THE RELATIONSHIP BETWEEN GRADE 7 LEARNERS' PERFORMANCE IN ENGLISH VERSUS MATHEMATICS: A CASE OF SCHOOL X IN OSHANA REGION

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ABSTRACT

This study explored the relationship that exists between the Grade 7 learners' performance in English versus Mathematics at School X in the Oshana Region. The study sought to answer the following questions: 1. How does the performance of the Grade 7 learners in English compare to their performance in Mathematics? 2. What relationship exists between Grade 7 learners' performance in English and in Mathematics? The study utilised Document Analysis that is, data was drawn from the Grade 7 learners' English and Mathematics mark sheets for their August examinations. The quantitative approach was used study since the study was dealing with numerical data. Also, the study utilized Total Population Sampling meaning that all the Grade 7 learners (27) at School X constituted the sample for this study. The quantitative data was analysed used descriptive and correlational statistics. The findings of the study revealed that the Grade 7 learners' performance in English and Mathematics is more or less the same. The study also revealed

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that a strong positive correlation exists between the Grade 7 learners' performance in English and Mathematics. It was therefore concluded that learners' command of English can actually compromise their performance in Mathematics. The study recommends teachers to practise cross-curricular teaching in order to harmonise learners' performance in English and Mathematics.

BACKGROUND

There has been a persistent poor performance in Mathematics at primary school level in Namibia (Taylor, Fleisch, & Schindler, 2009). This is probably accrued from the pre-independence era where three education systems existed, that is; for whites, coloureds and blacks. During the colonial era, education for blacks (Bantu Education System) was mainly focusing on basic arithmetic and numeracy (Leibrandt, 2010). This could arguably be the reason why the strains of poor performance continue to exist in the Namibian Education System.

Literature (Taylor, Fleisch, & Schindler, 2009) hold a claim that the Oshana Region has been experiencing poor performance in the regional rankings in Mathematics at both the primary and secondary school phases. The poor performance in Mathematics at secondary school level could thus be attributed to the fact that learners are not well prepared in Mathematics at their initial stage of schooling. The same poor performance of primary school learners in Mathematics has also been echoed in the Southern and Eastern Africa Consortium for Monitoring Educational Quality (SACMEQ) III reports, citing inability to comprehend written English as a major cause (Shabalala, 2010; Moloi & Strauss, 2011).

In addition, a report by Nambira, Kapenda, Tjipueja and Sichombe (2009) indicated that the Grade 7 learners in the Okahandja District performed poorly in Mathematics when compared to grades 5 and 6 due to the fact that the Grade 7 Mathematics syllabus demands the learners to have a full command of the English language. It thus follows

the argument that there is a need to inquire into whether the language of instruction really plays any role in the performance of learners in Mathematics.

Research questions
1. How does the performance of the Grade 7 learners in English compare to their performance in Mathematics?
2. What relationship exists between Grade 7 learners' performance in English and in Mathematics?

LITERATURE REVIEW

Primary school learners' performance in English

Before independence, English was not used as a medium of instruction in Namibian schools (Leibrandt, 2010). This could arguably be the reason why the majority of Namibians struggle to speak fluent English. In addition to this, some critics have argued that the English Policy introduced in Namibian schools after independence is a disaster that has contributed to the education crisis since less than 5 % of Namibians speak English as their home language (Revolutionary Teachers, 2014).

Also, the same literature (Revolutionary teachers) indicates that about 98% of teachers are not fluent in English. This follows the argument that the foregoing are some of the reasons why Namibian primary school learners perform poorly in English. It can also be argued that this poor performance in English has an impact on learners' overall academic performance since English is the medium of instruction.

Moreover, Kisting (2011) agrees with the Revolutionary Teachers (2014) in that there is consistently low performance in English in Namibia's primary schools because most Namibian teachers lack a strong command of the English language. Besides, it can be argued that as long as English teachers are not fluent in English, it might be difficult for Namibian primary school learners to perform very well

particularly in English and this may generally affect their performance in other subjects. This is fuelled by the argument that English is the medium of instruction in Namibian schools starting from upper primary, that is, it might have an impact learners' performance in other school subjects.

Kisting (2011) holds the opinion that a relationship exists between Namibian primary school learners' poor performance in English and their performance in other school subjects. However, Kisting (2011) does not specify which other school subjects are related to the primary school learners' poor performance in English. This drove the researcher to explore the relationship that exists between the Grade 7 learners' performance in English versus Mathematics at a particular Primary School in the Oshana Region.

In addition, it was observed that only a fraction of Namibian primary school learners performed well in written English as a second language (Sasman, 2011). According to Sasman (2011) an assessment done among 48 000 Grade 7 learners in 1 086 schools by the Directorate of National Examinations and Assessment (DNEA) and the American Institutes for Research (AIR) in 2011 disclosed that the national average score in English was 45%. In addition, over 58% of the learners assessed obtained an average of 45% or less.

Furthermore, Sasman (2011) reports that a study conducted by DNEA and AIR showed that about 3% of the schools tested showed outstanding results in English. Sasman also reports that it was observed that on average, urban schools performed better by 10-18% compared to rural schools, while private schools obtained about 20-25% higher scores than public schools. Those figures simply show how learners from different primary schools performed in English but it was not mentioned whether a relationship exists between their performance in English and Mathematics. From the foregoing, it is evident that there was need to conduct this study in order to establish whether a

relationship exists between the performances of Grade 7 learners in English versus Mathematics.

Primary school learners' performance in Mathematics

There were a lot of shortcomings in the teaching and learning of Mathematics in Namibia during apartheid (Leibrandt, 2010). These shortcomings still continue to retard learners' performance in Mathematics in Namibian schools. According to Sasman (2011), a small fraction (3%) of Namibian schools are performing well in Mathematics. An assessment done in Namibia among 48 000 Grade 7 learners in 1 086 primary schools by DNEA and AIR in 2011 revealed that the national average performance in Mathematics was 42% (Sasman, 2011).

The foregoing assessment also revealed that 59% of the Grade 7 learners that were assessed got average or below the average score (42%), while only 3% of the 1086 primary schools tested showed excellent results in Mathematics. The figures stated above seem to be alarming; that is, there is need for intervention. The situation requires interrogation and that is why this study was conducted to inquire whether such an alarmingly poor performance in Mathematics could be related to learners' performance in English.

Moreover, a SACMEQ III report by Spaull (2011) indicates that the Grade 6 learners in Namibia have high levels of functional innumeracy (48%) as compared to fellow African countries such as Botswana (22%), Mozambique (33%) and South Africa (40%). Those statistics seem to suggest that Namibian primary school learners are struggling with Mathematics as compared to those from other countries. If nothing is done to find out why the Grade 6 learners struggle with Mathematics so that they can be assisted accordingly, they might continue to struggle when they proceed to Grade 7 and the same problem may recur in their secondary school.

From the above context, it is evident that there is need to inquire into the problem of poor performance in Mathematics among primary school

learners in Namibia. That is why this study was conducted. The researcher's opinion is that an intervention is needed to tackle this seemingly national problem in pursuit of finding meaningful solutions. Only then can fruitful actions be implemented to mitigate this problem of poor performance alleged by the foregoing literature.

Relationship between the performance of primary school learners in English and Mathematics

Since English is the medium of instruction in Namibian schools starting from grade 4, one would argue that learners' performance in English might be related to their performance in other school subjects. A study conducted at an Elementary School in South Florida (United States of America) indicates that there is a positive correlation between learners' performance in English and in Mathematics (Henry, Nistor & Baltes, 2014). Henry et al. study showed that primary school learners' performance in English is a very strong predictor of their performance in Mathematics.

Moreover, Henry et al. argues that primary school learners' performance in English paves the way for their performance in Mathematics especially when the medium of instruction is English. The same study further indicates that learning the language of instruction simultaneously with Mathematics makes it difficult for most primary school learners to excel in Mathematics. However, Henry et al. argues that conducting the same study using a different group of learners might not produce the same results.

However the foregoing literature by Henry et al. is not in the Namibian context therefore there is a need to ascertain whether a relationship exists between the performance of Namibian primary school learners in English and in Mathematics so as to seek means to alleviate the problem of poor performance in Mathematics.

METHODOLOGY

The study utilized the principles of a correlational design. Moreover, the study used Total Population Sampling. This means that all the Grade 7 learners (27) at this particular Primary School made up the sample for this study. In this study, it was opted to use total population sampling because the population size was very small (27 learners) yet correlational research studies require a sample of about thirty (30) or more participants as recommended by Waters (2017). Waters recommended the use of thirty or more participants when carrying out correlational research studies because it increases the validity of the statistical findings. The study utilised Document Analysis which means that data was drawn from Grade 7 learners' English and Mathematics mark sheets for their August examinations.

RESULTS AND DISCUSSION

Presentation and discussion of data regarding the performances of learners in English versus Mathematics

This section presents data regarding the comparison of the Grade 7 learners' performance in English versus Mathematics. This was done in an endeavour to respond to the question of how the Grade 7 learners' performance in English compares to Mathematics. This comparison was therefore carried out by using descriptive statistics such as the measures of central tendency. For instance, Table 4.2 indicated a comparison of the mean scores of English versus Mathematics.

Table 4.1: Mean Scores of English versus Mathematics, N=27

Subject	Mean score
English	54
Mathematics	57

It appears that the learners had a higher mean score in Mathematics compared to English as illustrated in Table 4.2. This therefore suggests that on average, the learners have performed slightly better in Mathematics compared to English. This agrees with the findings by Hill (2016) who argues that learners at an Elementary School in Florida who are raised in households in which English is not the primary language score more highly in Mathematics than in English tests. On the contrary, Beal, Adams and Cohen (2010) suggest that learners sometimes perform better in English compared to Mathematics. However, Beal et al. study was conducted on a sample of high school students which is different to the population setting of this study so the two may not be comparable.

Although this study found out that on average the performance of learners in English was slightly lower than that of the same learners in Mathematics, it was not endeavoured into finding the cause of this discrepancy. It is therefore the onus of further researchers to take up this challenge and establish the reasons for this slight differences in the performance of learners in English compared to Mathematics.

In addition to the foregoing, each learner's score in English was compared to their score in Mathematics and the results are shown in Figure 4.1.
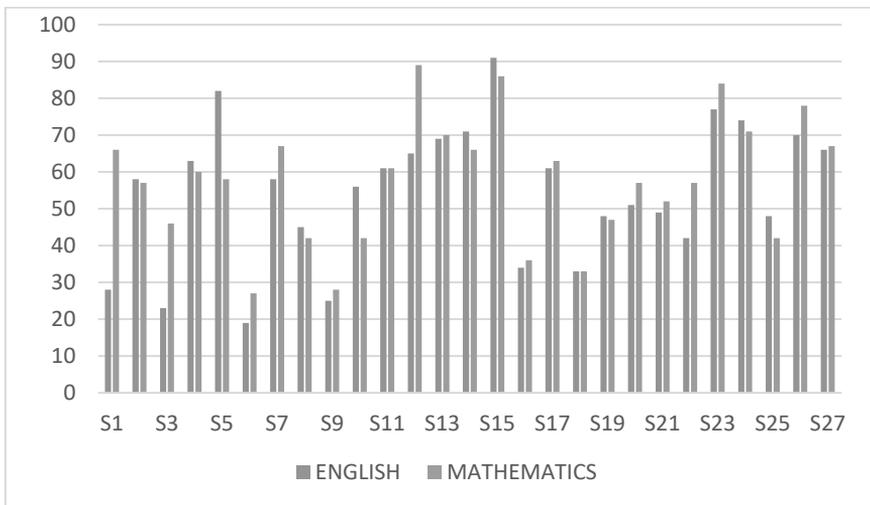
Figure 4.1: A comparison of individual learner scores in Mathematics and English

As shown on Figure 4.1, 13 Grade 7 learners got higher marks in Mathematics compared to English. It therefore appears that learners sometimes perform better in Mathematics than English. In addition, 11 Grade 7 learners got higher marks in English compared to Mathematics. This seems to suggest that leaners sometimes perform better in English compared to Mathematics. Figure 4.1 also indicates that 3 out of 27 Grade 7 learners' marks in English and Mathematics are more or less the same. This seems to suggest that learners' performance in English and Mathematics is sometimes more or less the same.

In addition to the foregoing, and to gain a better grasp of the comparison of the scores between the performances of learners in English versus Mathematics, Figure 1 shows a comparison of the five point summaries of both English and Mathematics.
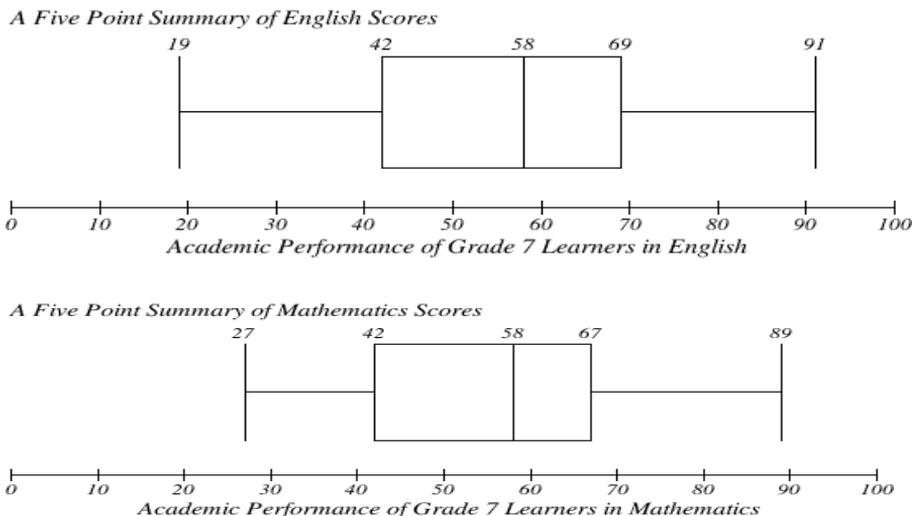
A Five Point Summary of English Scores

Academic Performance of Grade 7 Learners in English

A Five Point Summary of Mathematics Scores

Academic Performance of Grade 7 Learners in Mathematics

Figure 4.2: The five point summaries of English versus Mathematics scores

From Figure 4.2, the minimum score in English is 19% whereas in Mathematics it is 27%. Thus when the Grade 7 learners' performance in English versus Mathematics is compared using the minimum scores, they appear to have performed better in Mathematics than English. Hill (2016) argues that Elementary School learners whose first language is not English tend to perform better in Mathematics compared to English. Since Hill used the same population as the one for this study and the same trend is observed in this study, it therefore appears as though learners tend to perform better in Mathematics than in English.

Also, Figure 4.2 shows that the lower quartile in both English and Mathematics is 42% implying that in both subjects 25% of these Grade 7 learners have scored 42% or less. This suggests that the failure rate is 25% or more of the total population. In other words, it can be inferred that at least a quarter of the learners have failed both subjects in their August examination. Should the same trend repeat itself at the end of

the year, these learners may not be promoted to Grade 8 in the subsequent year. Literature suggests that learners tend to perform better in English than in Mathematics (Zakaria & Aziz, 2011) and this is contrary to the findings of this study when performance in the two subjects is compared using the lower quartile.

Seeing the above situation, it appears that there is a need for some intervention to take place so that the pass rate could be elevated to some greater height, otherwise for this quarter who failed both subjects, their performance will remain poor unless interventions are put into effect to mitigate this poor performance.

Additionally, Figure 4.2 shows that the median scores of the Grade 7 learners in both English and Mathematics is 58%. This implies that at least half of the Grade 7 learners scored below 58% in both English and Mathematics and the other half of the learners scored above 58% in both English and Mathematics in their August examination. If the Grade 7 learners' performance in English is compared to Mathematics using the median, it appears to suggest that learners' performance in English and Mathematics is the same. This agrees with the findings of Henry, Nistor and Baltes (2014) which revealed that at a particular Elementary School in South Florida, a linear relationship exists between learners' performance in English and Mathematics. It therefore seems to suggest that learners' performance in English and Mathematics is sometimes more or less the same.

Also, the values of the upper quartiles for English and Mathematics on Figure 4.2 are 69% and 67% respectively. This seems to suggest that at least 75% of Grade 7 learners at this particular primary school have scored 69% or less in English and 67% or less in Mathematics. Contrary to the foregoing results, in terms of the upper quartiles, it appears to suggest that the learners have performed slightly better in English compared to Mathematics. Literature by Beal et al. (2010) reveals that learners who have excellent English literacy skills achieve higher

English than Mathematics scores. The foregoing seem to agree with the findings of this study when the performance of the Grade 7 learners in English versus Mathematics is compared using the upper quartile values. However, Beal et al. study was conducted on a sample of high school students which is different to the population setting of this study so the two may not be comparable.

Furthermore, Figure 4.2 shows that the maximum score in Mathematics is 89% whereas in English is 91%. This appears to suggest that the maximum score in Mathematics was slightly lower than in English. Similar to the foregoing, this appears to suggest that in terms of the maximum scores the performance of learners in English appears to be better as compared to Mathematics. Zakaria and Aziz (2011) settle that top scoring learners' performance is better in English compared to Mathematics. Moreover, in this study the same trend prevails. Therefore, it appears that learners tend to perform better in English than in Mathematics when the performance of both subjects is compared using the maximum scores.

In summary, the results seem to suggest that when the scores are lower, the Grade 7 learners seem to be doing better in Mathematics than in English and when the scores are higher, the Grade 7 learners seem to be doing slightly better in English than in Mathematics. Therefore in response to Research Question 1 which asked how the performance of Grade 7 learners in English compares with their performance in Mathematics, the study settles that the Grade 7 learners' performance in the two subjects is more or less the same

Presentation and discussion of data regarding the relationship between the Grade 7 learners' performances in English versus Mathematics

This section presents data regarding the relationship between the performances of Grade 7 learners in English versus Mathematics. This

was done in an endeavour to respond to the question of what relationship exists between the performances of Grade 7 learners in English and Mathematics. This relationship was therefore established by using correlational statistics such as the scatter plot and Pearson's Correlation Coefficient. Figure 4.3 shows a scatter plot of learners' English scores versus their Mathematics scores.
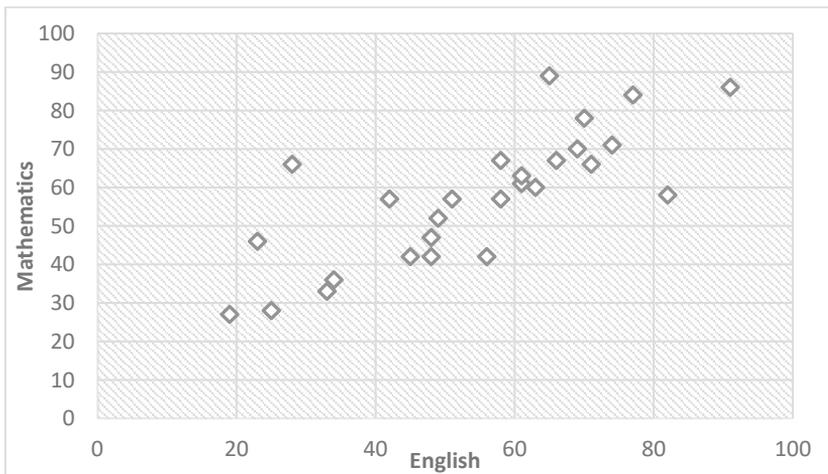

Figure 4.3: A Scatter plot of English versus Mathematics Scores

From Figure 4.3, it appears that there is a strong positive correlation between the learners' scores in English versus in Mathematics. This suggests that the learners with higher scores in English had better scores in Mathematics. It therefore appears on the basis of Figure 4.3 that it is plausible to claim that the understanding of English among the learners could have an impact on their performance in Mathematics. The same trend was observed in the work of Henry et al. (2014). Henry et al. study at an Elementary School in Florida concluded that a direct relationship exists between learners' performance in English and Mathematics. Since the same trend was observed in this study, at appears that learners' performance in English may really have an impact on their performance in Mathematics.

Also, the value of the Pearson's correlation coefficient was found to be $r = 0.7816$. According to Nadar (2015) this could be interpreted as a strong positive correlation. Therefore, this supports the data in Figure 4.3 that there is a great chance for the learners whose scores are high in English to also be high in Mathematics and the opposite is equally true. Therefore the inference that learners' understanding of English can facilitate their understanding in Mathematics is still valid.

In addition to the foregoing, the value of the coefficient of determination (r^2) was found to be 0.6109. Statistically, it can be inferred that if all other variables influencing the performance of learners in Mathematics are kept constant, the performance of learners in Mathematics can be explained by their performance in English up to 61.09%. Accordingly, this is still in line with the foregoing data presented Figure 4.3 as well as the Pearson's correlation coefficient that there is a strong positive correlation between the learners' scores in English and their scores in Mathematics. Hence, the inference that learners' understanding of English can facilitate their understanding in Mathematics is still valid.

In summary, the results seem to suggest that there is a strong positive correlation between the participants' performance in English and their performance in Mathematics. Therefore in response to Research Question 2 which asked about the relationship that exists between the Grade 7 learners' performances in English and Mathematics, the study settles that there is a strong positive correlation between the performance of the learners in English and in Mathematics.

CONCLUSION

On the basis of the data collected in this study, it was concluded that the Grade 7 learners' performance in English and Mathematics is more or less the same. It was also concluded that there is a strong positive correlation between the Grade 7 learners' performance in English and their performance in Mathematics.

RECOMMENDATIONS

Based on the results of this study, English and Mathematics teachers may consider practising cross-curricular teaching in order to harmonize learners' performance in the two subjects. This study concluded that there is a strong positive correlation between learners' performance in English and Mathematics therefore, further researchers are recommended to dig deep into the areas where the learners are experiencing difficulties in English, which possibly retards their performance in Mathematics.

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