

Measuring the Impact of an Academic Literacy Programme at a South African University of Technology

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ABSTRACT Academic literacy programmes have become an inherent feature of South African universities. They are a form of intervention aimed at helping first year students boost their levels of academic literacy so that their chance of success at university is enhanced. Universities spend substantial sums of money on the resources and maintenance of these programmes. It is important therefore that such programmes are investigated for the impact they are aimed to make on the students enrolling in them. Two main challenges are worth mentioning with regard to measuring the impact of an academic literacy programme. Firstly, measuring the impact of the programme experimentally among university students can disadvantage those in the control group. This carries research ethical violations with it. Secondly, in a pre-post design, extraneous and simultaneous exposure of students to academic discourse can impact their growth in academic literacy in ways that can obscure the actual impact of such a programme on the students. In other words, the difference that the academic literacy programmes can possibly make in the ability of students to handle academic discourse can be diluted by the fact that simultaneously, they take other courses through the same language that the programmes are designed to develop. In the present study, the latter procedure was employed to measure the impact of a course of academic

literacy among students who were not simultaneously enrolled in any university course where they could achieve incidental growth in academic literacy. In other words, at the time the study was conducted, the participants took this academic literacy only. The results showed that there was a difference in the levels of academic literacy levels of these students after they had attended the course.

1. INTRODUCTION

In recent years, the teaching of academic literacy, the ability to handle academic discourse in the language of learning and teaching, has become a norm at South African universities. This is a result of the finding by several studies that the levels of academic literacy among the majority of the students entering these universities in the past two to three decades are too low for them to deal successfully with academic discourse (Van Rensburg and Weideman 2002). The low levels of competence in academic language have not been “a problem ... only to students from previously disadvantaged backgrounds. Language proficiency is low even amongst students whose first language is English and Afrikaans, which are still the main languages of teaching and learning at tertiary level” (Rambiritch 2012). Indeed, Van Wyk and Yeld (2013) have pointed out that gaining access to university means that students have to acquire academic literacy. In Bourdieu and Passerons’s (1990) view, the ability to handle academic discourse is difficult, because that kind of language is nobody’s native language. This means that the students need to learn new ways of “saying (writing) – doing – being – valuing – believing combinations” (Gee 1996). Gee (1990) describes the process of acquiring this ‘new’ and “secret language” (Pennycok 1999) and of eventually becoming part of the academic community as follows:

You learn the discourse by becoming a member of the group: you start as a ‘beginner’, watch what’s done, go along with the group as if you know what you are doing when you don’t, and eventually you can do it on your own.

It is this strangeness and novelty of learning a ‘new’ language that commentators often identify as the root of the low levels of mastery of academic discourse among new entrants to the world of higher education. Furthermore, these low levels of competence in the language of academic discourse among most first year students have had “a detrimental effect on students’ academic development, leading to poor passes rates” (Rambiritch 2012). Butler (2006) observes that “the difficulty of engaging successfully with tertiary study in South Africa through an additional language (English) that one has not acquired adequately is well

documented”. Van Dyk (2005) has added that “low levels of academic literacy in the language of learning are widely seen as one of the main reasons for the lack of academic success among South African undergraduate students with high academic potential”. In support of this, Barry (2002) has argued that language ability and academic achievement are inextricably linked and the use of English as the language of learning and teaching by the majority of second language learners in South African schools should be seen as a major contributor to the poor pass rates and dropout rates of learners throughout the education system.

South African universities have, for this reason, introduced academic literacy programmes/courses to deal with this challenge. The role that academic literacy reportedly plays in the success rate of university students accords a high stakes status to these programmes/courses. It is important therefore that their intended impact is established. It is often the case, however, that due to university students’ extraneous and simultaneous exposure to academic discourse and the ethical implications for some of the students involved that the impact of these courses is never empirically investigated. The aim of the present study was to close this gap. It specifically aimed at measuring the impact of the academic literacy course offered by the Central University of Technology (CUT) in 2014 using non-registered participants from outside the university.

2. The notion of impact in course evaluation

In the field of applied linguistics, the term ‘impact’ is mainly used to describe the consequences that language testing can have on stakeholders such as test takers, teachers, society and education systems. The idea of test impact originated from the position taken by Messick (1980; 1989) that a test should be administered to take decisions that will benefit the test taker. Such a test will, in Messick’s (1980; 1989) view, have positive consequences for the test taker and will therefore possess what he calls consequential validity. Conversely, a test that is used to take decisions that will impact negatively on the test taker falls short of satisfying Messick’s (1980; 1989) consequential type of validity. Impact is, however, a term whose use should not necessarily be confined to the social implications of testing. Language curriculum and language policy are two other applied linguistics artefacts to which the idea of impact has applicability. Indeed, Weideman (2013) has asked a pertinent question in support of this:

How much reciprocity is there in the realms of language testing, language course design, and language policy making? Why do we not explicitly check whether the design of a course should be as responsibly and carefully done as a test? How can we learn from language policy development about making tests more accessible and accountable? What can test designers learn from course developers about specificity?

In the case of language curricula in particular, the term ‘impact’ can be understood in terms of whether a course is effective in doing what it was designed to do. In this sense, a course that purports to teach academic literacy and which actually does this will have a positive impact on those who take it because as it was pointed out earlier, academic literacy is a factor in the success of students at university. Such a course would have what Messick (1980; 1989) calls consequential validity. In contrast, a course that purports to teach academic literacy but which does not make a significant difference in the growth of the students taking it will have a negative impact on these students. Such students would be negatively impacted by participating in such a course because of the time and money they would expend in a course that is unhelpful to them and that would consequently retard the academic progress that they could possibly make. Most importantly, these students would fail and dropout as a result of low academic literacy levels regardless of their participation in the intervention. The course would therefore be lacking in consequential validity.

3. The construct underpinning the course

The academic literacy course offered at CUT in 2014 was designed and developed on the basis of the concept of academic literacy advanced by Van Dyk and Weideman (2004), who have described academic literacy as a university student’s ability to do the following:

- Understand a range of academic vocabulary in context;
- Interpret and use metaphor and idiom, and perceive connotation, word play and ambiguity;
- Understand relations between different parts of a text, be aware of the logical development of (an academic) text, via introductions to conclusions, and know how to use language that serves to make the different parts of a text hang together;
- Interpret different kinds of text type (genre), and show sensitivity for the meaning that they convey, and the audience that they are aimed at;
- Interpret, use and produce information presented in graphic or visual format;

- Make distinction between essential and non-essential information, fact and opinion, propositions and arguments; distinguish between cause and effect, classify, categorize and handle data that make comparisons;
- See sequence and order, do simple numerical estimations and computations that are relevant to academic information, that allow comparisons to be made, and can be applied for the purpose of an argument;
- Know what counts as evidence for an argument, extrapolate from information by making inferences, and apply the information or its implications to other cases than the one at hand;
- Understand the communicative function of various ways of expression in academic language (such as defining, providing examples, arguing); and
- Make meaning (e.g., of an academic text) beyond the level of sentence.

4. The content of the course

The content used to teach academic literacy in this course focuses on four attributes of value to CUT: innovation, sustainable development, entrepreneurship and community engagement. Each of these attributes constitutes the content of one of the four units of the course and each of the four units comprises four reading passages constituted by different genres (informative, persuasive/argumentative, comparison and contrast, and cause and effect) and four writing activities. Each unit has specific objectives that are recycled throughout the unit and are aligned with the overall construct of academic literacy underpinning the course. At the end of each unit, there are two final assignments (one individual and one group) that serve to consolidate learning and assess the students' writing.

5. The teaching methodology used in the course

The teaching methodology used in the course is informed by research in the field of Teaching English to Speakers of Other Languages (TESOL). All reading passages are supported by strategies that help students understand the language and material through pre-, during-, and post-reading activities to increase comprehension and language awareness. All writing assignments are scaffolded in order to provide guided writing activities before students are expected to produce writing on their own. Reading and writing activities are recycled throughout the course so that the students have multiple opportunities to practice and learn these skills. Through the use of communicative activities and a learner-centred environment,

the course is aimed at raising the academic literacy levels of students to give them a better chance of success at university.

6. METHODOLOGY

In July 2014, the new academic literacy course offered to first year students at CUT since January 2014 was taught to a total of approximately 365 students at nine centres in the Northern Cape Province of South Africa, namely, Kimberly, Douglas, Prieska, Keimoes, Groblershoop, Upington, De Aar, Postmasburg and Kathu. This was an outcome of a memorandum of understanding signed between CUT and the Northern Cape Further Education and Training (FET) College. The agreement was that CUT would offer the course to students at the nine centres for the purpose of preparing them academically for admission to the college. The course was scheduled to run intensively from 8h00 until 16h00 for five consecutive days. This time frame is equivalent to the number of hours currently allocated this course on the CUT timetable in one semester. Specifically, the course focuses on academic literacy development with a specific focus on reading and writing in English as a second language for linguistically underprepared students entering a university for the first time. Its ultimate aim is to help first year university students boost their academic literacy skills in English, the medium of instruction at most South African universities, so that their chance of academic success is improved. For the purpose of the Northern Cape project, however, only the reading focus of academic literacy was pursued. Prior to the start of the course, nine English teachers were recruited and trained on the methodology informing the course.

7. RESULTS AND DISCUSSION

In order to determine the impact the course would have on the students, a non-standardized and locally developed test of academic literacy was administered to the participants at the beginning and end of the course. In other words, pre- and post-testing was conducted so that it could be established if there was growth in the academic literacy abilities of the students at the end of the project. The test that was used was aimed at measuring most of the academic literacy skills that are covered in the course. The test consisted of a total of 43 objective and dichotomously scored items presented in multiple-choice and gap-filling formats. The

design/blueprint and specifications on the basis of which the test was developed are presented in **Table 1** below:

Table 1: The blueprint/design and specifications of the test used for pre- and post-testing in the academic literacy development project in the Northern Cape Province

Prioritized Objectives/skills							
Vocabulary	Main Idea	Inferencing	Metaphors and idioms	Cohesion and Coherence	Cause and Effect	Comparison and Contrast	Total
1.1	2.1	2.2	3.1	4.1	5.1	6.1	
1.2	2.3	2.4	3.2	4.2	5.2	6.2	
1.3	2.5		3.3	4.3	5.3	6.3	
1.4			3.4	4.4	5.4	6.4	
1.5			3.5	4.5	5.5	6.5	
1.6					5.6	6.6	
1.7					5.7	6.7	
1.8					5.8	6.8	
1.9					5.9		
1.10					5.10		

23	7	5	12	12	23	18	100
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One of the procedures used for establishing what impact a course had on learners involves comparing their group means/averages in a pre- and post-test. If the post-test mean/average is higher than the pre-test mean/average, it constitutes evidence that the intervening treatment/instruction has had a desired impact on them. In the case of the academic literacy intervention offered in the Northern Cape, this would mean that the course had boosted the academic reading levels of the students. A high post-test mean/average would, however, be more meaningful if it was statistically significant. In second language research, the acceptable probability (p) value for statistical significance is .05 or less. A p -value of .05 means that it is 5% probable that the results of a study were due to chance and not the variables investigated in such a study. This means, on the flip side, that the probability that the results of the study were due to the variables under study was 95%. In order to determine if there was any difference in the pre-and post-test means/averages for the students who participated in the academic literacy project in the Northern Cape, the frequency distribution, means and standard deviation of the scores from randomly sampled six of the nine centres that participated in the project were first analysed. The results of this analysis are presented in the histograms in **Figure 1** and **Figure 2** below.

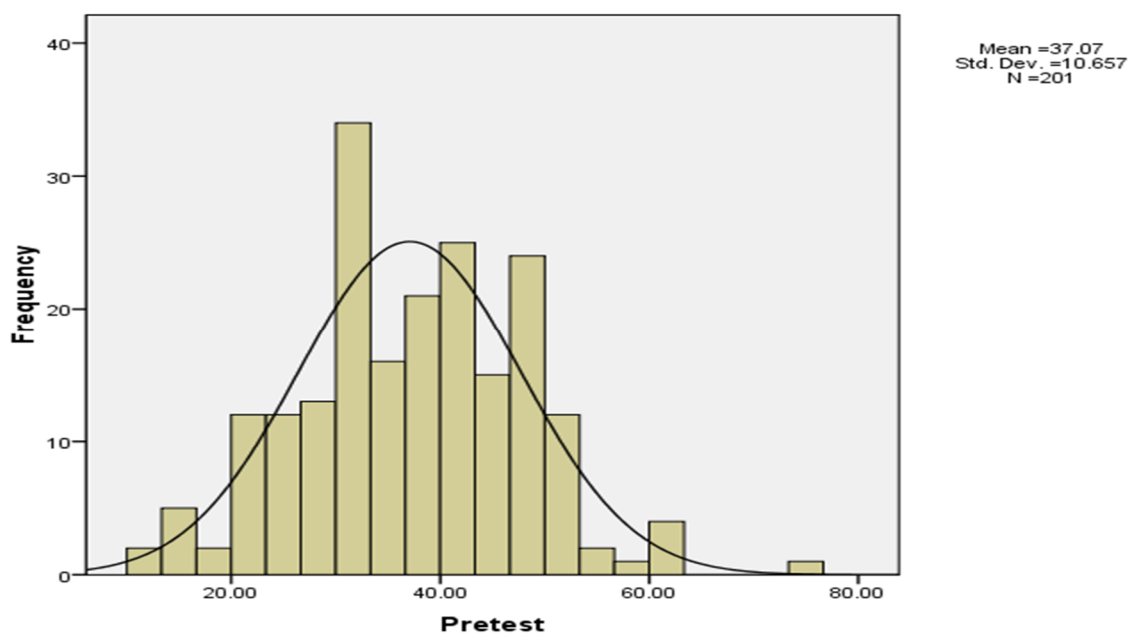


Figure 1: The frequency distribution, mean and standard deviation of the pre-test scores for Kimberly, Douglas, Prieska, Keimoes, Groblershoop and De Aar.

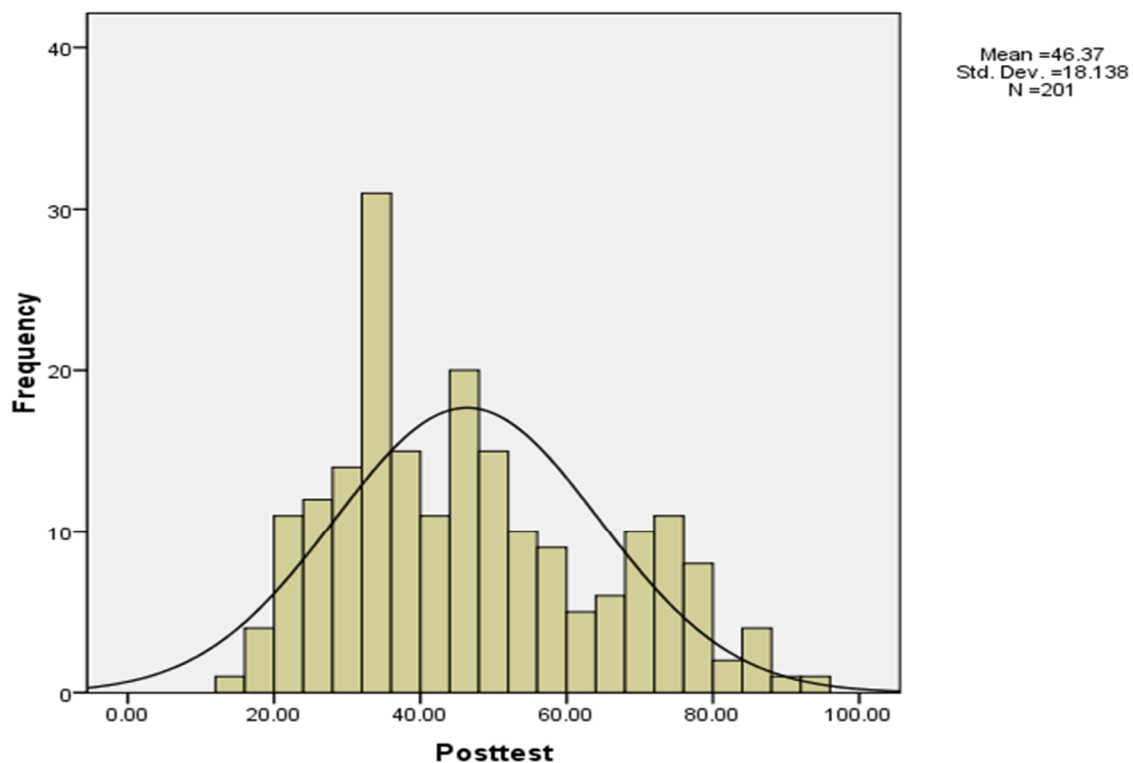


Figure 2: The frequency distribution, mean and standard deviation of the post-test scores for Kimberly, Douglas, Prieska, Keimoes, Groblershoop and De Aar.

As can be seen in **Figure 1** and **Figure 2** above, the mean score for the participants at the six centres selected for measuring the impact of the academic literacy project in the Northern Cape was 37.07 in the pre-test and 46.37 in the post-test. This means that the students performed better in the test after participating in the academic literacy project than they did in the same test prior to the start of the intervention. This can be interpreted to mean that the intervention made a positive difference in the academic reading abilities of the participants and that this difference/growth amounted to 9.3% (post-test mean minus pre-test mean). In order to determine if this difference was statistically significant, a paired-samples t-test was run. The outcome of this test was $t(180) = 6.396, p = .000$. What this means is that the t-test score was 6.396 and that this score was statistically significant ($p = .000$), meaning that the difference in the pre-test and post-test performance of these students was a probable result of

the intervention and that the probability that this happened by chance was unlikely. This information is graphically presented in **Table 2** below:

Table 2: The results of a t-test analysis of the pre- and post-test scores for Kimberly, Douglas, Prieska, Keimoes, Groblershoop and De Aar

Variable	DF	t value	p-value
Pre- and post-test scores	180	6.396	.000

In the case of the present study, it was necessary also to determine the effect size of the difference in the performance of the participants pre- and post- intervention. In the words of Dornyei (2007), “statistical significance is *not* the final answer because even though a result may be statistically significant (i.e. reliable and true to the larger population), it may not be valuable. ‘Significance’ in the statistical sense only means ‘probably true’ rather than important.” Salkind (2011) articulates this point even better:

You may have a significant difference between groups, but the \$64 000 question is not only whether that difference is (statistically) significant, but also whether it is *meaningful*. We mean, is there enough of a separation between the distribution that represents each group so that the difference you observe and the difference you test is really a difference!

The statistical procedure chosen to determine the effect size of the results of the present study was Cohen’s *d*. The Cohen’s *d* for these results was found to be .69. Cohen (1988) has categorized effect sizes into small, medium and large. Salkind (2011) interprets these categories in the following words:

... if the effect size is 0, that means that both groups tend to be very similar and overlap entirely – there is no difference between the two distributions of scores. On the other hand, the effect size of 1 means that the two groups overlap about 45% (having that much in common). And as you might expect, as the effect size gets larger, it reflects the increasing lack of overlap between the two groups.

The results of the present study show therefore that there was significant growth in the reading levels of the participants after their involvement in the academic literacy course whose impact was investigated in the present study. This was evident in the difference in

their performance pre- and post- the intervention. This was further confirmed by the statistically significant results of the t-test as well as the effect size of these results.

8. Limitations of the Study

The first limitation of this study is that the test used to measure the impact of the course was a newly developed one which still had to be piloted and revised for better reliability. The commonly used procedure for establishing test reliability is computing a Cronbach's alpha for a test. Cronbach's alphas of .70 and higher have been recommended especially for high stakes tests. The Cronbach's alpha for the test used in this study was .66. This low reliability value might be accounted for by the diverse nature of the skills that are believed to constitute the construct of academic literacy (Weideman 2009) on the basis of which this test was developed. Cronbach's alpha is a measure of the degree to which performance in test tasks correlate and therefore show evidence of internal consistency. The diverse and comprehensive nature of the construct of the academic literacy test used in this study was therefore unlikely to enable it to score high on a measure of internal consistency such Cronbach's alpha. An observation was made in the study, however, that testified to the fairly consistent manner in which the test measured the gains in academic literacy among all the participants; the smaller the group the greater was the gain on reading development. The frequency distribution of the pre- and post-intervention scores obtained in two of the centres is used to demonstrate this in **Figures 3 to 6** below

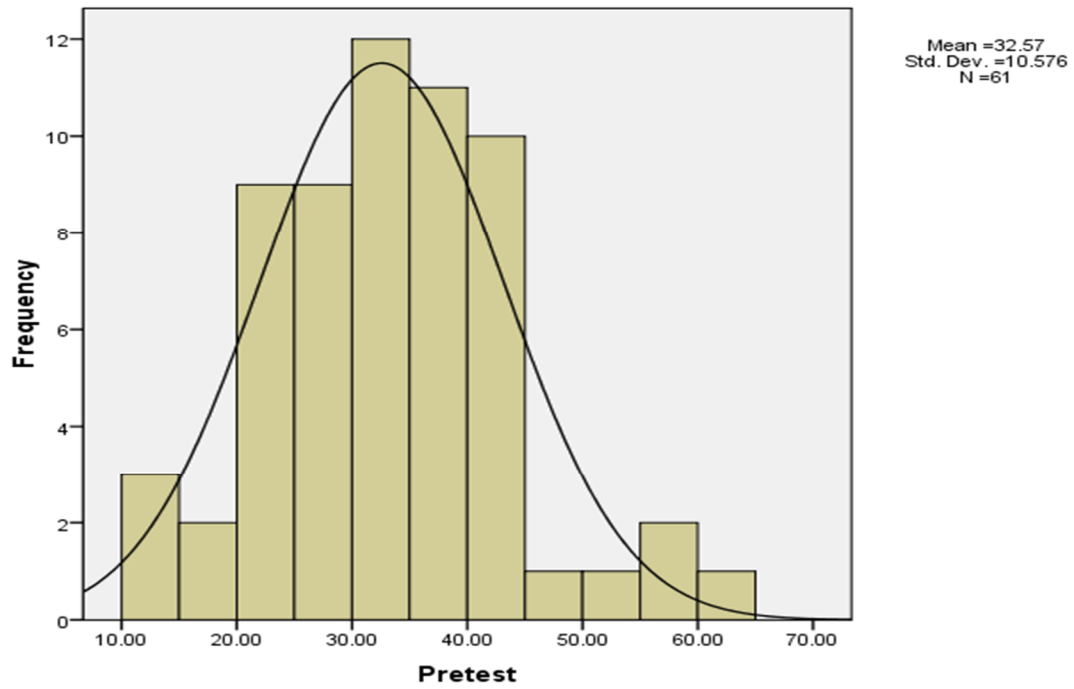


Figure 3: The frequency distribution, mean and standard deviation of the pre-test scores for the students in Douglas

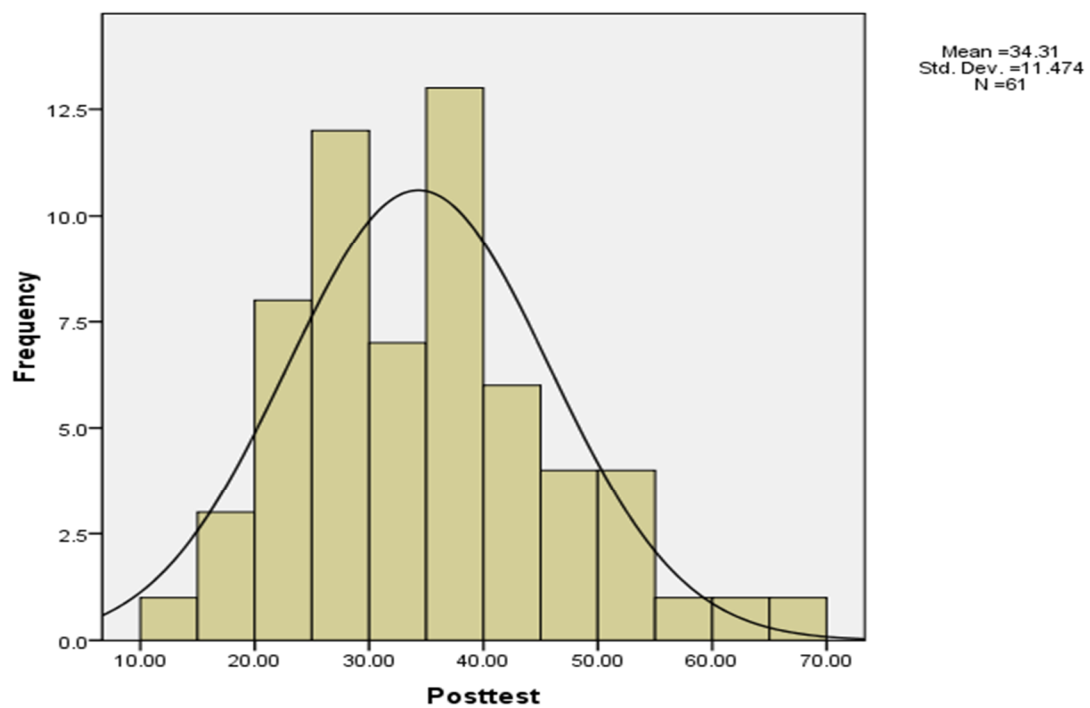


Figure 4: The frequency distribution, mean and standard deviation of the post-test scores for the students in Douglas.

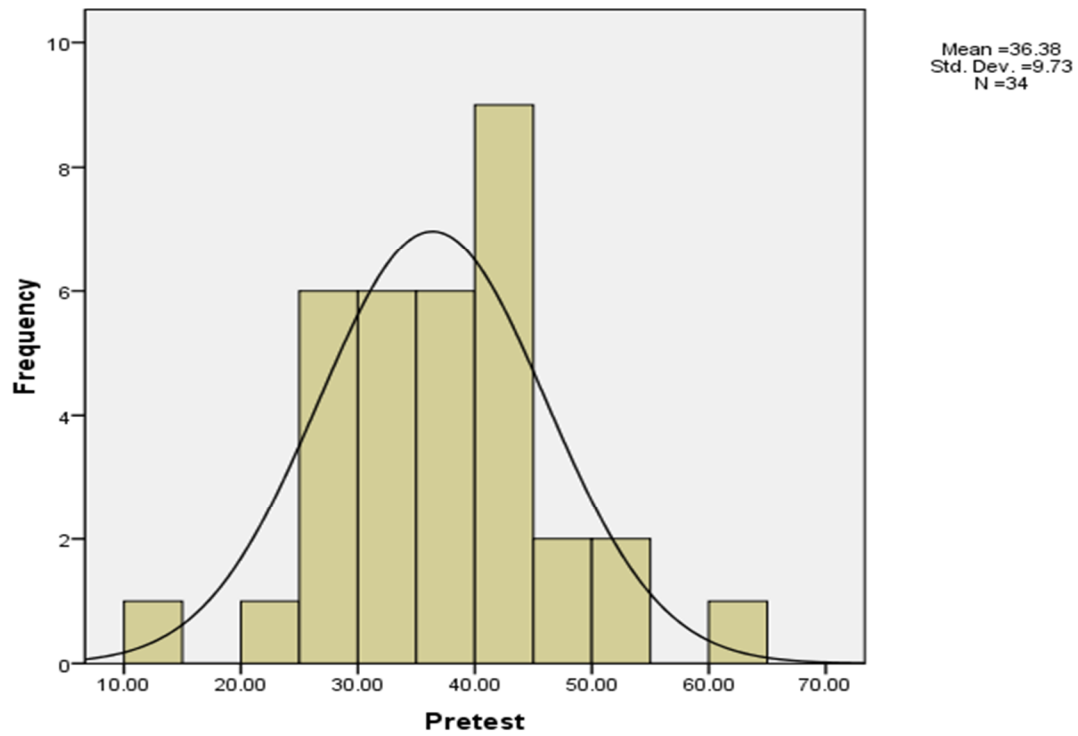


Figure 5: The frequency distribution, mean and standard deviation of the pre-test scores for Kimberly

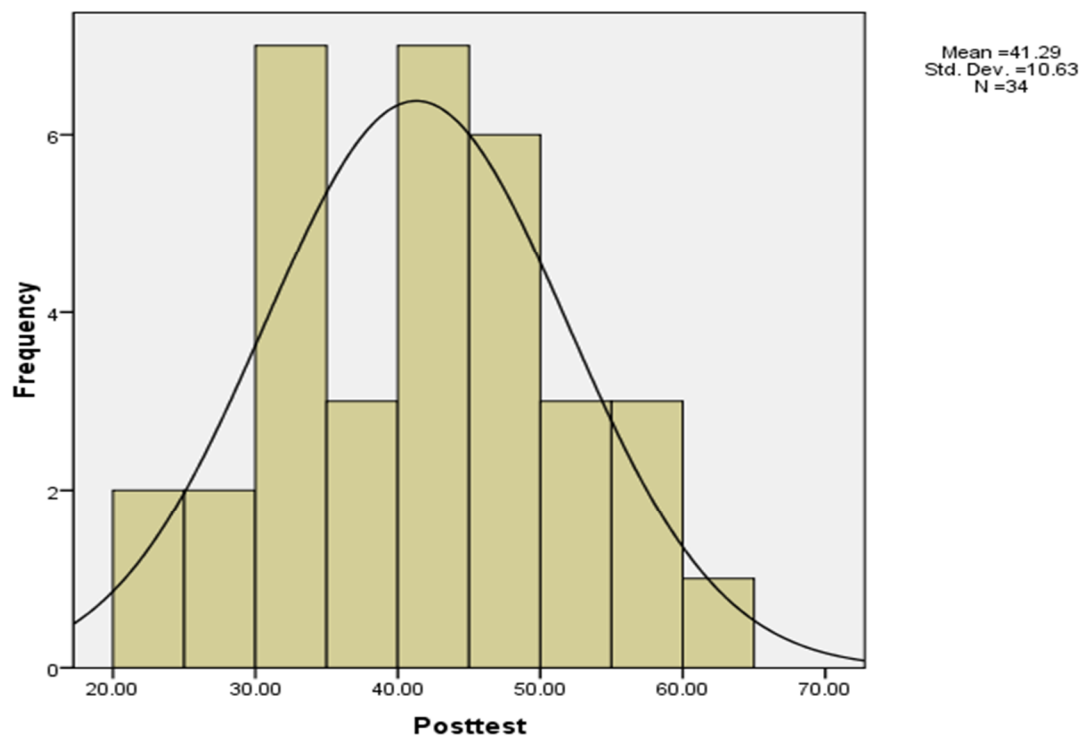


Figure 6: The frequency distribution, mean and standard deviation of the post-test scores for Kimberly.

It is necessary, however, that the present study is replicated using a standardized test of academic literacy which shares the same construct with the course in order for the findings of the study to be validated.

9. CONCLUSION

The ability of first year students to handle academic discourse competently at South African universities has been questioned in recent years. This incompetence is believed to be a source of high failure and dropout rates among university students. The universities have, for this reason, introduced academic literacy programmes to help deal with this challenge. If these programmes aim to help students improve their ability to succeed at university, the difference they can make with regard to what they purport to do must be determined. Such programmes impact positively on the students enrolled in them if evidence can be generated that they make a measurable difference in the academic literacy levels of such students. These students will, as a result of this intervention, stand a better chance of succeeding at university study. The programmes would therefore have a positive impact on the students ultimately. Otherwise, academic literacy teaching becomes fake and consumes the time and money the students could spend on other useful academic activities. The aim of the present study was to determine the impact of an academic literacy course in a context where the participants had no extraneous exposure to academic discourse other than in the programme itself. A pre-and post-test design was used to determine if the students' levels of academic literacy had been boosted after they had taken the course. The finding was a statistically significant difference in the performance of the participants pre- and post-intervention. Also, the finding was that the effect size of this difference was large enough for one to conclude that the course was effective in doing what it was designed to do.

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