

Assesment Accommodations as Predictors of Academic Achievement of Learners with Physical Disabilities Inrwanda.

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Abstract: Poor academic achievement of learners with Physical Disabilities poses a serious challenge in Rwanda. Guided by the belief that assessment accommodations can greatly influence academic achievement of learners with Special Needs Education, including those with Physical Disabilities, this study sought to determine the degree to which assessment accommodations predict academic achievement of learners with Physical Disabilities in inclusive primary schools in Southern Province and Kigali City. A correlation research design was adopted. Target population was 1480 respondents including 113 Headteachers, 1366 teachers and one Head of examination, selection and assessment department at Rwanda Education Board. A sample of 79 respondents including 11 Headteachers, 66 teachers and one head of department was drawn using purposive sampling, and stratified sampling techniques. The data collected were analyzed using both descriptive and inferential statistics. Percentages and frequencies were used to describe assessment accommodations and Person Product Moment Correlation Coefficient was used to establish relationship between variables. Multiple Regression analysis was used to measure the quality of the prediction of academic achievement of learners with Physical Disabilities. Qualitative data was analysed using thematic approach and verbatim reporting. The study found that all assessment accommodations are powerful predictors of academic achievement of learners with Physical Disabilities (provision of extra time ($r(64) = .707, p = .001$), provision of rest break, ($r(64) = .246, p = .047$), provision of special venue ($r(64) = .481, p = .001$), and provision of scribes ($r(64) = .731, p = .001$). It was then recommended that Ministry of Education through Rwanda Education Board should re-examine testing procedures for learners with Physical Disabilities and make the necessary adaptations to cater for their diverse needs especially during examinations.

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I. Introduction

Education is one of the most effective ways to break the cycle of discrimination and poverty that children with disabilities often face. Denying children with disabilities their right to education has a lifelong impact on learning, achievement and employment opportunities, hence hindering their potential economic, social and human development (UNESCO, 2018).

While access to school has significantly improved in the past 15 years, nearly 60 million schoolage children remain out of school around the world. Approximately one-third of these out-of-school children have some form of disability. (World Report on Disability, 2011). Children with disabilities are especially at a disadvantage in terms of school enrollment, educational attainment, and learning. Many children with disabilities never enroll in school, or drop out prematurely. They also often learn less while in school (Rigaud, 2017). Ensuring that these children have the same opportunities as other children is a challenge in almost every country.

Standardized tests are a common part of educational systems throughout the world. However, some aspects of standardized testing make the administration of these tests infeasible or unfair to certain students, particularly students with disabilities. To address this problem, many tests are altered, or the test administration conditions are adjusted, to accommodate the special needs of these students. This practice is designed to level the playing field so that the format of the test or the test administration conditions do not unduly prevent such students from demonstrating their true knowledge, skills, and abilities. (Cormier, Altman, Shyyan, & Thurlow (2010).

Several studies all around the world demonstrated positive effect of testing accommodations on academic achievements of learners with disabilities.

Thompson, Blount, & Thurlow (2002) conducted a study on the effect of three accommodations (computer administration, oral presentation and extended time) on academic achievements of students with

Disabilities. All these three accommodations showed a positive effect on student test scores in mathematics, science, social studies and English.

Crawford & Geller (2013) also conducted a literature review in this area. They concluded that Students with Disabilities (SWD) had significant score gains under the accommodation condition, but the gain was small (.16 of a standard deviation unit). Looking at specific accommodations, Crawford & Geller found that extended time only slightly helped SWD more than it helped students without disabilities. The average effect size gain for SWD under the condition of extended time was .37 standard deviation units, but it was .30 for students without disabilities.

Lovet & Leja (2013) investigated score gains for students with learning disabilities (SWLD) and students without disabilities who took the SAT once in their junior year of high school and once in their senior year. They found a positive relationship between amount of extended time and score gain; that is, the more extended time given to a SWLD, the greater their score improvement.

Li, (2014) examined the effects of a read aloud accommodation on the test performance of middle school students with a Reading Learning Disability (LD-R) and students without a disability. The results of the study indicated that, on average, the LD-R students scored significantly higher under the read aloud accommodation. However, this finding held for the students without disabilities, too. Although the score gains under the read aloud condition for LD-R students (about .75 standard deviations) was larger than the gain for students without a disability (about .50 standard deviations), the interaction was not statistically significant.

Joakim (2015) carried out a study on 'help me fail: A study on testing accommodations for students with disabilities in writing assessments' in South Korea. The researcher used a descriptive survey design and targeted students. In the findings, students with disabilities believed they scored better when using modified answer sheets than when they did not.

Brumfield (2014) carried out a study on 'the effectiveness of reading accommodations for high school students with reading disabilities'. His research design was descriptive and target population were students with reading difficulties and teachers. Findings established that there are benefits for students with learning disabilities when receiving scribes in comparison to students without disabilities.

Lin & Lin (2014) carried out a study on 'the impact of setting accommodation on large-scale assessment of English language learners with and without learning disabilities in USA'. The study used a correlation research design and the target population were learners with and without learning disabilities and their teachers. Findings revealed that there was no significant evidence indicating a benefit of separate venue setting for learners with disabilities on a large scale assessment.

In Africa, there has been much discussion about the impact assessment accommodations have on test results. Although this remains a valid concern, there is little empirical information available that directly addresses this concern. Several reports in Uganda, Kenya, Tanzania and Rwanda highlighted the issue of examinations procedures that do not favor learners with Disabilities. The issues touched on grading, time allocation and mode of presentation of examination papers (Kimondi, 2012; Moyi, 2012; Kapanga, 2013, VSO, 2015).

In Rwanda, several studies established that learners with Physical Disabilities continue to lag behind academically. Reasons cited include: inaccessibility of schools' environment, lack of adapted instructional materials and poor teaching strategies (HI, 2016, Bots, 2015, Mattingly and Suubi, 2015). However, in some inclusive schools where teachers have been trained in inclusive teaching methodologies, where schools' facilities are accessible and adapted, learners with Physical Disabilities still perform dismally in Primary Leaving National Examinations. Do inappropriate assessment accommodations influence academic achievement of learners with PD? There is a paucity of literature examining the implication of assessment accommodations on academic achievement of learners with Physical Disabilities in Rwanda.

Purpose of the study

The purpose of the study was to determine the degree to which assessment accommodations predict academic achievement of learners with Physical Disabilities in inclusive primary schools in Southern Province and Kigali City, Rwanda

Research Questions

- i. What is the level of academic achievement of learners with Physical Disabilities in Primary Leaving National examinations?
- ii. What types of assessment accommodations are available for learners with Physical Disabilities during the National examinations?
- iii. Is there any relationship between assessment accommodations and academic achievements of learners with Physical Disabilities in National examinations?

Research Hypothesis

- i. There is no significant relationship between assessment accommodations (extended time, separate venue, special venue and scribes) and academic achievement of learners with Physical Disabilities in inclusive primary schools in Southern Province and Kigali City, Rwanda.

II. Materials and Methods

Study design

This study adopted a correlation research design. Kamoso (2015) states that correlation design determines relationships between variables in order to make meaningful predictions. Therefore, a correlation research design was suitable for this study because the major purpose of this study was to determine the degree to which assessment accommodations predict academic achievement of learners with Physical Disabilities in Southern province and Kigali City.

Target population and Sample size

The target population for this study was all head teachers of the 113 inclusive primary schools, 1366 primary school teachers, and one National head of department at Rwanda Education Board (National Head of Examinations, Selection and Assessments department). The target population was therefore 1480 respondents. A sample size of 78 respondents, including 11 head teachers, 66 teachers, and one National Head of Department at Rwanda Education Board were selected using purposive sampling technique and stratified sampling technique.

Subjects and selection methods

Two inclusive boarding schools, two inclusive model schools and seven regular schools were purposively selected to be part of the study. Head teachers of the schools were also purposively selected. Three teachers per school teaching Mathematics, Science and English were selected and stratified sampling technique was used to select them. Head of department at Rwanda Education Board was purposively selected.

Instruments

To achieve the objectives of the study data was collected using questionnaire. This was administered to Headteachers and to teachers. Interview Guide was administered to Head of Department at REB and Document Analysis Guide was used to capture information on the academic achievements of learners with Physical Disabilities from 2016 to 2018.

Inclusion Criteria:

1. Learners with Physical Disabilities (They constitute the majority of learners with Disabilities in schools, representing 39.6% of all learners with Disabilities)
2. Inclusive public primary schools (Boarding, inclusive model schools and regular schools accommodating a large number of learners with Physical Disabilities)
3. Learners with Physical Disabilities following the regular curricula and therefore able to sit for National Examinations

Exclusion criteria:

1. Private inclusive primary schools
2. Learners with Physical Disabilities who might have other conditions like Intellectual Disabilities
3. Subjects which are not examinable during the National Examinations

Data analysis

Descriptive statistics were used to analyze quantitative data for this study. Specifically, frequencies and percentages were used to describe available assessment accommodations. Furthermore, Pearson Product Moment Correlation Coefficient(r) was used to show the correlation between assessment accommodations and academic achievement of learners with Physical Disabilities. Finally, Multiple Regression analysis was used to determine the quality of prediction of each of assessment accommodations on academic achievement.

III. Results

Research Question 1: What is the level of academic achievement of learners with Physical Disabilities in Primary Leaving National examinations? To answer this research question, frequency distribution and percentages were used. The National Exams results from 2016 to 2018 of the eleven schools were analysed and table 3.1 depicts the findings.

Table 3.1. Academic achievements of learners with Physical Disabilities in national Exams

Categories	Year 2016		Year 2017		Year 2018	
	Freq	%	Freq	%	Freq	%
Division I	5	1.45%	9	2.72%	17	4.52%
Division II	29	8.43%	28	8.46	35	9.31%
Division III	76	22%	68	20.5%	107	28.4%
Division IV	105	30.5%	95	28.7%	99	26.3%
Division V	129	37.5	131	39.5%	118	31.3%
Total	334	100%	331	100%	376	100%

Source: National Exams results

From table 3.1 it is apparent that the majority of learners with Physical Disabilities in the schools under investigation performed poorly in Primary Leaving National Examinations. The details in the table show that majority, 68. % in 2016, 68.2% in 2017 and 57.6% in 2018 of learners with Physical Disabilities fall under division four and five. This means that these students were only allowed to attend public day secondary schools. Poor academic achievement of learners with Physical Disabilities has also been reported by teachers who were asked to rate the academic achievement of learners with PD and their answers are shown in the figure 3.1.

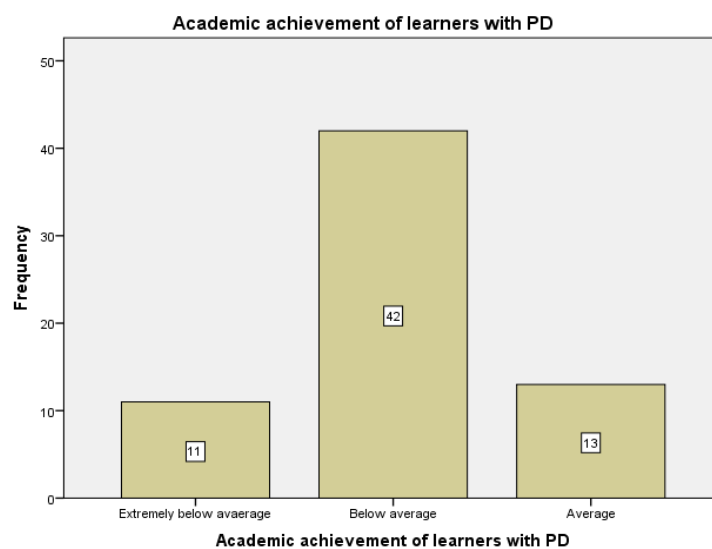


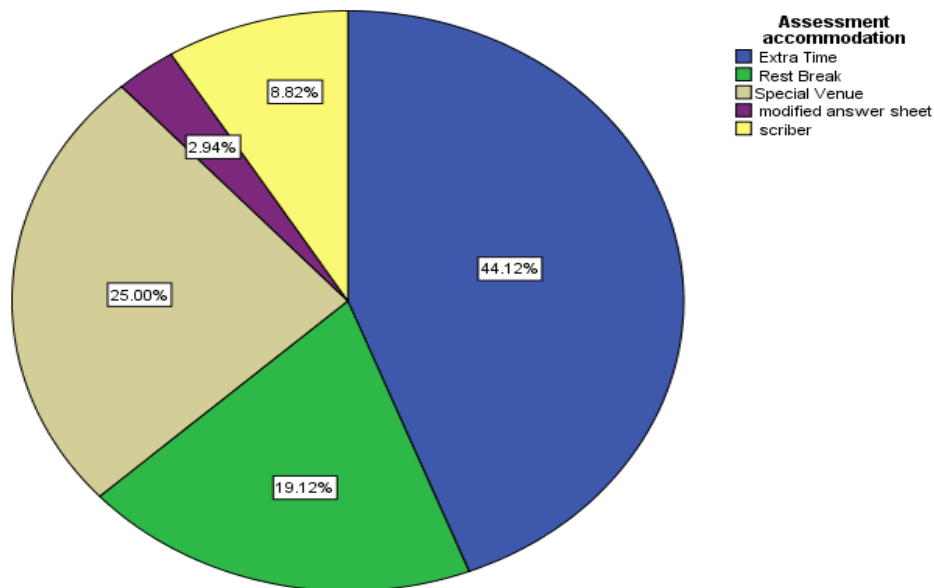
Figure 3.1: Academic Achievements of learners with PD

The figure above showed that of all the 66 teachers sampled, 42 teachers rated the academic achievement of learners with PD as below average, 13 and 11 teachers rated the academic achievement of learners with PD as average and extremely below average respectively.

Research Question 2: What types of assessment accommodations are available for learners with Physical Disabilities during the National examinations?

To answer to this research question, teachers were asked to indicate the accommodations they provide to learners with Physical Disabilities during classroom exams and assessments. Theirs responses are shown in the figure 3.2. An interview with the National Head of Examination, Selection and Assessment was also conducted to triangulate findings from teachers.

Provision of accommodations during examination and assesment



From the figure 3.2, the provision of extra time was the most given accommodation during exams and assessments by teachers, 30(44%), followed by the provision of special venue which was given by 17(25%) teachers. Rest break was reported to be provided by only 13(19.1%) teachers, while modified answer sheet and provision of scribe were the least provided accommodations by 2(2.9%) and 6(8.8%) of teachers respectively. These finding seemed to indicate that teachers were not giving accommodations to learners with Physical Disabilities during examinations and assessments.

During the interview with the Head of Examination, Selection and Assessments at Rwanda Education Board, he was asked whether they provide some accommodations during the national exams and large scale assessments, he commented:

“We do our best to provide some accommodations if we know in advance what kind of accommodations a learner might need. For example, last time we heard a case of learner with Physical Disability who could not write and we gave him oral exams.”

Asked whether they give special considerations to learners with Physical Disabilities who might have bad to read handwritings due to uncoordinated hands movements, especially when they are marking exams papers. He replied:

“To be honest, we are not even aware of such situation. We used to get those kinds of papers but we thought they were just for the very worse learners, those who are below average”.

Asked whether he think that the lack of accommodations during national exams affect academic achievement of learners with Physical Disabilities, he put this into perspective:

“Obviously yes. If a child with Physical Disability who is slow in writing is not given an extra time for example, he/ she will not be able to finish the whole items and this will eventually affect his/ her academic achievement.”

From these statements, it was apparent that the Ministry of Education through Rwanda Education Board was ready to provide necessary and reasonable accommodations during the National Examinations. However, the challenge remained the lack of proper mechanism and guidelines on how to provide accommodations to learners with Physical Disabilities.

Research Question 3: Is there any relationship between assessment accommodations and academic achievements of learners with Physical Disabilities in National examinations?

To answer to this research question, Pearson Product Moment Correlation Coefficient(r) and Multiple Regression were computed. Results are indicted in Table 3.2 and Table 3.3 respectively.

Table 3.2. Relationship between assessment accommodations and academic achievement of learners with Physical Disabilities

		Correlations				
		Academic achievement of learners with PD	Provision of extra time	Provision of Rest Break	Provision of Special Venue	Provision of scriber
Academic achievement of learners with PD	Pearson Correlation	1	.707**	.246*	.481**	.731**
	Sig. (2-tailed)		.000	.047	.000	.000
	N	66	66	66	66	66
Provision of extra time	Pearson Correlation	.707**	1	.236	.410**	.684**
	Sig. (2-tailed)	.000		.057	.001	.000
	N	66	66	66	66	66
Provision of Rest Break	Pearson Correlation	.246*	.236	1	.129	.214
	Sig. (2-tailed)	.047	.057		.302	.085
	N	66	66	66	66	66
Provision of Special Venue	Pearson Correlation	.481**	.410**	.129	1	.422**
	Sig. (2-tailed)	.000	.001	.302		.000
	N	66	66	66	66	66
Provision of scriber	Pearson Correlation	.731**	.684**	.214	.422**	1
	Sig. (2-tailed)	.000	.000	.085	.000	
	N	66	66	66	66	66

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

It can be seen on Table 3.2 that there is a greater relationship between the provision of extra time and academic achievement of learners with Physical Disabilities, $r(64) = 0.707, p = 0.001$. This implies that the more students with Physical Disabilities are given extra time to finish their work, their academic achievements increases.

A look at the table 3.2 also indicates that there is positive but weak relationship between the provision of rest break and academic achievement of learners with Physical Disabilities, $r(64) = 0.246, p = 0.046$. This implies that learners with Physical Disabilities who experience weakness of the muscles will improve their academic achievements when provided with the rest break during the examinations.

From the table 3.2 it is apparent that there is a high positive relationship between the provision of scribes and academic achievement of learners with Physical Disabilities, $r(64) = 0.731, p = 0.001$. This implies that learners with Physical Disabilities who are unable to write due to different conditions will improve their academic achievement if provided with the scribes who will help them in writing down their answers.

It can also be seen from the table 3.2 that there is a high and positive relationship between the provision of special venue and academic achievement of learners with Physical Disabilities, $r(64) = 0.481, p = 0.001$. This implies that learners with Physical Disabilities who are not comfortable in a particular place due to many reasons might be given special venue during examination and this will have a positive impact on their academic achievement.

To establish the extent to which assessment accommodations predict the academic achievement of learners with Physical Disabilities, Multiple Regression analysis was computed. Table 3.3 indicates the results:

Table 3.3. Assessment accommodations as predictor of academic achievements of learners with Physical Disabilities

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.798 ^a	.637	.613	.46347

a. Predictors: (Constant), Provision of scriber, Provision of Rest Break, Provision of Special Venue, Provision of extra time

From the table 3.3, the coefficient of determination ($R^2 = .637$) indicates that the provision of assessment accommodations accounted for 63.7% of the variations in the academic achievement of learners with Physical Disabilities in inclusive primary schools. The provision of assessment accommodation is therefore a good predictor of academic achievement of learners with Physical Disabilities. To this end, the Null Hypothesis

which stated that “There is no significant relationship between the provision of assessment and academic achievement of learners with Physical Disabilities in inclusive primary schools in Southern Province and Kigali City, Rwanda is rejected.

IV. Discussions

It not enough to go through schools, learning counts more. For learners with Disabilities, this seems to be true. Though much has been done to improve access to schools for learners with Disabilities, these learners are less likely to start school early, more likely to drop out and they learn less while in schools (Gill, 2017).

Findings from this study revealed that learners with Physical Disabilities who constitute the majority of learners with Disabilities attending public inclusive primary schools in Rwanda performed poorly in Primary National Leaving examinations. The persistent evidence from 2016 to 2018 showed that majority of these learners were classified in the last two divisions (four and five divisions). This implies that these learners were not qualified to be admitted into boarding schools and were to attend public day secondary schools. A study by Bots (2015) established that public day secondary schools in Rwanda are under resourced and most of them are not ready to admit learners with Physical Disabilities. These findings concur with previous studies done in this field. Martha & cathryn (2008) noted that students with Disabilities lag behind academically. She further established that students with Physical Disabilities present unique problems which adversely affect academic performance, which include level of intellectual functioning, as well as performance in reading, math, and writing. Uwezo report (2015) in Tanzania revealed that the academic achievement of learners with Disabilities is well below that of learners without disabilities. Kimondi (2012) in Kenya ascertained that majority of teachers (46%) in four selected special school for Physically Handicapped reported that the academic achievement of pupils with Physical Disabilities in Kenya Certificate of Primary Education was average and 36% representing 10 teachers reported to be below average. (Woltt, Alberto & Meagher, 2010) argue that learners with Physical Disabilities may underachieve in the school setting when their unique needs are not met.

With respect to the provisions of assessment accommodations, study found that majority of teachers are not giving accommodations to learners with Physical Disabilities in the classroom exams. From the interview it is also apparent that though Rwanda Education Board has good intention to provide accommodations to learners with Disabilities during national exams, there is no clear guidelines on how to provide these accommodations. What assessment accommodations and who need them during the national exams remain issues to be addresses by Rwanda Education Board.

The significant relationship found in this study between assessment accommodations and academic achievements of learners with Physical Disabilities in inclusive primary schools in Southern province and Kigali City, Rwanda suggest that the more learners with Physical Disabilities are given accommodations during exams, the higher their academic achievements. This finding was in consonant with the findings made by Kimondi (2012) who found that unfair assessments that do not take care of special needs of learners with Physical Disabilities have led to poor academic achievement of learners with physical disabilities. The researcher further pointed out that lack of adapted examination equipment and insufficient time allocated during examination were among the causes of poor academic performance among learners with Physical Disabilities in Kenya.

The significant relationship found in this study between the provision of extra time and academic achievements of learners with Physical Disabilities ($r(64) = .707, p = .001$) suggest that the more learners with Physical Disabilities are given extra time to complete their work, the higher their academic achievements. This is in agreement with Lewandowski (2013) who established that students with learning disabilities scored significantly better in the longer extended time condition than in the shorter frame.

The significant relationship found in this study between the provision of rest break and academic achievements of learners with Physical Disabilities ($r(64) = .246, p = .047$), suggests that the more learners with Physical Disabilities are given rest break during exams, the higher their academic achievements. Lewis & Nolan (2013) agreed that learners with muscle weakness improved their academic achievements when they were given special break during the state assessments.

In the same vein, the significant relationship found in this study between the provision of special venue during national exams and academic achievements of learners with Physical Disabilities ($r(64) = .481, p = .001$), suggests that the more learners with Physical Disabilities are given rest break during exams, the higher their academic achievements. This finding negated however Lin & Lin (2014) who found that there was no significant evidence indicating a benefit of separate venue setting for learners with disabilities on a large scale assessment.

Finally, the significant relationship found in this study between the provision of scribes and academic achievements of learners with Physical Disabilities ($r(64) = .731, p = .001$) suggests that the more learners with Physical Disabilities are given scribes, the higher their academic achievements. This finding was consistent with the findings made by earlier researchers (Swartz, 2014; Fincher, 2013) who found significant relationship between the provision of scribes and academic achievements of learners with Physical Disabilities.

V. Conclusion

Considering the finding of this study, it was concluded that assessment accommodations (provision of extra time, provision of rest break, provision of special venue and provision of scribe) were good predictors of academic achievements of learners with Physical Disabilities in inclusive primary schools in Southern Province and Kigali City, Rwanda. It was concluded that the poor academic achievement of learners with Physical Disabilities were triggered by unfair examination procedures that did not take care of diverse needs of learners of Physical Disabilities. The study therefore recommended that the Ministry of Education through Rwanda Education should re-examine testing procedures to level the playing field for learners with Physical Disabilities.

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