Volume 5 Number 3 November 1993
ISSN 1013-3445

CONTENTS

Literature Sources:

Research Organisations

MAINTAINING AND COMPARING STANDARDS OF ACADEMIC PERFORMANCE OF LEARNERS IN AN INTEGRATED NAMIBIAN SENIOR SECONDARY SCHOOL SYSTEM

Donton S.J. Mkandawire
University of Namibia

ABSTRACT

Similar to former British colonies, especially in the Southern Africa Development Community (SADC) region of Southern Africa, Namibia inherited an educational system which was very much fragmented on racial and ethnic lines. One major education reform implemented soon after independence and consistent with the constitution and education policy directives, was that all schools were to be desegregated or integrated and were opened to all learners under a unified educational system. One of the goals to be achieved was equity in the distribution of educational resources and services which would result in better performance of learners previously denied enrollment into white schools which have had excellent infrastructures in both human and physical resources to support quality education. One of the concerns of the white principals, teachers, and parents was that the racial integration of schools would bring about lowering of academic standards enjoyed by the white learners before independence. This study compared and discussed academic performance of white and non-white learners in the current integrated school system and how educational standards were being maintained since integrated schools wrote their first examinations two years after the policy of integration in Namibian schools was implemented.

INTRODUCTION

The present single education system in Namibia has evolved out of a highly fragmented educational system which prior to independence had eleven separate educational systems based on colour, ethnic and racial classification. Each one of them had a character and administrative structure of its own.

As far as the resource allocation to these eleven systems was concerned, there were severe disparities between schools, with black schools, especially in the north of the country, being the most disadvantaged in physical structure, quality and quantity of teachers to support quality education (UNICEF,1990).

With the coming of independence on 21 March 1990 after decades of German and South African rule, the democratic constitution of the Republic of Namibia in Article 20 (Govt. Gazette, 1990), stipulates that all persons shall have the right to education and that basic education shall be free and compulsory. This democratic constitution of the Republic of Namibia abolished any form of racial or ethnic discrimination and the country has now, through its policy of national reconciliation, been able to build one educational system from the pre-independence fragmented structure which was influenced by apartheid, colonial bantu, and ethnic considerations. Major education reforms were introduced soon after independence and consistent with the constitution and education policy directives (Angula, 1990) all schools were integrated or desegregated and opened to all and a unified system was implemented. The system now has seven educational regions and one of its main goals is to achieve equity in the distribution of educational resources and services, improvement of learning outcomes based on a reformed curriculum and examination system relevant to Namibia and which would ensure relevant curricula with objectives for personal and social improvement, improved access to education, provision of life long experiences, just to mention a few.

Within the present unified system which is decentralised into seven educational regions, the following schools still operate:

1. The **former white schools** which were only open to the white population. According to UNESCO (1990) and UNICEF (1990) these schools had and still have excellent infrastructures in both human and physical resources to support quality education. These schools are now open to all racial groups and it is presently estimated that there are about 4% non-white learners in these schools - still very much in the minority, albeit being the majority of the school population in Namibia.

2. **Mixed Schools** which before independence were designated for coloureds, *Rehoboth basters*, and a few private ones which had already been racially integrated and were administered from Windhoek by the former National Education Department. They are also now incorporated into one system.

3. **Black schools** - which are in the majority - were open to black people only and still are very much under-resourced. The priority of the government is now to upgrade these schools but it will take some time before they are upgraded to have comparable infrastructures with the former white or mixed schools described in 1 and 2 above.

The present school population is estimated at 460,000 learners. The number of white learners is estimated at less than 13,000 which is about 3% of the total school population.

The concept of **school integration** in Namibia is largely understood by people in Namibia as the implementation of a desegregated educational system where school admission decisions are not based on race, colour, and/or ethnic considerations. But, because of school disparities - both in human and physical infrastructures as described above - and the fact that the former white schools still have an edge, most people speak about integration to mean non-white learners enrolling in those schools which have the best of everything to support quality education and were previously reserved exclusively for the white learners.

Mkandawire (1992a) carried out a formative quality appraisal of factors and characteristics such as attitudes, beliefs, behaviours, interaction

patterns, learning environment, **academic,** and extra class activities of the present integrated school system introduced soon after independence. The data were collected from principals of integrated schools, randomly selected learners from grade 4 to 12, parents, and teachers. The results indicated that primary school learners had the highest positive attitude outcomes to integration with 56% followed by the junior secondary school with 50% and the lowest were senior secondary schools, with 45%.

The comparative positive attitude outcomes of teachers by type of schools indicated that 52% of teachers in primary schools were favourable but only 49% of secondary school teachers had positive attitude outcomes to school integration. With regard to negative attitude outcomes of teachers by type of school, the highest was in senior secondary schools with 26% followed by primary and junior secondary schools with 25% each respectively.

There were many perceived reasons why white parents, principals, teachers, and learners had reservations about school integration, one of them which was relevant to this study was on academic grounds. A good number of parents and teachers felt threatened that academic and educational standards would drop in the former white schools. As one of the parents remarked (Mkandawire, 1992a, 71):

> As a white English parent, I accept fully that schools should be racially integrated. However, I am threatened by the prospect of such integration being responsible for a drastically lower standard of education. It seems a pity, and even somewhat irresponsible, to drag the standard of each and every school in Namibia down to that of the lower common denominator. Whoever can perform to a higher academic standard should have the opportunity to go ahead and do so. Obviously, this system would better favour *the whites to begin with because they have always been favoured.* However, more and more black children would qualify and in this way a high standard could be maintained.

Even some teachers shared the view that school integration would bring about lower pass rates of their schools and that non-white learners were

not capable of achieving academically as their white counterparts. Some of the teachers remarked that (Mkandawire, 1992a, 49):

> White and non-white students should be taught in separate classes because they are not at the same academic level. The white learners are at a higher academic level and they become bored while I try to get the non-whites on a higher academic level.

In some cases teachers appreciated the dilemma their non-white learners found themselves in because of the schools they came from as a result of the disparities in schools which existed before independence. As one of the teacher remarked (Mkandawire, 1992a, 50):

> The reason why some non-white learners do badly in tests/examinations is because they very seldom had the same opportunities as white learners. The mere fact that all the non-white learners increased their marks from term to term is an indication that they cope well and very soon will achieve very good results.

The Purpose and Significance of the Study

The policy of racial integration in schools had brought about mixed attitudinal outcomes among principals, teachers, parents and learners with regard to the maintenance of academic standards in the former white schools as measured by academic achievement of learners successfully completing the senior secondary schools (Mkandawire, 1992a). A comparative study of academic achievement in liberal arts and science subjects by Mkandawire (1992b) indicated that white schools performed significantly better than black and mixed schools in both science and arts subjects because of the severe disparities in the inputs and instructional processes in favour of the former white schools. A good number of secondary school principals and teachers observed that during the first year when their schools were racially integrated non-white learners were academically behind their fellow learners although they picked up during the course of the year. It was believed that the first exit senior secondary school certificate examination results after the majority of schools were integrated, would be adversely affected because non-white learners would

not do as well as their fellow white learners. The concern expressed was that the then established academic standards of former white schools would not be maintained but drop considerably in 1992 and thereafter. This study empirically appraised this concern of the former white schools by examining how academic standards had been affected during the two years of school integration and to compare academic performance of non-white and white learners in the externally administered certificate exit examinations at the end of Grade 12 which is currently the last year of senior secondary schooling in Namibia.

Procedures

Nineteen former white senior secondary schools presented candidates for the 1992 senior secondary school examinations set by the Cape Education Department in South Africa. These examinations are used both for credentialling and selection to tertiary institutions in Namibia and South Africa. As from 1995, however, these examinations will be replaced by the International General Certificate of Secondary Education (IGCSE) public examinations, to be administered jointly by the University of Cambridge Local Examinations Syndicate and Directorate of National Examinations and Assessment in Namibia. The passing criteria is based on passing subjects from six subject groupings. The minimum requirement for the award of a senior school leaving certificate is that a candidate pass in five subjects, two of which must be languages. Because not all the nineteen secondary schools presented non-white learners for the 1992 examination, i.e. two years after the schools were racially integrated, the twelve schools that did were used for this study representing a total candidature of approximately 500 students with examination subject entries in Afrikaans, English, Mathematics, Biology, and Physical Science.

The overall school percentage **pass rates** for the three years which were used to compare the maintenance of school academic standards before and after the schools were racially integrated were obtained from the Directorate of National Examinations and Assessment. This pattern is depicted in Table 1.

Research Questions and Hypotheses Tested

The research questions and hypotheses examined by the study were as follows:

1 Had the overall percentage pass rates of the integrated schools included in the study been adversely affected since schools racially integrated?

This was done by comparing the 1992 percentage pass rates being first examination after schools were racially integrated, with the 1990 and 1991 percentage pass rates prior to school integration.

2 The second hypothesis was that there was no significant difference between the average performance of the white learners (designated as 1 in this study) and non-white learners (designated as 2) in the best six transformed scores in the subjects they entered for in the 1992 examinations. The null hypothesis being

$$H_0 : \mu_1 = \mu_2$$

3 The third hypothesis was that there was no significant difference in the academic performance of white learners (1) and non-white learners (2) in individual subjects, i.e. Afrikaans, English, Biology, Physical Science, and Mathematics.

$$H_0 : \mu_1 = \mu_2 \text{ (in individual subjects)}$$

4 The fourth hypothesis was that there was no relationship in academic performance of individual subjects by individual learners within each racial group.

$$H_0 : \rho_{xy} = 0$$

The two subject grouping for this correlational analysis were:

a. Afrikaans, English and Biology.

b. Biology, Physical Science and Mathematics.

RESULTS

Table 1

Grade 12 Comparative Percentage Pass Rates by School

NO. OF CANDIDATES AND PERCENTAGE PASS RATES						
SCHOOL	**1990**		**1991**		**1992**	
	N	%	N	%	N	%
1	42	100	41	90	45	100
2	19	63	21	86	23	91
3	34	97	30	80	38	97
4	29	85	34	68	34	100
5	70	99	41	98	43	100
6	59	94	37	97	72	87
7	46	88	43	93	42	95
8	28	100	26	77	28	93
9	46	89	31	90	34	99
10	11	100	11	100	09	100
11	-	N/A	42	100	45	100
12	56	98	62	93	51	93

Source: Ministry of Education and Culture(Directorate of National Examinations and Assessment 1993)

The above results indicate that except for school no. 6 the overall school percentage pass rates in 1992 the first year when the schools presented their first racially integrated candidates were higher or maintained in 1992 compared with previous years. These results suggest that school integration has not adversely affected the schools' overall pass rate percentages at Grade 12 - if anything the majority of schools recorded

better percentages or maintained their previous percentages pass rates. Of course the number of black students in these schools is still to small to make a measurable to impact on the schools academic profiles.

In order to examine the comparative performance of whites and non-white learners who attended integrated senior secondary schools since the policy was implemented after independence, random samples of 110 learners from each of the two groups -X_1 for white and X_2 for non-white learners - were selected and their academic performance in the senior secondary school 6 best exit certificate examination results which after transformation were used to get quality average performance of each candidate were compared. The results are given in Tables 2 to 7.

Table 2

Grade 12 Comparative Average Performance of White and Non-White Learners Using Analysis of Variance in the 1992 Six Best Transformed Subject Examination Results

Analysis of Variance

Source	DF	MS	F Ratio	F Prob.
Between Groups	1	1425.45	11.46	.001
Within Groups	218	124.43		

Significant at .001, therefore H_0 : rejected at .001 level of significance

$\bar{X}_1$ white = 55.25, $\bar{X}_2$ non-white = 50.16

The second hypothesis that there was no significant difference in performance of white learners and non-white learners in integrated schools at the end of Grade 12 was rejected at .001. The results indicated that the white learners still had an edge over non-white learners who joined them after many years of learning in schools which were under resourced. The two years that they had spent at the former white schools to prepare themselves for the senior secondary external exit examinations had obviously not redressed some of the previous inadequacies of three years of schooling in under resourced junior secondary schools.

Comparative Academic Performance in Individual Subjects Using Analysis of Variance by Subject

Afrikaans Examination Results

A random sample of 100 learners from each group was used to compare their senior secondary school exit examination results in Afrikaans. The hypothesis tested was that there was no difference in performance between the two groups, i.e. $H_0 : \mu_1 = \mu_2$.

Table 3

Analysis of Variance

Source	DF	MS	F Ratio	F Prob.
Between Groups	1	208.08	1.7512.	.1873
Within Groups	198	118.82		

Not significant at .05 level of significance, therefore H_0 was accepted

$\bar{X}_1$ for group (1) white = 57.45, $\bar{X}_2$ for group (2) non-white = 55.41

The results of the above test of no significant difference in academic performance in Afrikaans was accepted meaning that there was no significant difference in performance between white and non-white learners in Afrikaans.

English Examination Results

Random samples of 100 scores each from white learners and non-white learners were used to compare the academic performance in English. The white learners had a mean of 56.86 and non-white learners had a mean of 53.71. The hypothesis tested was that there was no difference between white and non-white learners in their academic performance in English, i.e. $H_0 : \mu_1 = \mu_2$.

Table 4

Analysis of Variance

Source	DF	MS	F Ratio	F Prob.
Between Groups	1	496.13	3.2548	.0727
Within Groups	198	152.43		

Not Significant at .05 level of significance, therefore H_0 was accepted.

The results of the above test hypothesis of no difference in performance in English was accepted meaning that there was no significant difference in the performance of English by both white and non-white learners in integrated schools.

Biology Examination Results

Because of the small candidature in this subject, a random sample of 90 scores from each of the two groups was selected and used to compare their academic performance. The whites had a mean of 62.34 and

non-white learners had a mean of 56.59. The hypothesis tested was that there was no difference in academic performance of the white and non-white learners in Biology, i.e. $H_0 : \mu_1 = \mu_2$.

Table 5

Analysis of Variance

Source	DF	MS	F Ratio	F Prob.
Between Groups	1	1490.689	6,6462	.0107
Within Groups	178	224.293		

Significant at .05, therefore H_0 rejected at .05 level of significance.

The results above rejected the hypothesis of on difference, indicating that there was a significant difference in Biology results of the two groups in favour of the white learners.

Physical Science Examination Results

Because of the small candidature in this subject (smaller than Biology) a random sample of 40 scores from each group was selected to test the hypothesis that there was no significant differences in performance in Physical Science for the two groups, i.e. $H_0 : \mu_1 = \mu_2$.

Table 6

Analysis of Variance

Source	DF	MS	F Ratio	F Prob.
Between Groups	1	577.81	3.62	.0609
Within Groups	78	159.74		

Not Significant at .05 level of significance, therefore H_0 was accepted.

The results of the above test of no difference in performance in Physical Science was accepted meaning that both groups performed comparatively the same in this subject.

Mathematics Examination Results

Because of the small candidature in this subject, 60 scores for each group were randomly sampled and used to compare their academic performance. Group 1 (white) had a mean score 54.68, and 2 (non-white) had a mean score of 46.25.

Table 7

Analysis of Variance

Source	DF	MS	F Ratio	F Prob.
Between Groups	1	2133.63	9.9183	.0021
Within Groups	118	215.12		

Significant at .01, therefore H_0 rejected at .01 level of significance.

The results in the above table lead to the rjection of the hypothesis that the two groups had comparable academic achievement. The white learners performed significantly better than the non-white learners in Mathematics.

Discussion of Senior Secondary School (Grade 12) Academic Achievement Examination Results.

With the exception of one school, pass rate percentages had improved since schools were racially integrated. However, the average performance of the whites in all the subjects entered for in 1992 senior secondary school exit examinations was significantly better than their non-white counterparts in the integrated schools. When performance in individual subjects was considered, the significant difference in performance favouring the white learners was in Biology and Mathematics only. Both of these subjects are badly resourced in former non-white schools where the no-white learners studied for three years before they could be admitted to the former whites only schools where they spent the last two years before sitting the Grade 12 external public examinations.

In the former non-white junior secondary schools Mathematics was hardly taught prior to independence and non-white learners who moved to white schools had to make up for three years deficiency in Mathematics in order to cope with the Mathematics syllabus in the last two years of senior secondary school before writing the public examinations.

On the other hand, Afrikaans has been the most commonly used and studied language in secondary schools with English as a second language for the majority of learners in Namibia. English was made official language of instruction in secondary school soon after independence. Learners' exposure to the two languages at junior secondary school was comparatively the same to both non-white and white learners. Both groups had relatively the same base rate knowledge of the two language competencies, and the findings of the study reinforce the view that for those subjects where tuition was comparable at junior secondary school level the non-white learners are taking advantage of better infrastructures

at the integrated schools which are better resourced. Physical Science is a good example where the results indicated that there was no difference in academic performance. One can only hope that a full five-year secondary school attendance of non-white learners in integrated schools at both junior and senior secondary school level would also improve their results in subjects like Biology and Mathematics.

Correlational Analyses Within Each Racial Group in Subject Groups a and b

In order to examine the subject performance relationships within each racial group Pearson Product Moment correlational analysis was done in the five subjects, Groups a and b. Because of different subject combinations that learners entered for during the examination, different random samples were used for both groups depending on their subject entries. The correlation coefficients to be reported will have two asterisks if they are statistically significant at .01 level, one asterisk if significant at .05, and no asterisk if not significant.

White Learners

A random sample of 90 scores from 264 entries for whites who did all the three subjects, i.e. Afrikaans, English and Biology, was used for the first analysis and another random sample of 34 from 81 white learners who entered for Mathematics, Biology, and Physical Science was used for the second analysis. The hypothesis test was $H_0 : \rho_{xy} = 0$

Table 8

Pearson Product Moment Correlational Analysis

	English	Biology
Afrikaans	.4985**	.3660**
English	—	.3479**

**Significant at .01 level.

All correlations in Table 8 were significant at .01 rejecting the hypothesis and indicating that there was a high significant relationship in academic performance among the three subjects for white learners.

Another correlation was matrix computed for those who did Mathematics, Biology, and Physical Science. A random sample of 34 scores was used to compute the correlations shown in Table 9.

Table 9

	Biology	Physical Science
Mathematics	.3721**	.4207**
Biology	—	.5709**

**Significant at .01 level.

All correlations in Table 9 were significant at .01 level . Hence we reject the hypothesis that there was no significant relationship in performance among the three subjects for the white learners in integrated schools.

Non-White Learners

A similar analysis was done for the non-white learners now in the integrated schools. The hypothesis tested was that there was no relationship in the performance in (a) i.e. Afrikaans, English, Biology and (b) i.e. Mathematics, Biology, and Physical Science, i.e. $\rho_{xy} = 0$ in the three subject groupings.

Correlational Analysis Results

A random sample of 90 scores was selected to test the hypothesis of no relationship among the first group of subjects. The results were as follows:

Table 10

	English	Biology
Afrikaans.	.4675**	.2232
English-	_	.1475

**Significant at .01 level.

The hypothesis of no relationship between Afrikaans and English in table 10 was rejected at .01 level of significance but the hypothesis of no academic performance relationship between Biology and other subjects in Table 10 was accepted.

The results in Table 10 show that the performance of non-whites in English and Afrikaans was significantly related whereas the performance in these individual subjects was not related to Biology. The hypothesis for no relationship in English and Afrikaans was rejected whereas the no relationship hypothesis between the languages and Biology was accepted.

Table 11

	Biology	Physical Science
Mathematics	.4427*	.4059*
Biology	—	.3053

**Significant at .05 level.

A random sample of 34 scores was selected to test the hypothesis of no relationship among the second group of subjects indicated in Table 11. The results in Table 11 indicate that there were significant relationships between performance in Mathematics, Biology, and Physical Science and not a significant correlation between Biology and Physical Science. This

would partly explain the findings that although there was a significant difference in performance between white and non-white learners in Biology this was not the case in Physical Science. The hypothesis of no relationship between Mathematics and Physical Science was rejected at .05 level of significance and the hypothesis of no relationship between performance in Biology and Physical Science for the non-white learners was accepted.

Discussion of Correlational Analyses

The correlational analyses for the white learners indicated that there was a significant relationship in their performance in all the subjects included in the study whereas for the non-white learners, performance in Biology was not related to their performance in English, Afrikaans, and Physical Science - the latter being the same three subjects where there was no significant difference in academic performance between non-white and white learners in the integrated schools. The findings reinforce the view that the instruction in Biology for the non-white learners did not improve significantly during the two years after joining the former white schools compared with their competencies in English, Afrikaans, and Physical Science. It is interesting to note though that non-white learners' Mathematics performances was significantly related to their performance in Biology and in both these subjects the non-white learners performed significantly differently from their white counterparts.

Summary and Conclusion

The results of this study have not produced evidence to suggest that academic standards in Grade 12 when learners sat for their final senior secondary school exit public examinations, had fallen as a result of schools being racially integrated. Indeed, the findings substantiate the observation of the 42% of teachers who observed that academic standards of white learners had not been held back as a result of integration with other racial groups, and that academic standards had not fallen in their schools because of racial integration (Mkandawire, 1992a). It is evident to the researcher that the maintenance of academic standards in these schools to a large extent will depend on various factors some of which are as follows:

1. Successful integration - which should result in providing to all learners genuine social and learning environment in which it would be possible for all learners to interact, study together, facilitate formation of cross cultural friendships and social interdependence. In order to achieve this goal classroom teachers should foster classroom teaching strategies to facilitate interdependence among learners of all racial groups as they work on academic and non-academic assignments. Young (1932) has shown that it is not the mere frequency of contact but the nature of contact between members of different racial groups in class that promotes successful intergroup attitudes. Cooper et al (1973) have also emphasized that contact and interaction with cooperative content between non-white and white learners is a major determinant of successful school integration, this is very important at this particular point in time when the non-white learners are very much in the minority in these integrated schools.

2. The second factor is the quality of instructional process. Realizing the fact that the majority of the non-white learners who join the senior secondary schools come from junior secondary schools which are poorly resourced, the quality of instructional resources input must be flexible and adaptable to the entering academic behaviour of some of the academically disadvantaged learners during the two years they are preparing for the exit senior secondary school examinations. This could be done without sacrificing the learning progress of the advantaged white learners.

3. The third key factor is the quality of classroom practice which also depends on proper assessment procedures which should include diligent continuous assessment. If assessment is properly done by teachers and if they can integrate it with instruction, assessment can facilitate learning of their learners and provide teachers with useful information for monitoring academic quality of their learners and academic standards of their schools.

If teachers can incorporate the three key factors discussed above in their daily teaching strategies, which should be cooperatively structured, interactive and participatory, racially integrated schools would continue to produce high academic results from all their learners and continue to maintain the desired educational standards of their schools.

REFERENCES

Angula, N. (1990). *Change with continuity.* Educational reform directive. Ministry of Education and Culture Policy Statement, Namibia.

Cooper, L. et al. (1973). The effects of cooperative competitive and individualistic experiences on interpersonal attraction among heterogeneous peers and individualistic experiences on interpersonal attraction among heterogeneous peers. *Journal of Social Psychology, III*: 243-253.

Government Gazette 21. (1990). Publication of the Republic of Namibia, March 1990.

Mkandawire, D.S.J. (1992a). Integration in Namibian Schools. Unpublished research report submitted to the Government of the Federal Republic of Germany.

Mkandawire, D.S.J. (1992b). The academic achievement in liberal arts and science subjects of a fragmented Namibian secondary school system prior to independence. *Zimbabwe Journal of Educational Research, 4,1*: 17-31.

UNESCO. (1990). *In-service Teacher Education for Namibia.* A consultancy report submitted to the Government of the Republic of Namibia.

UNICEF. (1990). *Basic Education in Namibia.* A consultancy report submitted to the Government of the Republic of Namibia.

Young, D. (1932). *American minority people: a study in racial cultural conflict in the United States.* Harper & Row, New York.