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The Learning Initiative Interim Report: February - June 2021

A comparison of February 2021 with June 2021 Assessment Data

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INTRODUCTION

This analysis provides an initial assessment of the progress being made by The Learning Initiative; part of the broader School Based Mentor Programme led by Rwanda Action. It analyses assessment data across sixteen participating schools, eight in the district of Rusizi and eight in the district of Nyamasheke. The data compares assessments taken in English, Maths and Kinyarwanda for students in years P4, P5 and P6 in February 2021 and again in June 2021.

The analysis also gives some attention to the subject specialisation of the School Based Mentor and the Mentee, as this may provide some additional insight into the programme.

Given the limited time period between the two assessments, it is important to be measured in terms of expectations of distance travelled by any cohort or school, and to be cautious of attributing causation, particularly at this early stage, to any observed correlation. Considering this, there has been moderate improvement across all subjects, taken collectively. Likewise, there has been improvement across most schools. In addition, whilst at this stage it is, as expected, not possible to discern that the Initiative is the cause of the overall upward trend, the early signs are somewhat encouraging.

I have provided a range of analysis to help navigate this emerging picture.

ANALYTICAL APPROACH

Due to the limited data available at this early stage, the analysis focuses primarily on 'pass rates' which is defined as the percentage of students in a cohort passing a given examination against the total who sat the exam. This allows for a more accurate comparison of February and June data, as attendance figures fluctuate between the dates. Unless otherwise stated, where I refer to a percentage change, I am referring to a percentage point change. For example, a change in the pass rate from 5% to 10% is described as a 5% increase, rather than 100% increase.

Whilst the binary 'pass-fail' data provided at this stage is sufficient to provide indicative direction of travel, it cannot provide the detailed progress of each student towards a pass mark. As such, it is important to approach seemingly large increases or decreases in individual school years with caution, as the data does not show how close students were to passing in either assessment period.

For this reason, many of the analyses presented combine pass rates across schools, year groups or subject areas in order to show an overall picture and trajectory at this interim stage.

I recommend aiming towards recording the scores for individual students where possible, as this will provide a greater insight into the progress of classes and year groups towards the important pass mark.

OVERALL GRADE ANALYSIS

The grade grouping system used for the assessments rates students from A-D based each student's combined score across the three subjects, with A being the highest grade, and D the lowest based score system below, with corresponding national exam 'Levels' given for reference.

Grade	Level	Marks
A	1	151 – 300
B	2	101 – 150
C	3	51 – 100
D	4	0 – 50

The initiative has three key objectives for each school under this scoring system. These are:

1) At least 5% reduction in ungraded (Grade D) at P6
2) At least two pupils achieving Level 1 (Grade A) in P6 examination
3) 5% improvement in pupils achieving Level 2 (Grade B) in P6 examinations

The analysis provides progress towards these below. However, additional analysis of this data is provided to show other potential trends in progress being made. As an overview, Table 1 shows the percentage point change in the numbers of students achieving each grade between February and June. As a rule, we want to see negative figures in the lower grades, particularly D, with associated increases the higher grades, A and B.

Table 1: The percentage point change in the number of students achieving each grade across each school for each year group

	D	C	B	A
P4	-7.8%	1.7%	3.1%	3.0%
P5	-30.1%	12.5%	13.0%	4.7%
P6	-6.4%	-0.5%	6.3%	0.7%

The green shading indicates the level of change towards higher grades; the darker shading equals a more positive move towards higher scores (including negative changes in lower scores). The biggest shift was within P5, in which over half of its February 'D Grade' students moved into higher bands (reducing from 57% to 27%), this is enhanced by students not only moving into Grade C but also pushing in to Grades B and A. A similar but less dramatic trend is seen in P4 and P6. The overall picture is solid, though it is important to acknowledge that where single schools performed particularly well the overall average score is pushed up in this form of analysis.

PROGRESS TOWARDS GRADE TARGETS

In Table 2, we can see overall progress towards three of the Initiative's targets and presents a more nuanced picture than Table 1.

Where a target has been met in a school, the score is shaded green, or pale green to discern progress. Red shading indicates where a previously met target was not met in June. February grades are in grey to emphasise that they are not included in this.

Table 2: Shows current changes in school progress towards meeting three targets for the initiative.

District	School	Percentage point change in Grade D	February total students attaining Grade A	June total students attaining Grade A	Percentage Change in Grade B
Rusizi	E.P Nyamuzi	+10%	0	0	-22%
	G.s Murehe	+14%	0	0	+16%
	E.P Mubera	+22%	2	0	-6%
	E.P Mururu	-16%	4	10	+8%
	E.P Rugaragara	+6%	1	2	+17%
	G.S Gaseke	-8%	0	1	+16%
	G.S Nzahaha	-17%	0	0	+9%
	E.P Musumba	-16%	0	3	-12%
Nyamsheke	E.P Gitwa A	+12%	2	0	+26%
	E.P Viro	+19%	0	0	+16%
	E.P Ruheru B	-26%	0	1	0%
	E.P Rugabe	-16%	0	1	-3%
	G.S Mbuga	0%	0	0	+27%
	G.S Bunyenga	+3%	2	0	+15%
	G.S Banda	-27%	0	1	+6%
	E.P Gasanane	-15%	0	0	0%

Target One: At least 5% reduction in ungraded (Grade D) at P6 in each school
We can see that half of the schools have achieved this by some margin, with an average reduction of 18%. However, half of schools have also increased their proportion of Grade D in

June, with an average of 11% increase. There is more variation between schools in P6 than in P5 and P4 and as such, the marked progress seen in P5 in particular is not yet seen in P6.

Target Two: At least two pupils achieving Level 1 (Grade A) in P6 examination
There has been mixed progress here. The total number of schools achieving this objective reduced from four to three, with two schools previously reaching the target falling short in June. However, there are three encouraging signs. Firstly, Mururu has more than doubled its numbers from four to 10. Moreover, two schools have improved to reach the target, and a further three schools have made progress towards the target.

Target Three: 5% improvement in pupils achieving Level 2 (Grade B) in P6 examinations
Ten schools achieved this target across the period, with an average improvement of 16%. Of the schools that did not reach the target the average decrease was 7%, which again points to an overall improvement across the participating schools.

Taken together, the schools appear to be on the right trajectory and further assessments over time will help to show progress. There are clear outliers at both ends of the spectrum and it may be worth observing progress in these schools more closely if possible. What is perhaps the most important factor is shown most clearly in Table 1, rather than Table 2: younger cohorts of students are showing progress more striking progress. Whilst the data is currently too limited to show any definitive evidence of causation, if this can be sustained and carried into each subsequent year as the cohorts progress, the could be a significant shift in the achievements of students at these schools.

SUBJECT ANALYSIS

The overall trend across all subjects is positive. Taken across all schools and year groups, all subjects have seen an increase in the pass rate, as shown in Table 3. There is variation between year groups. Maths improvement was primarily seen in P4, English was across the board, but significantly higher in P5, and Kinyarwanda pass rate improvement was primarily in P5 and P6. The variation of performance within and between schools is discussed below.

Table 3: Showing average percentage change in pass rate for each year group and each subject across all schools

Subject	P4	P5	P6	Overall
Maths all schools	+4%	+1%	0%	**+2%**
English all schools	+4%	+17%	+2%	**+7%**
Kinyarwanda all schools	-1%	+5%	+6%	**+3%**

COMPARISON ACROSS SCHOOLS AND YEAR GROUPS

In the graphs below, we can see the more nuanced picture in the percentage pass rate change across schools and year groups underlying the over-arching figures in Table 3.

Figures one and two show the percentage pass rate change in each of the schools in each district. Where pass rates have increased, bars sit above the x-axis. Where they have fallen in a

subject area, they dip below the axis. It is common for a year group to have bars which stretch below the line for one subject and above for another.

That most of the graphs sit above the x-axis is a clear indication that the overall pass rates have improved.

Maths (yellow) is the most varied, and given the low initial scores, it would not be possible to see Maths dipping below the axis at this stage. However, seven schools have made progress with Maths and these have carried the +2% overall. The majority of these schools have seen Maths grades increase in P4 and P5. Two schools (Mururu and Musumba) have improved Maths scores in P6, and both these schools have seen consistent progress in other subjects too.

English (Purple) has enjoyed much greater progress across the assessments. Whilst some schools have seen small dips in some year groups, the bars showing increases are much wider, particularly in P5. Two schools, Gasane and Mururu, have shown progress across all three year groups.

Kinyarwanda (Green) had a greater level of pass rate in February than the other subjects. As such, it is more likely to see some dipping below the x-axis than others. There are a handful of drops, particularly in P4 across eight schools. However, there has also been relatively consistent progress shown between the Rusizi schools in P6, where six of eight improved their scores.
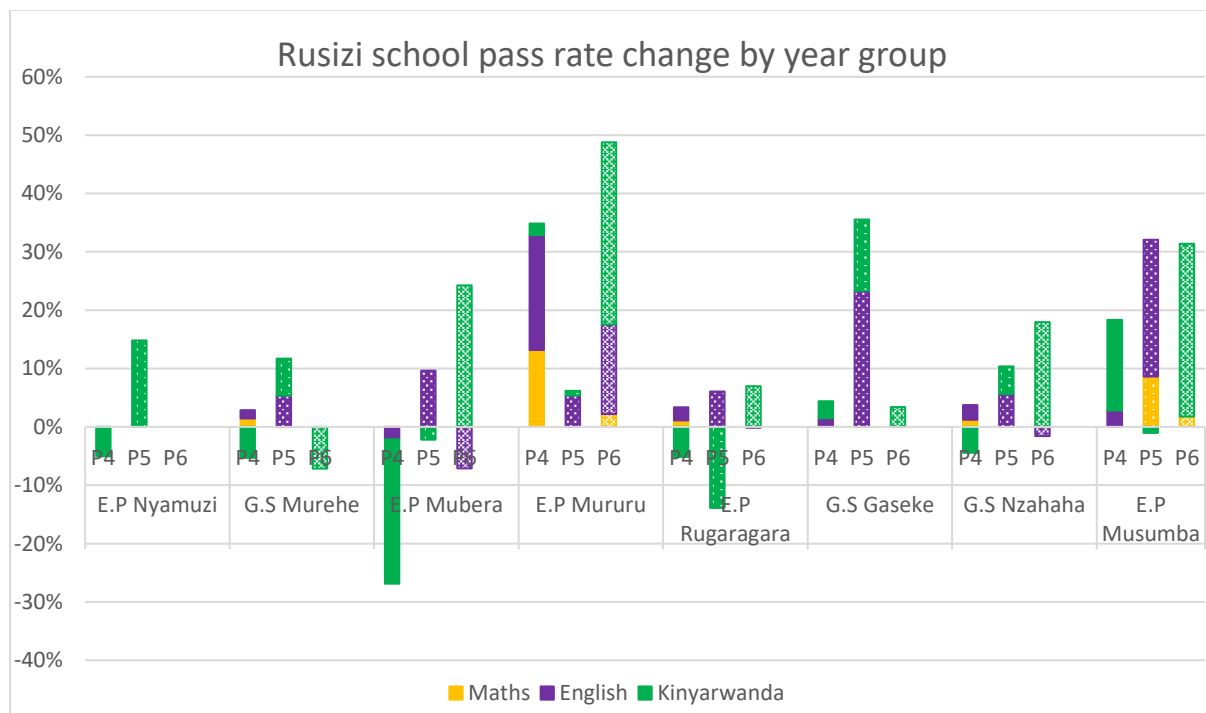

Figure 1: The change in pass rates for year groups within each school in Rusizi for each subject. For ease of reference P4 is solid colour, P5 is polka dot, P6 is speckled.
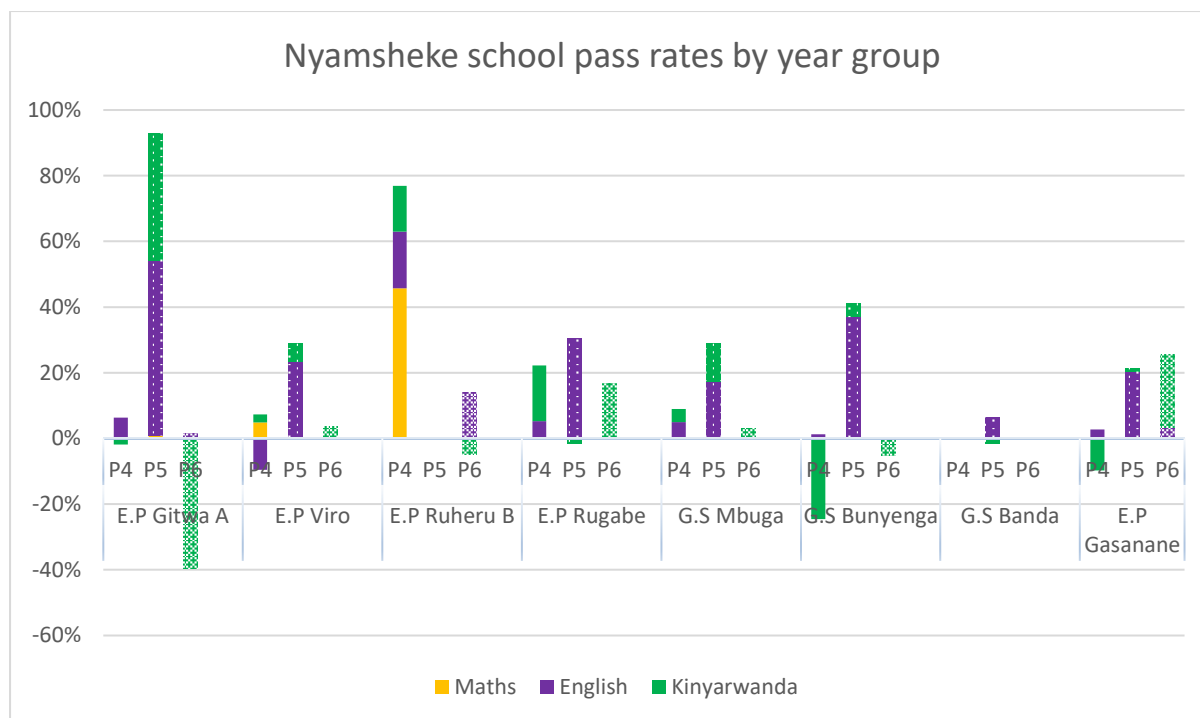
Figure 2: The change in pass rates for year groups within each school in Nyamsheke for each subject. For ease of reference P4 is solid colour, P5 is polka dot, P6 is speckled.

The graphs help to show the variation in results at this early stage. It is worth reiterating that small year group sizes can have a significant impact in the percentage pass rate. Nyamuzi and Mubera are particularly small in P6, with 20-30 sitting exams). As such, it is recommended that this analysis be used to show early indication of progress as a whole, rather than too much direct comparison between schools. However, it is also worth showing that some with larger year groups have still show significant progress across almost, if not all, their subjects and year groups, and it may be worth aiming to understand more about their approach or context.

SBM AND MENTEE SUBJECT AREA

To the extent this early data is able to, the graph and analysis below begins to explore any potential links between the subject the School Based Mentor (SBM) and mentee teach and improvement in grades in that subject. However, it does not account for the extent to which SBMs and mentees are engaged in the teaching or support of other subjects as this would require much deeper understanding of the role of the SBM in each school.

All schools have one SBM and two mentees, each is designated as a teacher of one or two subjects, though for SBMs these are not always the assessed subjects.

Figure 3 is relatively complex and warrants some explanation. It combines a number of elements to show early signs of the potential progress being made due to the intervention.

The graph combines the results for each subject area, across all year groups in all schools to create 144 distinct 'year-group-subject' data points, essentially allocating nine points to each school, one for each year group's subject. These points are then allocated into groups based on the combination of whether there is an SBM and/or a mentee teaching this subject in the school. For example a school with an SBM and a mentee in English, and another mentee in

Maths would see the three English results allocated to the group 'SBM and mentee'. The three Maths results would be added to 'Subject Mentee Only', and the Kinyarwanda results would be allocated to 'No SBM or mentee in subject area'. With each school's data included, the grouped graph shows us the percentage of each combination which increased, decreased or remained unchanged.

This may then provide an early, and broad, indication of whether the subject the SBM and/or mentee teaches may be having any influence on the results of that subject.
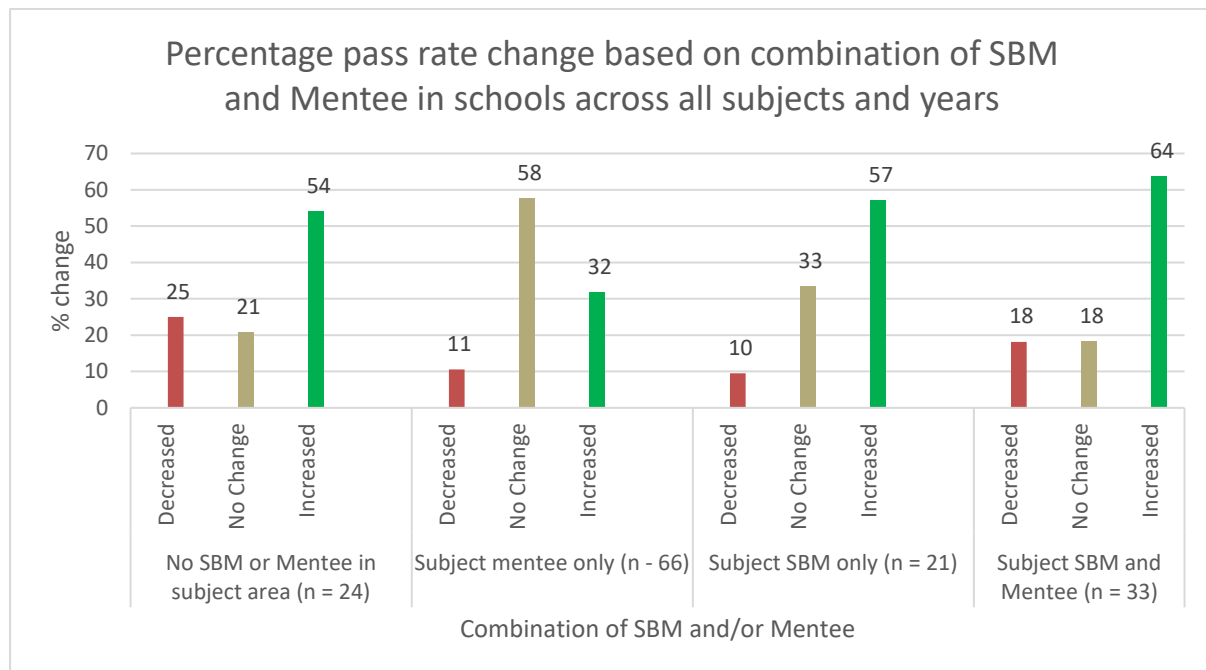

Figure 3 shows where pass rates increased, stayed the same, or decreased based on the combination of SBM or mentee for subject areas. The data is pulled from all year groups and subjects giving a total of 144 data points (one for each subject in each year group in each school)

Figure 3 shows that the greatest pass-rate increase was where there is an SBM *and* mentee within a given subject area (64% of classes with this combination increased their grades). This is driven primarily by English, which saw the greatest number of increased pass rates across schools and grades (two-thirds increased). It is also true that more schools have an English teaching SBM and mentee than any other subject does (27 of 33 SBM and mentee combinations are in English, this is out of a possible 48 (three years in each of 16 schools).

The graph also shows that subjects with SBMs but no mentee had a greater incidence of increasing score than where there is a only a mentees in that subject area, i.e. where mentees are being supported by SBMs who are teachers of another subject.

Following this, the graph also shows that where there is only a mentee in the specialism but no SBM there is the least change. However, this appears to be largely driven by the large number of mentees in Maths (12 of 16 schools), but there being no SBM focusing on Maths in any school. Maths grades changed the least, but also predominantly started from zero. As a result, the most common outcome is no change.

The graph also shows a more erratic result from subject areas where there is neither an SBM nor mentee noted as teaching that subject. This is most pronounced in Kinyarwanda, where a third of year groups decreased their pass rate over the period, whereas two thirds increased their pass rate.

OBSERVATIONS AND CONSIDERATIONS

1) The initial picture appears positive even given the limited time period between the assessments. Further analysis can only build on this picture.
2) There appear to be particular trends within subjects and year groups, particularly in P5 English, which may warrant further exploration
3) A number of schools appear to be to have achieved a marked improvement across most, if not all subjects.
4) Where a subject has both an SBM and a mentee in a given subject area, there are early signs that this subject shows a greater chance of increasing pass rates, though this tentative analysis needs to be viewed cautiously due to the influence of the distribution of mentors and mentees across subject areas and previous pass rates in subject areas.
5) For future analysis, more detailed data showing individual students' scores within year groups will allow a more detailed analysis of progress being made within the Initiative.

APPENDIX 1: SHOWING THE PERCENTAGE POINT CHANGE IN SCORES FOR EACH SUBJECT AND YEAR GROUP ACROSS ALL SCHOOLS.

District	School	P4			% change all years	P5			% change all years	P6			% change all years	% change all subjects and years
		Maths	English	Kinyarwanda		Maths	English	Kinyarwanda		Maths	English	Kinyarwanda		
Rusizi	E.P Nyamuzi	0%	0%	-5%	-2%	0%	0%	15%	5%	0%	0%	0%	0%	1%
	G.s Murehe	1%	1%	-5%	-1%	0%	5%	12%	6%	0%	0%	-7%	-2%	1%
	E.P Mubera	0%	-2%	-25%	-9%	0%	10%	-14%	-1%	0%	-7%	24%	6%	-2%
	E.P Mururu	13%	20%	2%	12%	15%	5%	-1%	6%	2%	15%	31%	16%	11%
	E.P Rugaragara	1%	2%	-5%	-1%	0%	6%	5%	4%	0%	0%	7%	2%	2%
	G.S Gaseke	0%	1%	3%	1%	0%	23%	6%	10%	0%	0%	3%	1%	4%
	G.S Nzahaha	1%	3%	-4%	0%	0%	6%	-2%	1%	0%	-2%	18%	5%	2%
	E.P Musumba	0%	3%	15%	6%	0%	23%	1%	8%	2%	0%	30%	10%	8%
Nyamsheke	E.P Gitwa A	0%	6%	-2%	2%	0%	53%	12%	22%	0%	1%	-40%	-13%	3%
	E.P Viro	5%	-10%	2%	-1%	0%	23%	1%	8%	0%	0%	4%	1%	3%
	E.P Ruheru B	46%	17%	14%	26%	1%	0%	39%	13%	0%	14%	-5%	3%	14%
	E.P Rugabe	0%	5%	17%	7%	0%	30%	5%	12%	0%	0%	17%	6%	8%
	G.S Mbuga	0%	5%	4%	3%	0%	17%	-2%	5%	0%	0%	3%	1%	3%
	G.S Bunyenga	0%	1%	-25%	-8%	0%	37%	4%	14%	0%	0%	-5%	-2%	1%
	G.S Banda	0%	0%	0%	0%	0%	6%	0%	2%	0%	0%	0%	0%	1%
	E.P Gasanane	0%	3%	-10%	-2%	0%	20%	-2%	6%	0%	3%	22%	9%	4%
% change all schools		4%	4%	-1%	2%	1%	17%	5%	8%	0%	2%	6%	3%	4%

APPENDIX 2A: SHOWING THE INTERACTION BETWEEN THE PRESENCE OF AN SBM AND MENTEE AND PASS RATE CHANGE

District	School	P4	P5	P6	SBM	Mentee	P4	P5	P6	SBM	Mentee	P4	P5	P6	SBM	Mentee
		MATHS					English					Kinya				
Rusizi	E.P Nyamuzi	0%	0%	0%		1	0%	0%	0%	0.5		-5%	15%	0%	0.5	1
	G.s Murehe	1%	0%	0%		1	1%	5%	0%	1	1	-5%	6%	-7%		
	E.P Mubera	0%	0%	0%			-2%	10%	-7%	0.5	2	-25%	-2%	24%	0.5	
	E.P Mururu	13%	0%	2%		1	20%	5%	15%	0.5		2%	1%	31%	0.5	
	E.P Rugaragara	1%	0%	0%		1	2%	6%	0%	0.5	1	-5%	-14%	7%		
	G.S Gaseke	0%	0%	0%		1	1%	23%	0%		1	3%	12%	3%		
	G.S Nzahaha	1%	0%	0%	1.5		3%	6%	-2%	1	0.5	-4%	5%	18%		
	E.P Musumba	0%	9%	2%		1	3%	23%	0%	1		15%	-1%	30%		1
Nyamsheke	E.P Gitwa A	0%	1%	0%		1	6%	53%	1%	1	0.5	-2%	39%	-40%		0.5
	E.P Viro	5%	0%	0%			-10%	23%	0%	1	2	2%	5%	4%		
	E.P Ruheru B	46%	0%	0%	0.5		17%	0%	14%	1	0.5	14%	0%	-5%		1
	E.P Rugabe	0%	0%	0%	0.5		5%	30%	0%	0.5	0.5	17%	-2%	17%	0.5	0.5
	G.S Mbuga	0%	0%	0%		1	5%	17%	0%	1		4%	12%	3%		1
	G.S Bunyenga	0%	0%	0%		1	1%	37%	0%		0.5	-25%	4%	-5%		0.5
	G.S Banda	0%	0%	0%		1	0%	6%	0%	1		0%	-2%	0%		1
	E.P Gasanane	0%	0%	0%		1	3%	20%	3%	1	1	-10%	1%	22%		

APPENDIX 2B: GROUPING SUBJECT PASS RATE CHANGE FOR EACH YEAR GROUP SUBJECT BY THE COMBINATION OF SBM AND/OR MENTEE.

		% of group total	% Maths	% English	% Kinya	N		Maths	English	Kinya	N
No SBM or Mentee in subject area (n = 24)	Decreased	25	0	0	25	6		0	0	6	
	No Change	21	21	0	0	5		5	0	0	
	Increased	54	4	0	50	13		1	0	12	
							Total	6	0	18	24
Subject mentee only (n - 66)	Decreased	11	0	0	11	7		0	0	7	
	No Change	58	50	3	5	38		33	2	3	
	Increased	32	14	6	12	21		9	4	8	
							Total	42	6	18	66
Subject SBM only (n = 21)	Decreased	10	0	0	10	2		0	0	2	
	No Change	33	0	33	0	7		0	7	0	
	Increased	57	0	38	19	12		0	8	4	
							Total	0	15	6	21
Subject SBM and Mentee (n = 33)	Decreased	18	0	12	6	6		0	4	2	
	No Change	18	0	15	3	6		0	5	1	
	Increased	64	0	55	9	21		0	18	3	
							Total	0	27	6	33
							Total	48	48	48	144