

Tracking Reading Achievement Lag at Primary School Level in Manicaland Province, Zimbabwe

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Abstract: The study sought to determine the magnitude reading achievement lag (if any) caused by world economic crisis and in particular in Zimbabwe when the country experienced its worst economic crisis between 2006 and 2008. During this period most teachers left the profession due to what were perceived to be meaningless salaries. Regressed and subdued teaching was experienced during this period. A random sample size of 10727 pupils (5291 boys and 5436 girls) from four districts in Manicaland Province participated in the study. Three hypotheses were generated and tested at 0.01 level of significance. The results show a significant relationship (0.99) between the grade of the pupil (years in school) and performance lag. The achievement gap widens with an increase in the number of years in school. Urban schools are better off than peri-urban and rural. Rural schools achieved the least. On average 96.3% grade 4 pupils, 94.6% grade 5 pupils and 93.3% grade 6 pupils were achieving below their grade levels. The difference between expected achievement and actual achievement was significant at each grade level.

Keywords: Achievement, Lag, Reading.

1. Introduction

The purpose of study is to determine the magnitude of reading achievement gap (if any) in Manicaland Province, caused by economic melt-down between 2006 and 2008 in Zimbabwe when the annual inflation rose from 1000% in 2006 to 7,982.1% in 2007 and to a record 66,212.1% in 2008 (Cutler, 2008)

Primary education in Zimbabwe is a seven year cycle with pupils starting grade one at the age of six and completing grade seven at the age of twelve years. At the end of grade seven pupils take the national public examination in four subjects namely; Mathematics, General paper, English and Shona/Ndebele (Nkoma, et al, 2013). In 1980 the government of Zimbabwe introduced automatic promotion from one grade to the next and repeating a grade can only be considered at parental request or under very special circumstances. The concept of passing or failing does not apply to the grade seven examinations as all learners are expected to proceed to secondary education. The number of units a candidate accumulates from all the four subjects is indicative of the level of performance. Pupils who score fewer units are regarded as better performers than those with more units (Kanyongo, 2005).

Makopa (2011) noted that the performance of the Zimbabwe education system seemed stable from 1995 up to 2000. The situation began to deteriorate from 2001 when Zimbabwe experienced rates of inflation above 100% annually and from 2006 this rose to over 1,500% annually (MaIndoe-Calder, 2011). The reasons given for the high inflation were: firstly the private sector bid up prices speculatively in order to maximize profit and exert pressure in the economy (Reserve Bank of Zimbabwe, 2006 p6) and secondly the negative aid shocks and international sanctions contributed to the decline of the economy since 2000 (Reserve Bank of Zimbabwe, 2008 p97). The world experienced its worst financial and economic crisis between 2008 and 2009, since the great depression of the 1930s (United Nations, 2011) and Zimbabwe's inflation rose uncontrollably in 2008 rendering the Zimbabwean dollar valueless. Between 2007 and the end of 2009 there was an unprecedented increase in the numbers unemployed (International Monetary Fund and International

Labour Organisation 2010). The world economic crisis and the targeted sanctions had serious negative effects on Zimbabwean economy. The Zimbabwean economy had contracted in real terms in each of the past five years, inflation was in triple digits, the local currency had lost 99% of its value and almost half of the country faced food shortages and up to one-quarter of the population has fled the country (Clemens and Moss, 2005). The study focused on the period between 2006 and 2008 when the education system Zimbabwe experienced regressed learning and subdued teaching due to frequent teachers' strikes caused by the economic crisis. During this period children and youth were pressured to augment family incomes, resulting in school absences or high school dropout rates.

Makopa (2011) noted that economic sanctions affected the performance of the country's economy and particularly the education system in the following areas: decreased per capita grants, qualified teachers left the profession for neighboring countries and abroad due to hyperinflation and inadequate supervision by Education Officers. This is reinforced by Chakanyuka, et. al. (2009) who attributed decreased performance in Zimbabwe to low book to pupil ratio and rural schools which experienced high staff turnover.

It is against this background that the study sought to find the magnitude of achievement lag in reading between 2006 and 2008. In December, 2008 Zimbabwe's annualized inflation rate was at a record 66,212.3 %. Studies have indicated that, self-esteem, gender, motivation and interest towards reading, parents education, socioeconomic factors and culture capital, situation at home and ethnicity influence reading literacy level (Elley 1994; Lehmann 1996; Fredrikson 2002). Gesken and Ozola (2008) found socioeconomic factors in the family to have the greatest impact behind low level reading literacy among primary level students. Most of these characteristics were at their lowest ebb during the country's economic meltdown. A family incident such as an illness or a parent losing a job, or a school losing its only teacher or being unable to repair its leaky roof is often enough to stall their schooling permanently (World Bank 2009a). Most parents did not have sources of income and students were not going to school the factors which correlate with academic achievements of students Song, 2012). Income losses in Zimbabwe have been greater than those experienced during conflicts in Cote d'Ivoire, Democratic Republic of Congo, and Sierra Leon and donors withdrew hundreds of millions of dollars in aid from Zimbabwe (Clemens and Ross, 2005).

Van de Broek, et. al. (2005) reports that the ability to read is essential for successful functioning of society and is the most important survival skills to teach our children. McGee and Johnson, (2003, p.49) reinforces this by stating that when children have difficulties to read and comprehend at an early stage they will have serious difficulties in studying other subjects. At approximately grade four children turn from learning to read to reading to learn (Geske and Ozola, 2008).

Studies have indicated that frequent teacher absences reduce student learning, in some cases, by substantial amounts (Miller, Murnane, and Willet 2007; Duflo, Hanna, and Ryan 2008; Rogers and Vegas 2009). According to Thornicraft (1994:34) educational outcomes are a function of student background characteristics, their family inputs, peer influences and school inputs. The deterioration has seen buildings falling into despair and teaching materials disappearing. Huge numbers of teachers left the service and the country due to meaningless salary. By 2008 those remaining spent more time on strikes than actually teaching and they could not earn enough to buy food. Tens of thousands of children dropped out of school because it was worth the effort of staying to learn very little and then to fail examinations after paying high fees (WOZA, 2010).

The year 2009 marked the return of some qualified teachers to schools after the introduction of a multi-currency system and the stabilization of the socio-political situation and teaching resumed but without redress to teaching time and regressed learning between 2006 and 2008 (Nkoma, et. al 2013). School children had gone for approximately two and a half years without adequate and effective teaching. The lead researcher was an Educational Psychologist in Manicaland Region who observed that classroom practitioners are focusing on current grade/form syllabi thus teaching without considering the child's last point of success. The current resurgence in private tutorship in the education sector may partly be driven by the stakeholders' realization of the achievement lag. Schools have introduced extra-lessons during weekends and school holidays after arguably realizing the learners' achievement lags across the spectrum of study subjects. These measures in Zimbabwe have been generally ineffective and have done very little to modify the learners scholastic achievement in public schools (Nkoma, et. al. 2011). The results of study on 6th graders by Makopa,

(2011) indicated that there were problems in the provision of teaching and learning resources in the Zimbabwe primary schools.

Although much recent research has been directed at understanding the socioeconomic gap in academic achievement, few studies have empirically examined how this gap can be attributed to economic meltdown in developing countries (Nyagura, 1991; Nyagura and Reece, 1990; Nyagura and Riddell, 1991; Dambudzo, 1998). For students to succeed academically they need reading skills because most areas in the school curriculum require these to acquire new information. Van de Broek., et. al (2005) reports that the ability to read is essential for successful functioning of society and is the most important survival skills to teach our children. McGee and Johnson, (2003, p.49) reinforces this by stating that when children have difficulties to read and comprehend at an early stage they will have serious difficulties in studying other subjects. The purpose of this research is to determine the magnitude of achievement lag in reading with a view of suggesting appropriate intervention strategies.

1.1 Statement of the Problem

Students have not had adequate and effective teaching for approximately two and half years and schools have adopted extra lessons without considering students' prior-knowledge to begin planning and instruction. According to Ausubel cited by Hassard (2003) students learn meaningfully if they relate new knowledge to what they already know. Thus teachers are emphasizing on rote learning in contrast to meaningful learning. It seems that teachers in the primary school setting are assuming that 'one size fits all'. The extra lesson is expected to lead to learning gains irrespective of the prior learning experience of the students. It seems problematic that students should be expected to improve in their performance when they do not have the experience from which to scaffold any new learning that they receive. Therefore there is need to empirically establish whether the students are achieving reading levels that are being expected by the teachers and to find out the possibility of some students achieving at higher levels that would be expected. Therefore, there is need to determine the achievement lag in reading at Primary school level with a view of suggesting instructional strategies.

1.2 Purpose of the Study

The study seeks to determine the magnitude achievement lag (if any) of pupils in reading and also compare schools' achievement by location. This will allow appropriate recommendations to address the problem.

1.3 Hypotheses

1. Pupils are not achieving at a significantly lower level than the grade there are in.
2. There are no significant differences in pupils' achievement according to location.
3. There is no significant relationship between the number of years students' have been in school and their achievement backlog.

2. Research Methodology

The researchers opted for quantitative research design because it uses objective and mechanical measures (achievement tests) which provides numerical data which can be statistically and mostly also interpreted according to statistical indices (Berg and Theron, 2009).

Sampling

Manicaland Province has seven districts and four districts were randomly selected. Schools were stratified according to location (i.e. rural, peri-urban and urban) with the exception of Mutasa district which is all rural. A total of 115 schools were randomly selected from the districts.

To ensure a representative sample was done randomly, the Zimbabwe school examinations council grade seven examinations rankings of 2009 in Manicaland were used in each district. Within the stratified locations every sixth school per district per grading was picked. Boarding and private schools (mission or trust) schools were excluded from the sample.

Table-1 Sample of the Schools

DISTRICT	PRIMARY	Urban	Peri-urban	Rural
Mutasa	11	-	-	11
Mutare	19	8	4	7

Chipinge	6	1	-	5
Makoni	29	4	1	24
Total	65	13	5	47

The above table show the number of schools sampled per district. Variations in number of schools per district are due to number of schools per district with Makoni having the highest and Mutasa having the least. The table includes a breakdown as per location.

Achievement tests were administered to students from grades four to six at primary school level. Grades one to three pupils were exempted from the study because they did not experience the regressed learning between 2006 and 2008. Grades seven pupils were exempted because they were examination candidates.

At school level, researchers randomly selected students from all streams in grades four to six. The school register was stratified by sex and every third name was picked for the study. Respondents were selected from all streams regardless of ability. This resulted in a total of 10727 students who participated in the study, with breakdown tabulated below:

Table-2 Breakdown of Male and Female Schools

DISTRICT	Male	Female	Total
Mutasa	545	530	1075
Mutare	2289	2472	4761
Chipinge	447	414	861
Makoni	2010	2020	4030
Total	5291	5436	10727

2.1 Research instruments

The adapted Wide Range Achievement Test (L1) revised –reading subtest was used. See Annex 1. The test is accepted by the Zimbabwe Ministry of Education, Sport, Arts and Culture.

The test resulted in scores which were translated grade and term equivalent using the relevant scale. The tests were administered midway during the year and therefore the analysis was based on expected scores for midyear performance. In analysis the actual scores were compared to the expected scores. The Zimbabwe school calendar year consists of three terms and each term has three months.

Tests were administered in a class set-up. Two students were allowed a desk and the classroom would have a maximum of thirty students. Two invigilators were assigned per class and the test lasted thirty minutes.

2.2 Time Frame

The research design was set up in early June. Assessments started on 22 July and ended on 04 August, 2010. Marking of scripts began on 07 August and ended on 22 September, 2010.

2.3 Data Processing

Data entry formats were created in Excel and SPSS. A team of fifteen data entry clerks worked for three full days to process the data in Mutare. Data cleaning and supervision was done by the core research team to check for data entry errors, inconsistencies in data entry and completeness of the data entered.

2.4 Data Analysis

Data was analyzed using SPSS. The sample size was large enough to allow for inferential statistics.

The student t-test was used for independent samples for example how urban and rural schools differ in reading achievement. Regression analysis and Pearson-r was used to measure the association between variables.

The analysis relied on raw scores entered and results were translated grade/form equivalence for purposes of interpretation. To enable regression analysis in SPSS the scores were translated to a uniform measure of grade/term equivalence. The tables used for translation are attached in annex 2. The education system in Zimbabwe is a calendar year consisting of three school terms. Each term has three months, hence the learning time is nine months.

3. Results

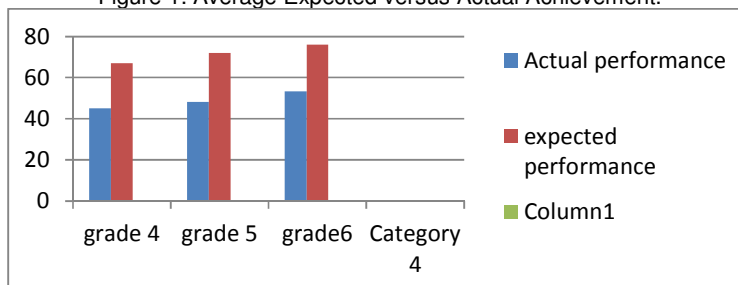
The first hypothesis states that pupils do not achieve at a significantly lower level than the grade they are in. To test this, the overall numbers of pupils performing below grade, at grade equivalent and above grade level were transformed to percentages and also the average performance of all students in the sample per level was analyzed.

Table-3 The percentage of pupils achieving below and above expected level

	Number of students			
		Below expected(<)	Expected(=)	Above expected(>)
Grade 4	N	3720	39	102
	%	96.3%	1%	2.7%
Grade 5	N	3064	41	140
	%	94.6%	1.2%	4.2%
Grade 6	N	3377	42	202
	%	93.3%	1.2%	5.5%

Table 3 indicates pupils achievements as below, equal and above grade level there are in. Most pupils (above 93%) are achieving below expected grade level with the highest percentage at grade 4 (96.3%) and the least at grade 6 with 93.3% of pupils who perform below the expected grade level. Around 1% of pupils are achieving at grade equivalent. Pupils achieving above grade level ranged from 2.7% at grade 4 to 5.5% at grade sixth grade level.

Figure 1: Average Expected versus Actual Achievement.



The graph show that at all levels the pupils' achievement is far below the expectations in 'Red'. The figures compare the obtained mean scores with the expected score per grade. The expected score is equivalent to the current grade level of pupils. The obtained mean score of pupils in each grade is transformed into grade equivalence. The differences were tested for significance using the t-test and they were highly significant at 1% confidence level. Table 4 below clarifies this.

Table-4. Comparison between actual achievement and expected achievement according to grade.

Level	Mean achievement			t-value
	Expected score	Current average score	Std dev	
Grade 4	67	45.04	7.036	-114.424***
Grade 5	72	48.25	7.897	-97.085***
Grade 6	76	53.37	8.766	-96.584***

***significant at 1%

Table 5 below show expected average achievement per level vis a vis the actual average achievement. This gives a clear indication of the magnitude of the backlog.

Table-5: Achievement lags in terms.

Expected achievement	Actual achievement	Achievement lag
Grade 4	1E	2 Years

Grade 5	2B	3 Years
Grade 6	2M	3 Years,2 terms
Correlation between grade (years in school) and achievement lag 0.99***		
Overall performance lag 2 years 2 terms		

The table above indicates that grade 4 pupils are achieving at upper-first grade level (1E), while fifth graders are at lower (bottom) second grade (2B). Sixth grade pupils are achieving at mid-second grade level (2M). The average achievement lag is 2 years. The table also indicates a widening achievement gap as pupils go up grades. The magnitude of the correlation is high (0.99) and significant at 1% between the grade of the student (years in school) and achievement lag.

The second hypothesis states that there are no significant differences in achievement levels by school location. To test this, a t-test was used to compare achievement levels in different locations. That is urban versus rural pupils, urban versus peri-urban and peri-urban versus rural.

Table-6: Differences in achievement between urban and rural pupils.

School location				Achievement lag(in terms)	t-value
Urban		Peri-urban			
Mean	Standard deviation	Mean	Standard deviation		
57.38 (n=3613)	8.008	42.72 (n=1102)	7.252	2	18.392***

*** Significant at 1%

The above table indicates that urban pupils are two terms ahead of peri-urban pupils in reading ability and this significant at 1%. Urban pupils are achieving at upper second grade while rural pupils are performing at upper first grade level.

Table-7: Differences in achievement levels between urban and rural pupils

School location				Achievement lag (in terms)	t-value
Urban		Rural			
Mean	Standard deviation	Mean	Standard deviation		
57.48 (n=3613)	5.182	32.53 (n=6012)	7.252	3	18.392***

***significant at 1%

Urban schools are a year (3 terms) ahead of rural schools. Urban schools are achieving at upper-second level while rural pupils are at lower-first grade level.

Table-8: differences in achievement levels between rural and peri-urban pupils

School location				Achievement lag (in terms)	t-value
Peri-urban		Rural			
Mean	Standard deviation	Mean	Standard deviation		
42.72 (n=1102)	7.252	32.53 (n=6012)	6.916	1	13.376***

***significant at 1%

The difference between rural and peri-urban pupils is significant at 1%. Peri-urban pupils are one term (3 months) ahead of rural schools in reading achievement. Peri-urban schools are achieving at upper-first grade while rural schools are at lower- first grade.

In general urban pupils are better off than pri-urban and peri-urban better than rural (urban>peri-urban>rural)

The third hypothesis seeks to determine if there is a significant relationship between the number of years students' have been in school and their achievement backlog.

Table-9: Coefficients from variables determining magnitude of performance lag.
Unstandardized coefficient of significant correlation (OLS)

Change in 1 unit in:	Reading
Number of school years	0.545
Location of school	-0.635
School name	-0.013
Age	-0.124
Sex	0.24

Coefficient is in grades: 1=1 grade; 0.3=1 term; 0.6=2 terms; 0.9=3 terms. Negative means with each extra unit a lower achievement. Positive means with each extra unit a higher achievement lag.

Table 6 indicates that the location of schools is the most responsible variable influencing the degree of achievement lag and this is followed by the number of years a respondent has spent in school.

Table-10: OLS Results showing level of achievement using grade/term

	Unstandardized Coefficients		Standardized Coefficients	t-value	significance
	B	Std. Error	Beta		
(Constant)	2.727	0.022		124.679	0.000***
Number of years in school	0.545	0.007	0.339	60.609	0.000***
Location of school	-0.635	0.003	-0.416	-27.387	0.000***
Name of district	-0.067	0.014	-0.044	-1.679	0.080*
Name of school	-0.013	0.001	-0.062	-33.025	0.000***
Sex	0.240	0.005	0.085	52.108	0.000***
Age	-0.124	0.002	-0.127	-2.120	0.033**

Table 6 indicates that the number of school years and location contribute significantly to achievement lag. To re-enforce the latter conclusion, a statistical test on the relationship between years in school (grade of pupil) and the performance lag show a high significant correlation between performance lag and the number of years in school (refer to table 2 above). This indicates the performance gap widens with an increase in the number of years in school.

For the purpose of regression analysis the reading scores were translated to grade equivalents. A variable was created showing performance lags in terms, which formed the basis for multiple regression analysis. Multiple OLS regression with 'performance lag' as a dependant variable shows a significant positive relation between the number of years in school and performance lag. Approximately 1 year longer in school increases the performance lag on average with a time span of between 1 and 2 terms (refer to table 6/7 above).

4. Discussion

The results indicate a strong relationship between achievement lag and the number of years in school and the performance gap widens with an increase in the number of years in school. The lack of human and material resources caused by the economic melt-down from 2006 to 2008 can account for this. Carron & Chau, (1996) concur when they observed that student without the basic resources in their environments and in schools are most likely to perform poorly as a result of the learning difficulties they experience within their classrooms. The results are at par with a study done by Song, (2012) who found that instructional time loss is significantly associated with poor performance. Studies have indicated that frequent teacher absences reduce student learning, in some cases, by substantial amounts (Miller, Murnane, and Willet 2007; Duflo, Hanna, and Ryan 2008; Rogers and Vegas 2009). Studies by Casassus et al, 2002; Martin et al, 2007 and Ma, 2008 indicate that learning disparities fall along faulty-lines like poverty, rural-urban residence, and parental education among others. The under-achievement or achievement below grade level of pupils might be due to several intertwined factors such as unemployment of caregivers, pupils' absences in order to augment parent incomes, dilapidated school structures, and poor school and human resources. Rural schools which had the lowest achievement levels could be the hardest hit along these lines.

5. Conclusion

The results indicate that most pupils are achieving below their grade levels and there is a strong positive relationship between achievement lag and number of years in school. The gap of achievement lag increases with the number of school years. Urban schools have higher achievements in reading ability than peri-urban and rural schools. Rural schools have the least achievement in reading.

6. Recommendations

Closing the reading achievement gap takes consented effort because it takes several years to catch-up especially those in upper grades with wider achievement gaps. Valid and reliable assessment tools should be used to screen high and low achieving pupils. Classroom planning and instruction should focus on individual needs of pupils and more instructional being given to poorest readers. Teachers would gradually reduce the amount of attention as pupils develop better reading skills. Hence pupils need more teacher-directed reading lessons targeted to their specific instructional needs.

The child's family needs to know the child's reading gap and share the schools' and teachers' expectations for their pupils. The home environment should be supportive of learning. Adequate resources should be provided in schools to ensure quality education by The Ministry of Education, Sport, Arts and Culture. The government should enact policies that address the achievement gap for example improving resources to raise pupils' academic achievement and a strong monitoring system.

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