The relationship between English second language proficiency and mother tongue in non-native English speakers in South Africa

Sarah Howie, Elsie Venter and Surette van Staden

Centre for Evaluation and Assessment, University of Pretoria,
Pretoria, South Africa

Paper presented at the International Research Conference of the International Association for the Evaluation of Educational Achievement

Taipei, Taiwan, 18-21 September, 2008

The relationship between English second language proficiency and mother tongue amongst non-native English speakers in South Africa

Abstract

The aim of this paper is to investigate the relationship between English second language proficiency and mother tongue proficiency amongst non-native English speakers in South Africa. South Africa participated in PIRLS for the first time in the 2006 study. In addition to the international assessment, South Africa included a national option, a second assessment which focused on assessing English second language level proficiency. This national option was included because more than 80% of students in the South African study learn in English from Grade 4 onwards, although it is spoken by less than 10% of the population as their mother tongue. This study is significant as it the first time in South Africa that an attempt has been made to assess English second language proficiency and study its relationship to the proficiency of students in their mother tongue. The national assessment in English (ENA) was based on the South African curriculum. In this paper, the data were analysed conducting correlational and regression analyses using the IDB analyzer software. Mother tongue proficiency was explored to identify the extent to which this proficiency predicted proficiency in English second language for all students who wrote in nine African languages and Afrikaans; and the extent to which ENA performance predicted the performance in the international assessment for those non-native English speakers writing the international assessment in English. Both the South African data from PIRLS 2006 and the ENA data were analysed. It was expected that in Afrikaans, the score in the Afrikaans assessment would be a strong predictor of achievement in the ENA due to the high achievement of this group in PIRLS 2006. The overall results in PIRLS 2006 ranked South African students the lowest in the PIRLS 2006 and these have raised major educational and policy concerns. The findings revealed that there were highly significant differences between the groups. A very high correlation was found between mother tongue proficiency and the ENA and non-native English speakers achieved higher results when learning in English than when they learnt in African language environments. More than half of the variance in the international assessment scores was explained by the results on the ENA.

Keywords: secondary analysis, educational policies, language achievement, English second language

Introduction

South Africa has 11 official languages and South Africa's Language in Education policy (DOE, 1997) stipulates that children should start their learning at school in their home language and this practice continues until Grade 3. In the majority of schools (containing mostly African teachers and students) the language of instruction for all subjects changes in Grade 4 from an indigenous African language to English. This means that more than 80% of South African pupils learn in a second language or a language different to their home language at this level. However, children in Grade 4 and higher, also continue to engage with the language of instruction of the first three years of schooling as a subject. In practice, however in upper primary school, the language of instruction for these schools should be English (prescribed by the language policy) but often the language of instruction used in the first three years (a vernacular different to English) continues or most often a mixture of both (code-switching) is used. The South African situation is complex because most white, Indian, and coloured children continue to receive their schooling in the same language of instruction from Grades 1 to 12, namely English or Afrikaans. However, most children speaking African languages at home switch at Grade 4 to receive instruction in either English or Afrikaans, despite the current government language policy advocating learning to take place in their home

language from Grade 1 to 12. With this in mind, South Africa included a national option, an English Second Language Proficiency test to assess the levels of language proficiency amongst the students learning in English (in particular) in Grade 4 and 5 who participated in PIRLS 2006.

The aim of this paper is to investigate the relationship between English second language proficiency and mother tongue proficiency (as measured in PIRLS 2006) amongst non-native English speakers in South Africa in Grade 5, given that this is the group most affected by the language policy implications. The results of the native English speakers are included even though it is expected to be significantly higher than those groups who have English as a second language, as their performance might serve as a useful benchmark. The paper is structured as follows: firstly the general performance in the PIRLS 2006 assessment is presented, then the data sources and the analytical methods are discussed. The findings are given followed by a discussion on the conclusions and implications arising from this research.

South Africa's performance in PIRLS2006

PIRLS 2006 is highly significant in South Africa and is a project with many firsts for the country. In addition to the international requirements for the study, namely assessing Grade 4 students, South Africa also assessed Grade 5 students and in all 11 official languages (also languages of instruction). PIRLS 2006 was the first time that an international comparative assessment has tested 11 languages in a single country, the first time that South Africa has had assessments in mother tongue in all 11 languages against which international benchmarks can be compared and the first time in South Africa that an attempt has been made to assess English second language proficiency and study the relationship to the proficiency of students in their mother tongue using large-scale assessment data.

South African Grade 5 students achieved the lowest scores (302 points where the international set mean was 500 points) in PIRLS 2006 data despite being the oldest in the study (Mullis et al, 2007) whilst the Grade 4 student achieved about 40 scale points less than the Grade 5 students. However, the vast difference between the scores for the 11 languages caused the greatest concern, where the mean scores varied from 416 for those writing in Afrikaans to a low 215 for students writing in isiXhosa (see Table 1).

[Take in Table 1 here]

More than 60% of the children writing in English did not have English as their home language and most spoke an African language at home. It was anticipated that these non-native English speakers writing in English would perform better in the international assessment than their peers at schools where African languages are used as the language of instruction. Therefore it was considered important to analyse the performance of the children writing in English, to evaluate their proficiency in English and to see to what extent it affected their performance in the PIRLS 2006 assessment. These analyses could be done because all 11 official languages were tested in South Africa and a national option was included which is described in the following section.

Methodology and Data Sources

Two main data sources were analysed for this paper. The first was the IEA's international

PIRLS 2006 database and the second, the South African national option, the English national assessment (ENA) was second language test for English. The ENA was developed locally and administered to all the learners also writing the PIRLS 2006 assessments. The test was developed in accordance with the guidelines provided by the Revised National Curriculum Statement (RNCS) currently in use in the South Africa education system and consisted of two forms, each with three passages and accompanying questions. One of the passages containing ten items occurred in both booklets, rendering a total of five passages and 95 items. The responses to the items on the English national assessment test forms were scaled together according to the Rasch measurement model and are presented on a scale of between 0 and 100. The PIRLS 2006 assessment data and the ENA were analysed together. The average of the five plausible values (Mullis et al, 2007) from the international achievement data was used to derive an accurate measure of the reading literacy achievement for each of the 11 languages.

The data for this paper was analysed using the Statistical Package for Social Scientists (SPSS) and the IEA's IDB analyzer. Descriptive statistics were undertaken to check the nature of the data and to produce mean scores per group. Thereafter correlational analyses was performed to test the initial relationships across all 11 languages in groups (native English speakers, non-native English speakers writing the PIRLS 2006 assessment in English and non-native English speakers writing the PIRLS 2006 assessment in languages other than English). This was followed by regression analyses to produce estimates for the predictive values of the English national assessment score in predicting the South African reading literacy scores in the international data for those students who wrote the the PIRLS 2006 assessment in English (n = 3032) followed by an estimation of the contribution of key variables hypothesised to discriminate between these two groups of students in South Africa.

Finding and Discussion

In this section first the results of the international test and the national assessment are presented in terms of the frequency with which all the children, writing the PIRLS 2006 assessment and those writing the PIRLS 2006 assessment in English, speak the language of the test at home. Then a more indepth analysis is presented of the children writing the the PIRLS 2006 assessment in English compared to children writing in the other languages. Finally, the results of the regression analyses are given for all children writing the PIRLS 2006 assessment in English.

The findings have received wide coverage nationally due to the extremely poor results (Howie, 2008). According to the language in education policy children should receive instruction in their home language for the first three years of their compulsory schooling. However, only 62% of South African students (see Table 2) were found to always to speak the language of the test at home contradicting the implementation of the policy (Howie et al, 2007). These children attained 305 points, compared to those who sometimes spoke the language of the test (359 points). As expected those who never spoke the language of the test at home achieved the lowest scores (270). Children writing in English achieved considerably higher results across all three groups (443, 421 and 293). As children who mostly speak African languages at home (and most receive schooling in an African language) switch to English as the language of instruction from Grade 4 onwards, their proficiency in English is crucial to their success in their future schooling. The extent to which their proficiency in their first language has been established has been revealed for the first time by the international results.

<Insert Table 2 about here>

The results for the national assessment were then compared for each of the 11 languages. Overall students who 'sometimes spoke' the language of the test achieved the highest score of 49 points (on a scale of 0-100 points with a set mean of 49 points)). This achievement was substantially higher than those who 'always' (43 points) or 'never' (42 points) spoke the language at home. As would be expected children who wrote the ENA and always spoke English at home achieved the highest scores overall (57 points), but certainly not as high as might have been expected.

<Insert Table 3 about here>

The children writing in Afrikaans and who never spoke Afrikaans at home, were one of the highest performing groups (54 pts) very close to the English native speakers (57pts). Children writing in African languages achieved marks varying between 43 pts (Sesotho "never" and Setswana "sometimes") to a low of 37 pts (isiNdebele, isiXhosa, Siswati and Tshivenda "never"). Typically these four languages are to be found largely in rural areas and for students from these areas, English is probably more of a foreign language rather than a second language.

<Insert Table 4 about here>

Table 4 presents the overall results for the international assessment in addition to national assessment. The results of the two groups who wrote the PIRLS 2006 assessment in English - those who were native English speakers and those who were non-native English speakers - are included. A very large difference was observed between these two groups (60:42 points and 490:286 points). The results of the second language speakers are at similar levels to the national means.

The relationship between the proficiency of the ENA and the PIRLS 2006 assessment was analysed. A correlation coefficient of r = .75 indicates a strong relationship between the performance of the South African students on the national assessment and the international assessment. Given this outcome and those in Table 4, further correlations were conducted and compared. The performance of the children who were native English speakers on the ENA, writing the PIRLS 2006 assessment in English, correlated very highly (r = .81) with the international assessment, whilst the performance of the non-native English speakers on the ENA correlated strongly (r = .69) with the PIRLS 2006 assessment.

Children who were non-native English speakers writing in English correlated very highly (r = .83) with the international assessment, whilst the non-native English speakers writing in the other 10 languages correlated strongly (r = .61). This can be seen in Figures 1 and 2

<Insert Figures 1 and 2 alongside each other)

Finally the regression analyses were conducted for the two groups who wrote the PIRLS 2006 assessment in English. The proficiency on the ENA of the children writing the PIRLS 2006 assessment in English was a significant factor in predicting their performance on the international assessment, explaining 57% of the variance of the overall achievement for South African students. For first language speakers, it was higher (66%) compared to the second language speakers (48%).

In terms of the two groups (native and non-native English speakers) writing the PIRLS 2006 assessment in English, it was hypothesized that there might be differences between native and non-native English speakers in terms of the resources in the home (books in the home and home educational resources) and in terms of their self-concept in reading and that these may prove to

be important predictors of achievement. When three additional variables (books in the home, home educational resources and self concept in reading) were included in the subsequent regression models, there were changes in the variance explained. In model 4 (see table 6) the variables together explained an additional 6% of the variance of the second language group. However, the same variables reduced the variance explained amongst the first language speakers by 2%.

Conclusion and Implications

South Africa is not the only country that experiences problems with language and learning. All post-colonial countries struggle to reconcile the former colonial power's legacy of language (English, French and Portuguese in Africa) with the indigenous and cultural needs, as well as, the desire to be part of the global economy which increasingly requires English to be spoken (Howie, 2002). South Africa made a political decision to implement 11 official languages in the constitution of the country. Likewise, the language in education policy was also a political decision although the educational evidence about mother tongue instruction benefiting children's learning is universally accepted and promoted (Alexander, 2008). Faced with the overwhelming problems of reconstructing the education system, language in education has been somewhat neglected (Heugh, 1999; Webb, 1999). This is problematic given the significant increase in the number of African language speakers enrolled at school over the past 20 years. Moreover there is evidence of failure at the matriculation level and that 80% of the pupils' languages at home are other than English (Heugh, 1999, p. 302).

The reality for many South African children is that they are taught in mother tongue from Grade 1 to Grade 3. However, once these children progress to Grade 4, the language of learning and teaching changes to a second language, which in most cases is English. Students are also expected to advance from learning to read, to a stage where they can use reading in order to learn. The complexity of the South African language issue is further exacerbated by teachers who often make use of code switching to accommodate students in cases where the language of instruction is not clearly understood, resulting in instruction being continued in both mother tongue and English second language.

The results from this study already points to a possible contradiction to international literature in terms of the benefits of mother tongue school subject instruction. It is evident that non-native English students, receiving tuition and writing the PIRLS 2006 assessment in English are advantaged in terms of reading literacy over their peers, the non-native English speakers receiving tuition in a language other than English. There may be several reasons for this and these include the conditions in these wholly English medium schools. The schools are usually well managed, have optimal time on task, limited teacher and student absenteeism, are well-resourced, usually located in urban areas and most importantly well-qualified teachers. Students attending these schools and coming from poor communities they and their parents make many sacrifices and may be more motivated to succeed. In contrast, schools where African languages are the language of instruction in the first three years have entirely different conditions to those described above. Furthermore as was mentioned earlier, some of the smaller African languages are predominantly found in rural areas and schools in these areas are some of the most disadvantaged in the country and often have the least qualified teachers.

What is evident apart from the conditions of schooling and the quality of the teachers is that

currently the government s struggling to meet the demands of a very ambitious language in education policy. Inadequate physical and human resources are prevalent resulting in the results highlighted by this paper. The implication for the implementation of the South African language policy needs to be considered. The students are not sufficiently prepared to switch at the grade 4 level to English and therefore apart from students in Afrikaans schools who perform almost as well as native English speakers, children from other language groups are not functioning at an adequate level in either their mother tongue/language of the test nor do they have adequate English language proficiency levels to continue to read to learn from Grade 4 onwards. This is seriously negating their progress in schooling as partly evidenced in the poor matriculation results at Grade 12 and demonstrated in other international studies at lower secondary level (Howie, 2001). Language in education at all primary levels and possibly secondary levels requires a serious overhaul in order to significantly change the current situation. One example regarding English could be that the Department considers introducing English as a subject alongside the mother tongue from Grade 1 to equip and enable students to change to English school instruction more easily and successfully? However, this only addressed the issue of the language of instruction in English.

The results of the paper may contribute to the language policy, since clearly the issue cannot be regarded as purely a debate between mother tongue education or English second language education, as the current multilingual policy is not being effectively implemented as discussed above. With the exception of the English and Afrikaans native speakers, children do not appear to be benefiting substantially from the multilingual policy as it currently exists. At a time when the National Department of Education in South Africa is considering changing the language policy at school from the first 3 years of mother tongue instruction to 6 years, it is hoped that this paper can make a contribution to the debate on language policy. The empirical data from the South African PIRLS 2006 and English national assessment is critical for the vital and intense debate on language in the country. Furthermore, South Africa's continued participation in PIRLS is essential for monitoring South African children's reading literacy against rigorous international standards.

References

Alexander, N. (2008). *Learning Languages to Learn. How can we get it right?* Paper presented at Umalusi/CEPD Seminar series on 28 February 2008, Johannesburg.

Department of Education (1997). Language in Education Policy. Government Gazette, Vol. 17997, No. 383. Pretoria: Government Printer.

Heugh, K. (1999). Languages, development and reconstructing education in South Africa. *International Journal of Educational Development*, *19*, 301-313.

Howie, S. J. (2001) Mathematics and Science performance in grade 8 in South Africa 1998/1999: TIMSS-R HSRC report, Pretoria.

Howie, S.J. (2002). *English language and other factors influencing grade 8 pupils achievement in mathematics.* Enschede: University of Twente Press.

Howie, S.J, Venter, E., van Staden, S., Zimmerman, L., Long, C., and Scherman, V and Archer, E. (2007). *PIRLS 2006 Summary report: South African children's reading achievement*. Pretoria. Centre for Evaluation and Assessment.

Howie, S.J. (2008). Measuring the health of the education system: lessons from international studies for South Africa. Keynote address, presented at Association for the Study of Evaluation and Assessment national conference, Pretoria, July 2008.

Mullis, I.V.S, Martin, M.O., Kennedy, A. and Foy, P. (2007). *PIRLS 2006 International Report. IEA's Progress in International Reading Literacy Study in Primary Schools in 40 countries*. Chestnut Hill. TIMSS & PIRLS International Study Centre, Boston College.

Webb, V. (1999). Multilingualism in democratic South Africa: the overestimation of language policy. *International Journal of Educational Development, 19*, 351-366.

Table 1. Performance of South African Grade 5 students in all 11 languages

Language of testing	N	% of learners	Mean score	(S.E of mean)	Std Dev
Afrikaans	1673	9.97	416.54	11.92	131.15
English	3032	25.45	386.31	15.99	154.08
isiNdebele	823	.70	232.32	11.37	90.12
isiXhosa	1393	17.55	214.61	7.77	95.44
isiZulu	1548	18.75	265.00	5.88	92.77
Sepedi	1295	9.34	244.50	6.11	89.53
Sesotho	974	4.39	287.65	7.52	90.20
Setswana	1062	6.63	286.82	11.99	98.77
SiSwati	1112	2.44	251.53	14.96	87.64
Tshivenda	783	2.26	262.45	14.93	95.09
Xitsonga	766	2.52	280.96	11.57	85.94

Source: IEA's International Database PIRLS2006

Table 2. Performance of all Grade 5 South African students and English home language students who wrote the PIRLS 2006 assessment in English and the frequency that they speak English at home

		Always			Sometimes			Never		
	N	%	Mean	S.E	%	Mean	S.E	%	Mean	S.E
National	1673	62	305.6	6.60	30	359.1	8.01	8	270.5	8.12
English[a]	670	39	443	19.61	52	421	13.98	9	292.7	17.55

a English as home language was indicated on the ENA

Table 3. Frequency with which Grade 5 students speak the language of the test and their mean performance in the national assessment for English Second Language

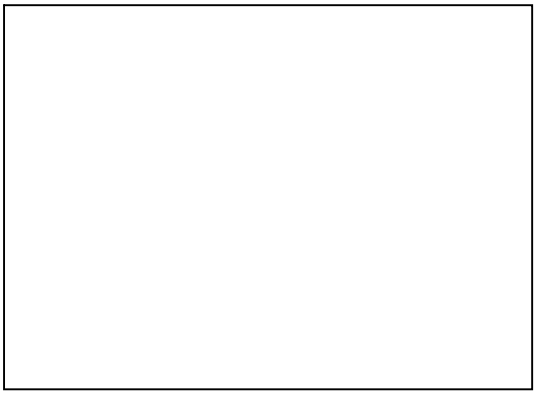
Language of test spoken at home	Always			Sometimes			Never		
	N = 6 383			N = 3 344			N = 1 040		
	%	Mean	S.E	%	Mean	S.E	%	Mean	S.E
Afrikaans	65	50	1.1	33	55	1.3	19	54	5.6
English	39	57	1.5	52	55	1.1	9	45	1.3
IsiNdebele	55	38	.92	35	40	1.5	10	37	2.1
IsiXhosa	80	39	.29	14	40	.58	5	37	.74
IsiZulu	79	39	.65	17	43	1.6	4	40	1.5
Sepedi	63	39	.48	30	41	1.0	7	41	2.6
Sesotho	13	39	1.0	27	40	.61	59	43	.56
Setswana	67	42	1.2	27	43	1.8	5	39	.87
Siswati	72	40	.95	25	38	1.1	3	37	.66
Tshivenda	70	40	1.0	25	39	.99	4	37	.84
Xitsonga	67	39	.75	27	38	.70	6	38	.86
National	62	43	.55	30	49	.66	8	42	.51

Table 4. Grade 5 students' performance on national and international assessments overall for South Africa, first language English-speakers and second language English-speakers

		National Assessment		International assessment	
	N	Mean	S.E	Mean	S.E
National	14195	43.57	.46	302.48	5.56
First language speakers	670	60.53	1.04	490.48	14.33
Second language speakers	13525	42.14	.34	286.62	3.98

Source: South African CEA National Assessment database

Figures 1 and 2



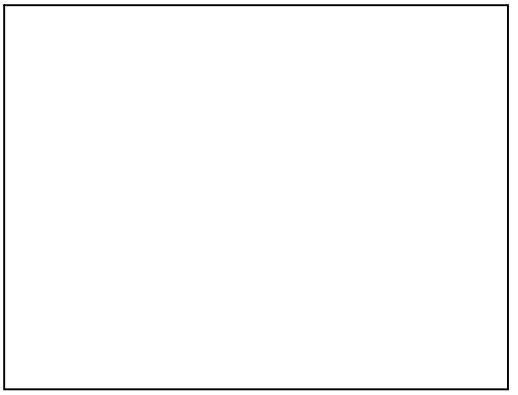


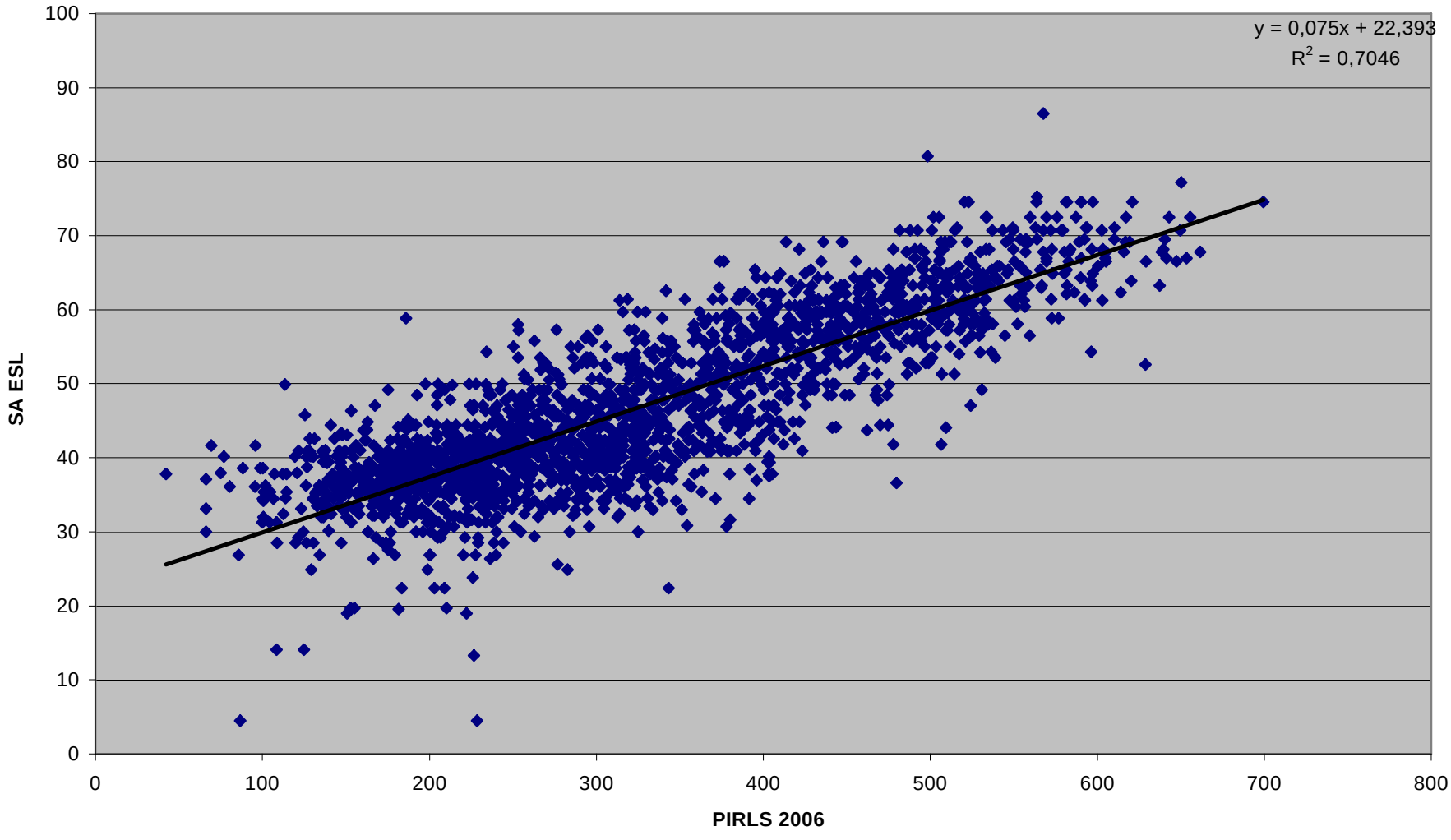
Table 5 National assessment as a predictor of the international performance for South African Grade 5 students writing in English

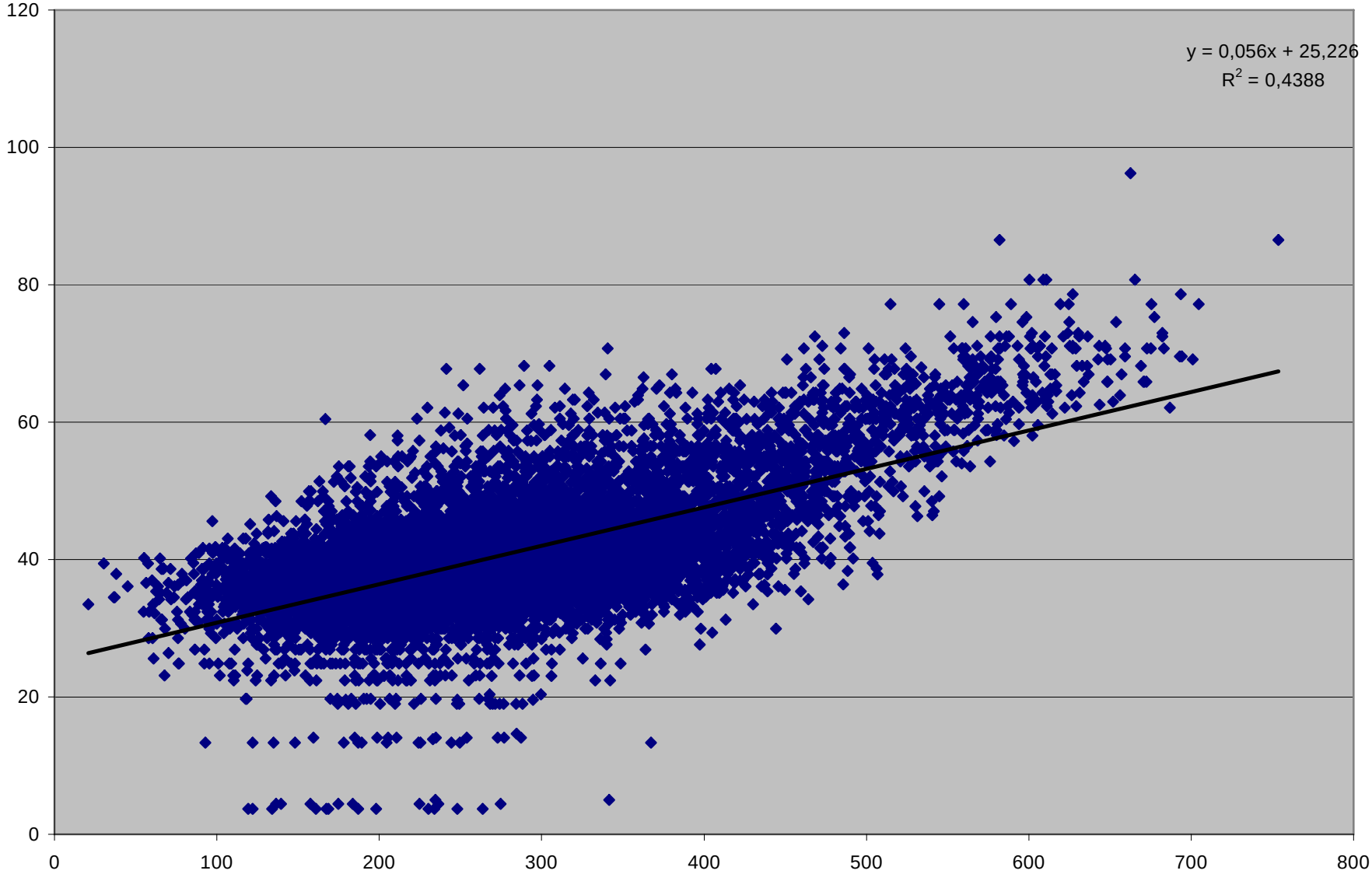
	N	**R^2**	**Constant (Estimate)**	**S.E**	**National Assessment (Estimate)**	**S.E**	**English Test (t-test)**
National	14195	.57	-93.89	9.02	9.10	.22	41.05
First language speakers	670	.66	-44.59	22.93	8.84	.38	23.57
Second language speakers	13525	.48	-75.85	9.58	8.60	.23	37.24

Table 6: Predictors of South African Grade 5 English first language speakers and English second language speakers writing the PIRLS 2006 test in English

	First languagespeakers		**Second language speakers**	
Model 4	N = 488		N = 8 393	
R2	.64		.54	
Constant (estimate)	53.14	*45.38*	2.78	*14.98*
National assessment score (estimate)	8.14	*.50*	8.48	*.25*
Books in home	5.10	*4.09*	2.39	*1.67*
Home educational resources	-26.92	*11.15*	-10.48	*3.95*
Self-concept	-8.42	*4.80*	-27.96	*3.56*

Figures in italics are standard errors


Non-English test takers
y = 0,075x + 22,393
R2 = 0,7046
SA ESL
PIRLS 2006
0
10
20
30
40
50
60
70
80
90
100
0
100
200
300
400
500
600
700
800


y = 0,056x + 25,226
R2 = 0,4388
120
100
80
60
40
20
0
0
100
200
300
400
500
600
700
800