222*	.120
	p-value (2-tailed)	-	.032	.254
	N	93	93	93
Words Increase	Correlation Coefficient	.222*	1.000	–.035
	p-value (2-tailed)	.032	-	.740
	N	93	93	93
Comprehension difference	Correlation Coefficient	.120	–.035	1.000
	p-value (2-tailed)	.254	.740	-
	N	93	93	93

*, Correlation is significant at the 0.05 level (2-tailed).
**, Correlation is significant at the 0.01 level (2-tailed).

of unique identifiers instead of names, storing all data in a locked file, care in disposing of all information that could identify a participant, securing confidentiality statements from all researchers. All participants also had to fill in a consent form, indicating that they were willing to take part in this research project.

Results

Quantitative results

At the outset of this research project, the researchers' aim was to determine if the academic reading programme led to an improvement in the participants' reading speed and reading comprehension. This aim was inherent in research question 1 which asked: has the reading programme improved the students' reading speed and reading comprehension? Pre-test and post-test means were calculated and are presented in Table 1.

The results show the pre-test reading speed mean (154.12) and the post-test reading speed mean (226.30) whilst the pre-test comprehension mean (68.28) and the post-test (66.38) indicate that, although the reading speed improved significantly, reading comprehension remained the same. The words per minute gains thus show that the gain in the post-test is highly significant (p-value <0.001) (see Table 3). This led to the conclusion that the reading programme did improve the reading speed of the participants whilst maintaining the level of comprehension during reading.

The average number of reading exercises completed by the participants was 46 (see Table 2). The smallest number of exercises completed was 24 and the largest was 70. In order to determine if a relationship existed between the number of exercises completed by the participants in this study and their reading speed and comprehension, a Spearman's Rho (ϱ) (Fredricks & Nelson 2007:2143) was conducted in order to determine correlations between the variables (see Table 3). The Spearman's Rho produces a rank order correlation that evaluates the degree to which individuals with high rankings on one variable (i.e. reading speed and reading comprehension) were observed to have similar rankings on another variable (i.e. number of exercises completed).

Correlations were conducted in order to determine if the number of exercises completed by the participants had any impact on their reading speed and reading comprehension (see Table 2). A significant correlation (.222) was found between the number of exercises completed and the increase in reading speed (words per minute). No correlation was found between the number of exercises completed and reading comprehension. Therefore it can be surmised that the number of exercises completed by the participants in this study led to an improvement in their reading speed.

Qualitative results

The final three research questions were exploratory in nature and sought to investigate the participants' views on the implementation, preferences, benefits and challenges experienced by these participants whilst enrolled in the reading programme.

After the qualitative data had been analysed and coded in order to determine the categories of the data, the following themes and sub-themes emerged and are summarised in Table 3.

The themes which emerged from the analysis of the qualitative data allowed the researchers to answer research question 3, which asked if a difference could be discerned between the students' perceptions of the academic reading programme and the strategy instruction they received. The first theme which emerged from the coding of the data was that of a preference for strategy instruction. The majority of the participants who answered the survey questions indicated that they preferred the strategy instruction component of the

TABLE 3: Coding categories for open-ended questionnaire.

Category or Theme	Explanation	Results
Strategy instruction	Comments related to a preference for strategy instruction	The majority of participants strategy instruction
Positive experiences • Increased reading speed • Increased opportunities to learn • Improved comprehension • Ability to question and think	Comments related to positive experiences	The majority of students indicated that they had a positive experience
Challenges • Time • Level • Workload	Comments related to challenges experienced by the participants	-
Mixed experiences	Comments related to mixed experiences or non-committal reactions	-
Recommendations	Comments related to aspects of the programme that the participants would like to change	-

reading programme. The following statements attest to this fact:

> 'I enjoyed the classes and I really enjoyed seeing how other people think and differ to me'.
>
> 'I really enjoyed the contact time more because the lecturer helped us with things we struggled with or explained things like associations to us'.
>
> 'The part with the different focus strategies. The strategy instruction'.
>
> 'The practical was the nicest part'.
>
> 'I enjoyed learning how my brain works and to hear how other students in my group think'.

Research question 4's objective was to determine which aspects of the reading programme the participants found most beneficial or useful. The participants found that their reading speed had increased:

> 'It has made me a faster reader. I can work through the content of subjects much faster than I could at school'.
>
> 'It made me a faster reader'.
>
> 'It was really nice to see how fast I really read and with comprehension. I could monitor my speed and pick up where I was still struggling'.
>
> 'It helps a person to work faster and to summarise good information for projects and enables you to remember information for tests'.

They had improved opportunities to learn:

> 'It taught me new reading strategies and improved my learning'.
>
> 'This programme opened my eyes and I realised that there is more to reading than just that and I want to use this in schools so that the children's language and reading comprehension will improve'.
>
> 'Leesnet has taught me many things about reading that I did not know before'.

Improved comprehension capabilities was another benefit noted by the participants:

> 'I can read between the lines and it is easier to answer questions about the text after the fact'.
>
> 'Leesnet has improved my comprehension and I have learned to make assumptions from words that I struggled with'.
>
> 'I read faster and with more understanding'.

They were better able to concentrate and remain focused while reading:

> 'I now read with more concentration and insight'.
>
> 'I understand what I read better because I can focus on reading with comprehension'.
>
> 'It has helped me with my concentration and to concentrate while reading'.

A further benefit identified by the participants was that their ability to question and think about what they were reading had improved:

> 'I think about how I think and have taught myself to question things and if there is something that I don't understand, I look it up. I must know what it is about so that I can improve my general knowledge'.

In an attempt to identify any challenges or limitations of the reading programme 'Leesnet', the researchers posed research question 5 which asked: What do students find challenging when using this programme? The themes related to the challenges which were identified by the participants included – the fact that the programme was time consuming:

> 'It is difficult to choose between time spent in the class and learning for a test'.
>
> 'There is not always time for this in our busy schedules'.
>
> 'Readers are Leaders is time consuming'.

Students who are stronger readers did not find benefit in this programme and this was highlighted by the negativity that some of them articulated in their comments. These students indicated that the level of academic difficulty was too easy:

> 'I feel that these strategies must be taught to primary school learners. It also feels to me that we are treated like children who know nothing. Many students did not even arrive for the classes and those that did received no advantage'.

The fact that the students struggled with the increased workload in an already full academic timetable:

> 'It feels as if it is extra work and we already have so much work to do'.
>
> 'The workload was huge and people like me prefer to spend time exercising and not spending time on something I really have no interest in. I am also a slow reader because I want to understand the words I read. This results in the fact that I often spend too much time reading a text in a test. I also have to repeat the work

I did in classes each day that this made that I spent less time on my studies. I would have preferred to use my free periods for summarising and not Leesnet'.

Some participants indicated that they had mixed feelings regarding the academic reading programme. These participants were able to admit that there were beneficial aspects inherent in the programme but that there were elements that fell short of their expectations. The following statements elucidate this phenomenon:

'Positive – it did help with reading and learning Negative – the classes were slightly boring because we did the same work over and over'.

'Generally speaking it was positive but the classes made me negative because there were students who attended every class but gained no real benefits from it'.

'In the beginning it was enjoyable but later in the year, especially towards the end, it held no more value for me'.

The participants were then asked for recommendations to improve the quality and implementation of the reading programme. The recommendations were categorised into three broad themes: a request to implement the reading programme across the curriculum, the use of time and level of academic engagement.

The recommendation regarding the use of reading strategies across the curriculum was the most common theme identified:

'We should use the strategies in all classes. If feels to me that 'Leesnet' only helped me in that class and then I forgot about them'.

'More application in the classroom and how to use the strategies.

The focus strategies must be applied in class time'.

The following statements relate to the theme of time:

'I would make the time spent in class less. Fewer reading pieces and more of our own reading pieces'.

'Fewer exercises per semester. It is time consuming'.

'I would use less activities because students do not have time anymore'.

Another recommendation was that the level of academic engagement of the texts be improved:

'That computer programme – it is as if it is made for a two year old and not a university student'.

'The reading pieces on the computer, must be more interesting and what the students would be interested in'.

'Readers are leaders is absolute nonsense. The programme is meant for grade 1's'.

'I would only use the programme in primary school. I feel that when a person is at university they should have mastered this'.

'We should be reading academic texts'.

Discussion

The analysis of the data gleaned from this research project regarding the impact of the academic reading programme indicates that the words per minute gains in the post-test is highly significant (p-value <0.001), which indicates that the academic reading programme does improve the reading speed of the participants whilst maintaining the level of comprehension during reading (see Table 2).

A significant correlation was found between the number of reading exercises completed and the increase in reading speed (words per minute), indicating that an increase in the number of exercises completed by the participants will lead to an increase in their reading speed.

The benefits of the academic reading programme as perceived by the participants lies in the fact that the reading programme works. Participants indicated that their reading speed had increased, that they had improved opportunities to learn; they indicated that their comprehension capabilities had improved and that they were better able to concentrate and remain focused whilst reading, A further benefit identified by the participants was that their ability to question and think about what they were reading had improved.

It must be noted that this academic reading programme has been implemented for those students who do not have the prerequisite reading skills needed for the reading load at university level and as such, should be seen as a bridging programme that is aimed at addressing the articulation gap that exists for these specific students. Although there is concrete evidence that the academic reading programme improves the reading speed of the participants whilst maintaining comprehension, the majority of the participants indicated that they preferred the strategy instruction component of the reading programme. The reasons for this preference lie in the challenges identified in the research. The implementation of the reading programme places additional burdens on the participants in relation to the fact that it is very time consuming, it increases the workload of the participants, who feel that their academic timetable is already very full and that the level of academic difficulty of the texts is not challenging enough. Some participants indicated that they had mixed feelings regarding the reading programme. These participants were able to admit that there were beneficial aspects inherent in the programme but that there were elements (i.e. time-consuming) that fell short of their expectations.

Limitations

The following limitations were identified in this study:

- Only half (N = 49) of the original population (N = 93) filled in the online qualitative questionnaire. Some of the participants were negative towards the reading programme and this was reflected in their reticence in reflecting on the value of the reading program.
- No distinction was made between first language speakers and second language speakers. This constitutes a shortcoming in this study as second language speakers may not have been fully represented.

- This study used a convenience sample and cannot be generalised to the general population, which is a limitation of this study.

Recommendations

In order to meet the specific needs of the participants using this specific academic reading programme, two specific recommendations have been made after careful analysis of the data:

1. The incorporation of academic texts into the academic reading programme
2. The integration of academic reading strategies across the curriculum.

In order to implement the second recommendation, a third recommendation has been made:

3. That there is collaboration with all academic staff members, across all subjects, in order to ensure that the specific academic reading skills are integrated across the curriculum. In order to create a culture of academic reading on this campus:
4. The value of the academic reading programme must be stressed, and that
5. The significance of strategy instruction be emphasised, as well as the importance of the reading programme '*Readers are Leaders*' so that the participants (i.e. the students), who are, at the end of the day, the eventual customers, 'buy into' the totality of the programme.

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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.

Authors' contributions

C.L. (Cape Peninsula University of Technology) was the project leader and was responsible for experimental (both quantitative and qualitative) and project design. B.K. (Cape Peninsula University of Technology) was responsible for the review of literature, conceptual design and experimental testing. S.C. (Cape Peninsula University of Technology) made conceptual contributions and statistical calculations were performed by Corrie Uys (Cape Peninsula University of Technology).

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Appendix A

Suggested Guidelines

(Using results from research done by Four Blind Mice Studio.)

The following table may assist you in choosing the correct level on which to start Readers are Leaders.

	Level	Flash Period (Milliseconds)	Reading Speed (Words per minute)
Foundation Phase	1	1233-606	45-85
	2	757-446	70-110
	3	532-344	95-135
Intermediate Phase	4	400-275	120-160
	5	314-224	145-185
	6	253-186	170-210
Senior Phase 1	7	208-155	195-235
	8	173-131	220-260
	9	145-111	245-285
Senior Phase 2	10	122-94	270-310
	11	103-79	295-335
	12	88-67	320-360
Advanced Phase	13	74-56	345-385
	14	62-46	370-410
	15	52-38	395-435

Appendix A: Suggested guidelines.