



Understanding the impact on teachers in Rwandan secondary schools since COVID-19 school closures



Leaders in Teaching



Research for Equitable Access and Learning

laterite

DATA | RESEARCH | ANALYTICS

Acknowledgements

This report summarises research carried out by Laterite and the Research for Equitable Access and Learning (REAL) Centre at the University of Cambridge in partnership with the Mastercard Foundation as part of the Leaders in Teaching initiative.

The learning partners would like to thank the teachers, school leaders and students, as well as the Mastercard Foundation and the Leaders in Teaching implementing partners, who contributed their insights to this study.

About Leaders in Teaching

Leaders in Teaching is a five-year Mastercard Foundation initiative established in 2018 to improve the quality of teaching and learning in Rwandan secondary schools, with a focus on science, technology, engineering and mathematics (STEM) subjects. The initiative aligns with the Government of Rwanda's goals outlined in Vision 2050 to become a knowledge economy. More specifically, Leaders in Teaching responds to strategic priorities outlined in Rwanda's Education Sector Strategic Plan 2018/19 to 2023/24, aiming to enhance the quality of learning outcomes, as well as teacher professional development and management, with a focus on STEM and ICT teaching and learning in 14 districts¹ of Rwanda. Leaders in Teaching consists of programmes led by six implementing partners - the African Institute for Mathematical Sciences (AIMS); Carnegie Mellon University Africa; Inspire, Educate and Empower Rwanda; UNICEF Rwanda; University of Rwanda College of Education; and VVOB Rwanda - in partnership with the Mastercard Foundation. Laterite and the REAL Centre are the learning partners for the initiative, responsible for generating evidence of improved teaching and learning.

About Laterite and the REAL Centre

Laterite is a data, research and analytics firm dedicated to bringing high-quality research services to the most underserved markets. Founded in East Africa, the firm strives to carry out impactful research that helps decision-makers find solutions to complex development problems.

The REAL Centre at the University of Cambridge pioneers research into overcoming barriers to education, such as poverty, gender, ethnicity, language and disability, and promotes education as an engine for inclusive growth and sustainable development.

Suggested citation

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1. Introduction

Research by Laterite and the Research for Equitable Access and Learning (REAL) Centre at the University of Cambridge for the Mastercard Foundation's Leaders in Teaching programme revealed important insights about secondary teaching and learning in Rwanda. To date, research has taken place at multiple time points:

- In late 2019 and early 2020, before the outbreak of the COVID-19 pandemic and associated school closures
- In August 2020, during school closures
- In January, May and October/November 2021, after schools had reopened.

This brief summarises insights from data collected in 2021, after schools had reopened. It focuses on the changes in teacher attitudes, training and retention, as well as student learning outcomes, compared to before schools closed. We also share implications for policy and future research based on the findings. Our previous [Leaders in Teaching learning synthesis](#) shares lessons learned about teaching and learning in Rwandan secondary schools before schools closed in early 2020.

Schools involved in the Leaders in Teaching research



356 schools
in our
sample



14 districts
of Rwanda
(does not include Kigali)



355 school leaders
& 1,931 STEM
teachers



4,000+
Secondary
3 students

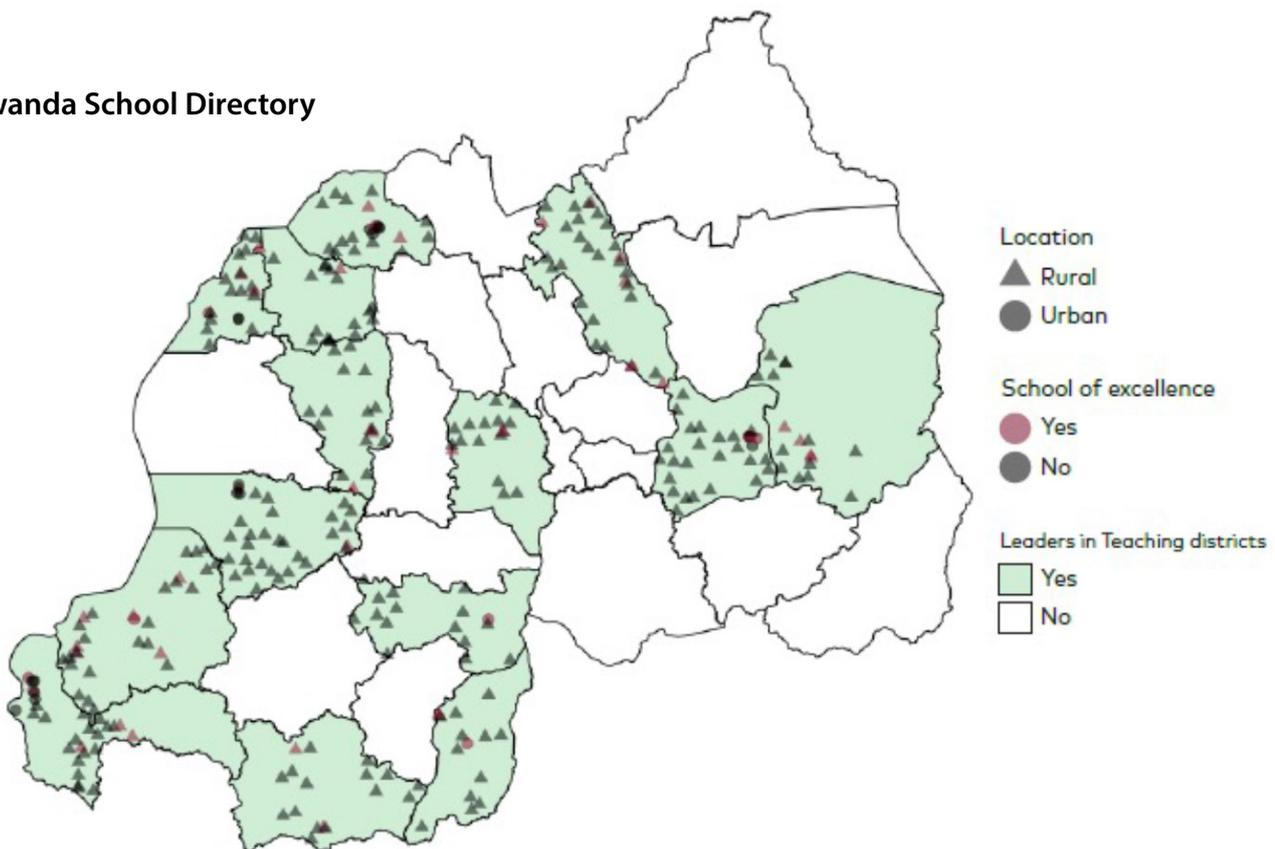


91% of
schools are
in rural areas



13% are
schools of
excellence

Rwanda School Directory



2. Summary of 2021 findings from Leaders in Teaching research

This section summarises the findings of the learning partners, Laterite and REAL Centre at University of Cambridge, from the data collected in 2021, on three topics:

1. Impacts of COVID-19 related school closures on student enrolment and teacher turnover
2. Continuous professional development of school leaders and STEM teachers before and after school closures
3. Changes in STEM teachers' perceptions of teaching quality after schools reopened, compared to before school closures.

Topic 1: Impacts of COVID-19 related school closures on student enrolment and teacher turnover

Student enrolment increased after schools reopened, especially in Secondary 1 and Secondary 4

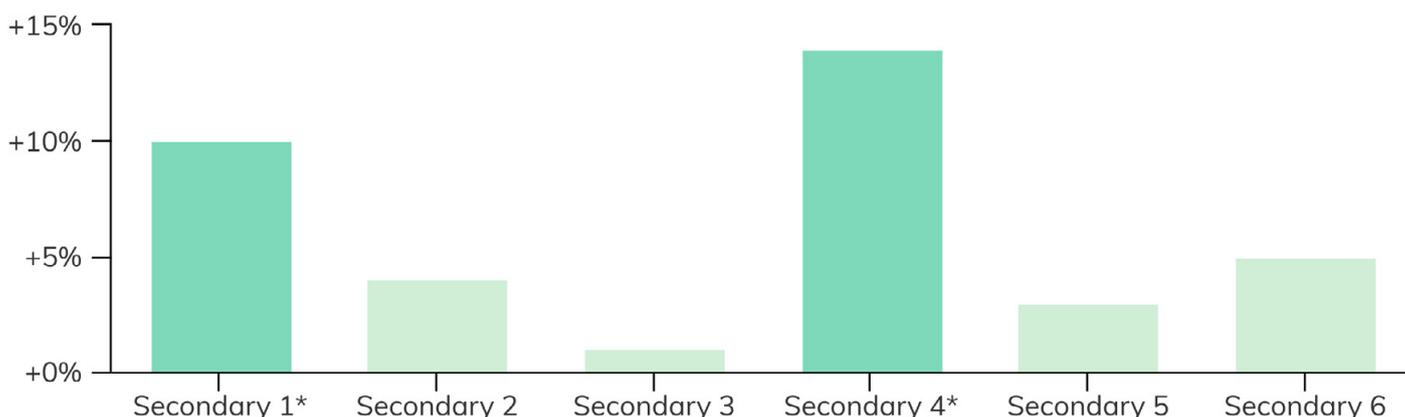
Secondary 1 (S1) and Secondary 4 (S4) are transition points when students move from primary to secondary school, and from lower to upper secondary school. Students may only proceed to these grades if they have passed national examinations in either Primary 6 (P6) or Secondary 3 (S3). However, because of COVID-19 related school closures, there were no national examinations in the 2020/21 school year.

When schools reopened in late 2020, students returned to the grade in which they were enrolled before school closures. For example, take a student who had passed their P6 national examinations in the 2019/20 school year and started S1 in January 2020. When classes resumed around November 2020, this student would be required to start the S1 school year from the beginning.

While enrolment increased in all grades after schools reopened, it is likely that higher enrolment rates in S1 and S4 can be explained by the following: some students who had passed their P6 and S3 national examinations prior to school closures dropped out of S1 and S4 before schools closed due to COVID-19. When schools reopened in November 2020, these students who had dropped out re-entered the education system and joined their peers who had not dropped out.

This increase in enrolment in S1 and S4, and overall increase in enrolment after schools reopened, represent a positive sign that students returned to school even after long school closures relating to COVID-19.

Average change in enrolment in February 2021, compared to March 2020



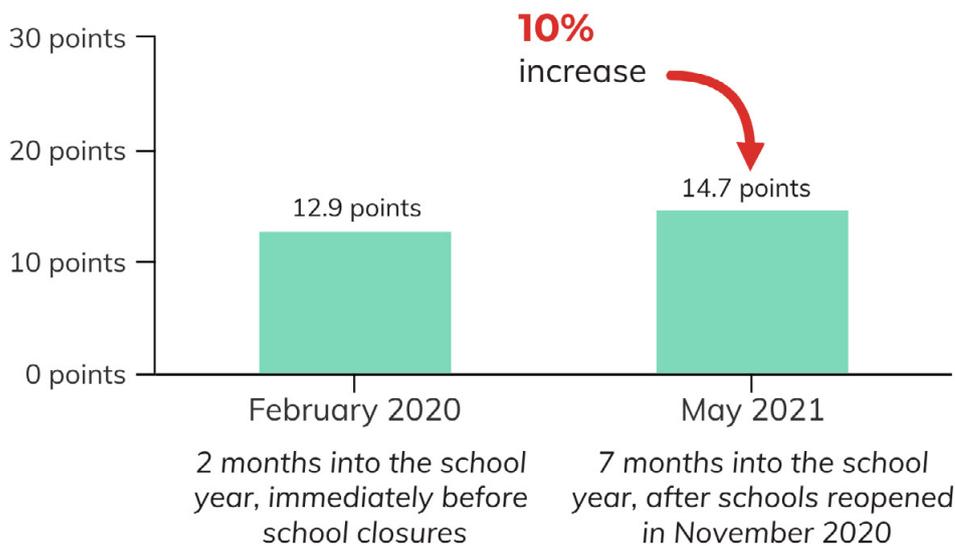
Large learning losses did not materialise, but gaps remain

We assessed 53 students in February 2020 (towards the beginning of the school year, and just before the pandemic) and again in May 2021 (after schools re-opened).

By May 2021, students had completed just over 8 months in school, with 7 months out of school due to the pandemic. As such, it would be expected that their learning would have improved.

This is indeed what we found: on average, students scored almost 10% higher in May 2021 compared to their first assessment in February 2020. This translates to an increase of 1.8 more correct answers on a test out of 30, with an average raw score of 12.9 out of 30 points in February 2020, and 14.7 out of 30 points in May 2021. Over 90% of the schools in our sample recorded an average improvement in student numeracy outcomes over this period.

Average Secondary 3 numeracy assessment scores – before and after school closures



90% of schools in our sample recorded an average improvement in student numeracy outcomes between February 2020 and May 2021

It is important to note that we do not have data to compare changes in learning we observed over this period with what would have happened in an ordinary school year, if school closures had not taken place. So, we do not know if the learning gains and losses observed are more or less than we would expect in an ordinary school year.

Similar to before school closures, certain groups of students performed better than others in numeracy assessments. Boys slightly outperformed girls in terms of average numeracy assessment scores in both February 2020 and May 2021. S3 students who were the expected age for their grade (14-15 years) improved more in their numeracy scores than older students (17 years and above). This is because students who are older than expected for their grade tend to have dropped out and/or repeated grades more times than their younger peers, and/or to have joined the labour market for periods of time. This impacts their academic performance compared to younger students.

After schools reopened, most teachers returned to teach their classes

By comparing survey responses from early 2020 and April 2021, we found that:



94% of STEM teachers returned to their classes as of early 2021.

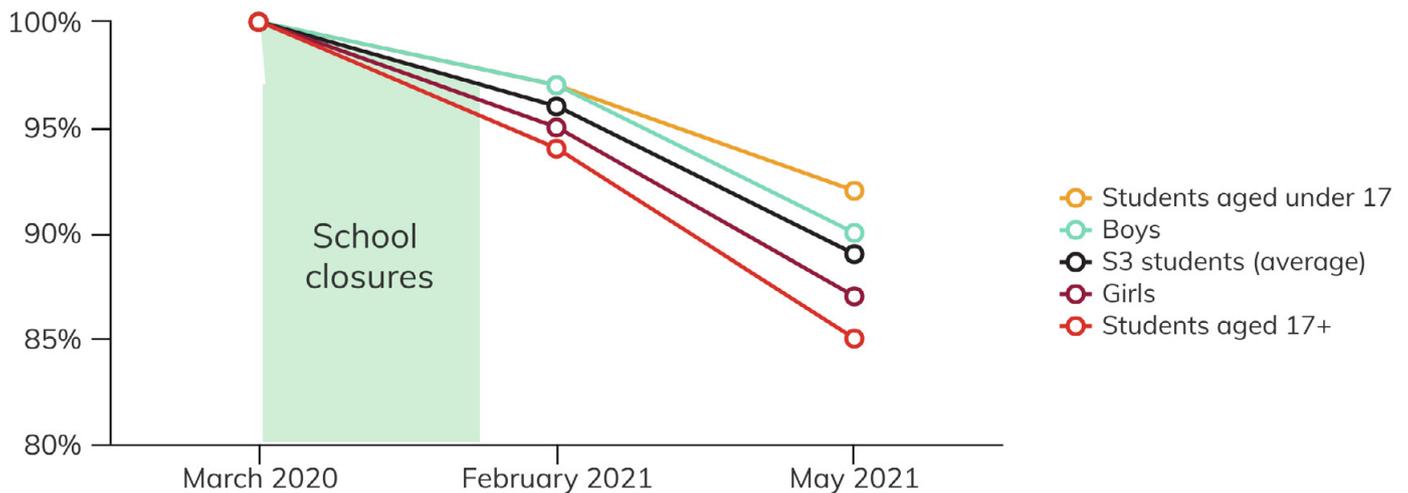


1 in 2 secondary schools increased the number of STEM teachers on their payroll by early 2021.

Fewer students remained in class as the school year progressed

While most students returned to school after school closures, fewer were present in the class as the school year continued. Girls and overaged students – in this case, students older than 17, which is above the expected age for Secondary 3 – were the least likely to remain in class.

Share of students in our sample remaining in school before and after school closures



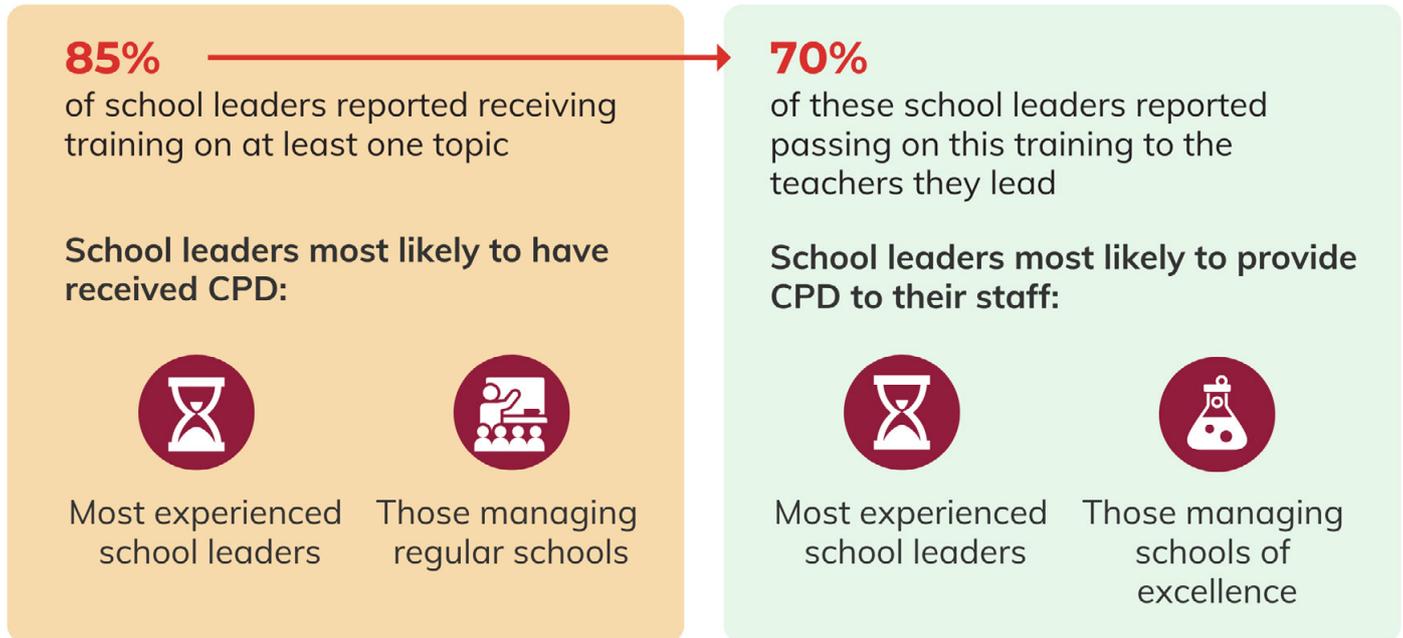
How does this compare to an average school year? While we can't compare the student retention rates we observed with what would have happened by the same time in an ordinary school year, national statistics can give us some indication. According to the [MINEDUC Statistical Yearbook 2021](#), 9.1% of lower secondary students who started the 2018 school year did not enrol in the 2019 school year. In our study, 11% of students we observed in school in February 2020 prior to school closures were not in school seven months into the 2020/21 school year. This suggests that the dropout rate is at least equal to that of an average school year, and likely higher, given the timing of this study. It is particularly high for girls (13%) and students aged above 17 (15%). This trend highlights a need for policy attention.

What can decision-makers do to support student enrolment and progress through the education system?

- Support students at risk of dropout with resources to remain in school and complete their studies – for example through the provision of remedial learning.
- Continue to monitor student dropout and learning – especially among girls and older students, and students from lower-income families – to understand the long-term impacts of school closures on student attendance and learning over time.
- Increase efforts to train school leaders in gender-sensitive teaching practices, which could contribute to closing the student performance gender gap.

Topic 2: Continuous professional development of school leaders and STEM teachers before and after school closures

Most school leaders reported receiving training on at least one topic in the 12 months preceding March 2020 (before the outbreak of the pandemic)

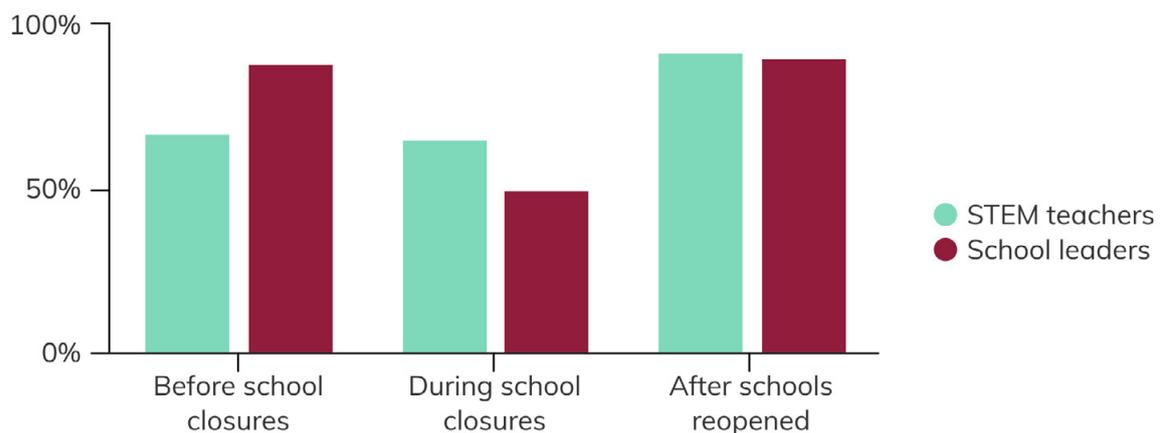


Female school leaders were under-represented both as school leaders and as recipients of in-service training



School closures affected participation in CPD

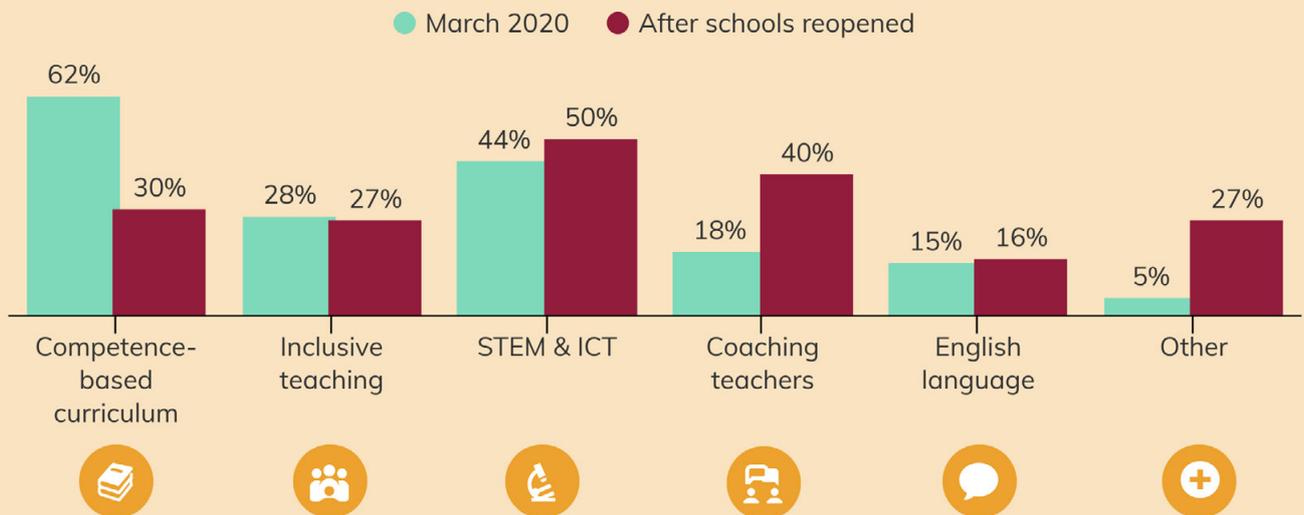
For STEM teachers, overall participation in CPD was relatively stable during school closures, and increased after schools reopened. For school leaders, participation in CPD dropped during school closures, but returned to pre-pandemic levels after schools reopened.



The focus of CPD shifted after schools reopened

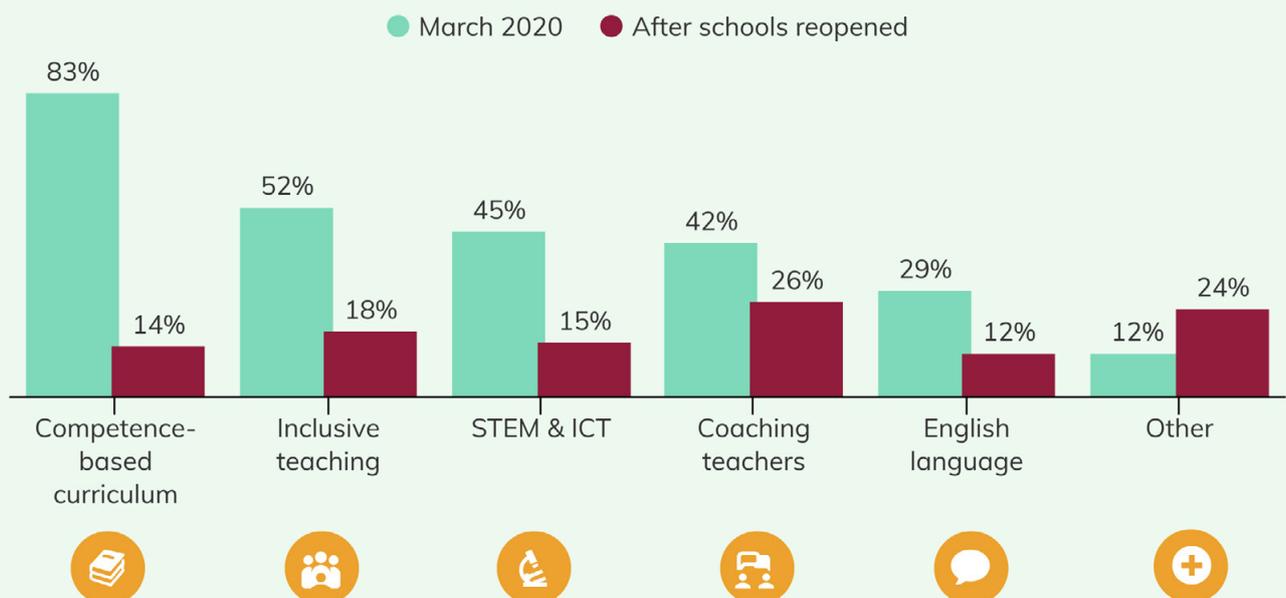
For both STEM teachers and school leaders, the leading focus of training before school closures was the competence-based curriculum (CBC). This is a key area of focus for the Rwandan government. After schools reopened, the focus of training for STEM teachers shifted to STEM & ICT topics, as well as other topics such as engaging in training provided by colleagues about lesson planning, innovative assessment, remedial learning, and maintaining safety from COVID-19.

Share of STEM teachers reporting receiving training on different topics



For school leaders, after schools reopened the focus was on coaching teachers and other topics such as developing strategies for remedial and catch-up learning, managing student dropout, school planning, and managing resources.

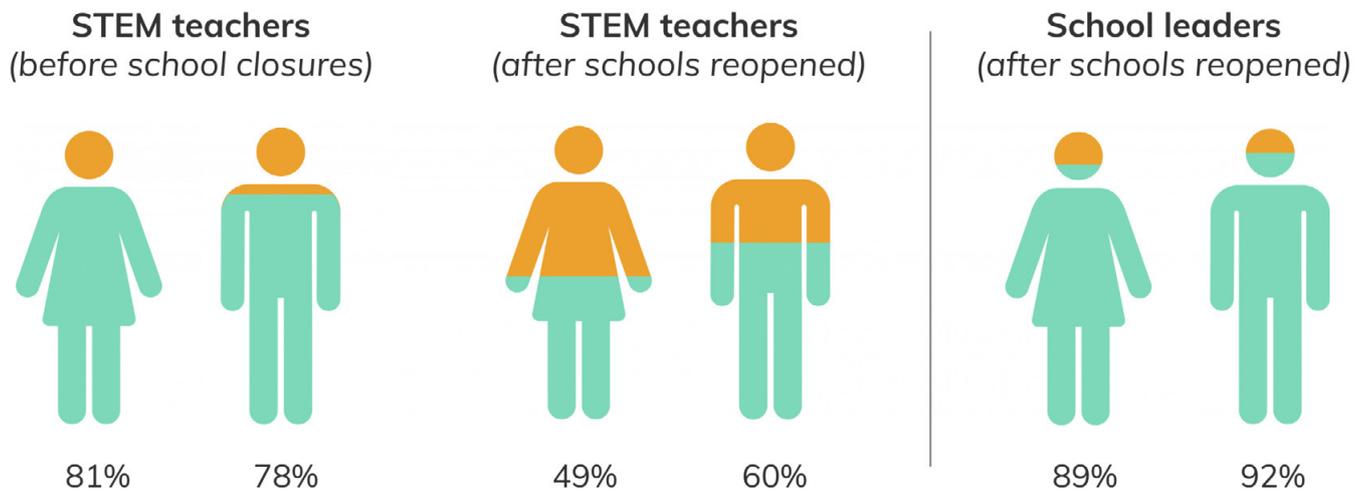
Share of school leaders reporting receiving training on different topics



Overall, teachers had little leeway to decide which training they would receive before, during and after school closures.

Access to computers declined for STEM teachers after schools reopened, especially for female teachers

STEM teachers' and school leaders' access to computers before and/or after school closures



School leaders have better access to computers at home and/or in school than STEM teachers overall.

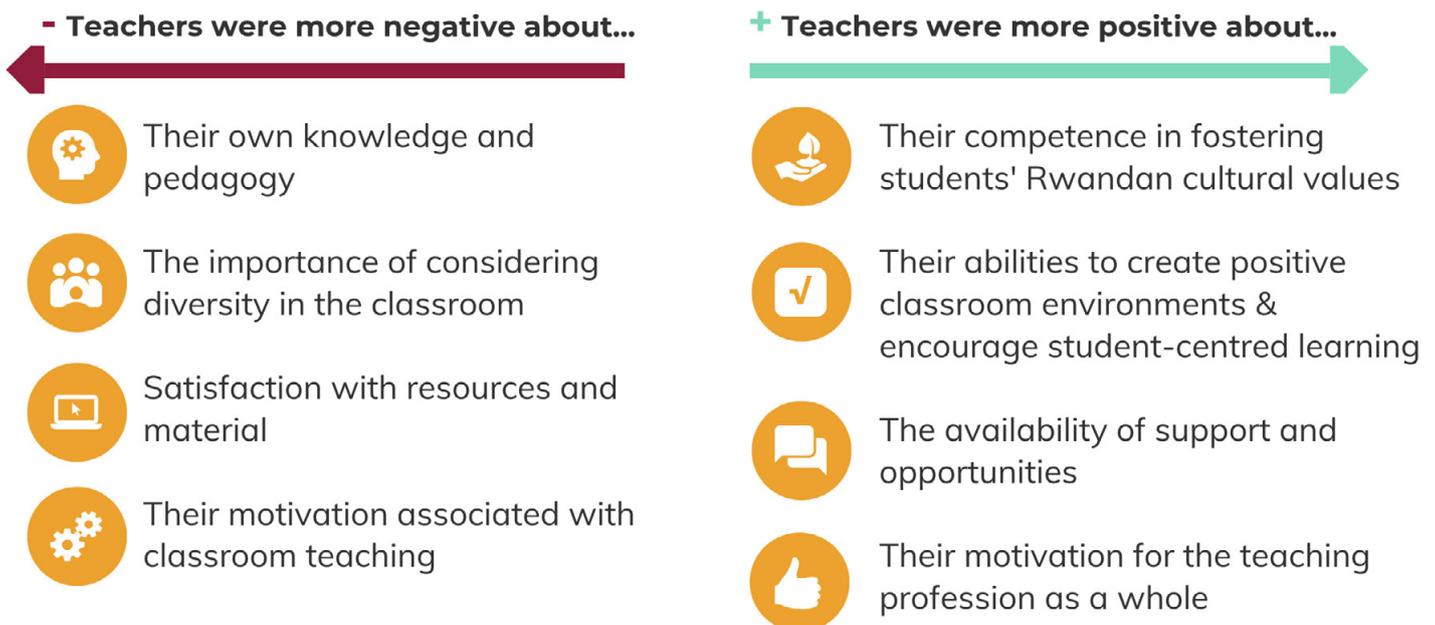
How could decision-makers improve CPD provision for STEM teachers and school leaders?

- Enable female school leaders to attend CPD, for example, by adding more flexibility to CPD schedules and providing training closer to where they live so that they can participate.
- Carry out a broader capacity and training needs assessment to improve the targeting of CPD across different groups and schools, especially among less-resourced schools. At the same time, enable educators at different career stages to decide which CPD they will take.
- Increase access to computers or tablets for all teachers, to enable teachers to access training on how to use them, including to develop lesson plans that incorporate the use of ICT in teaching and learning.

Topic 3: Changes in STEM teachers' perceptions of teaching quality after schools reopened, compared to before school closures

STEM teachers' perceptions of teaching quality changed after schools reopened

On average, some perceptions of teaching quality were more negative, whereas some perceptions were more positive. These findings suggest that the COVID-19 global pandemic and the subsequent closing and reopening of secondary schools had a noteworthy effect on the stability of perceptions of teaching quality.



These views differed based on school and teacher characteristics

On average, teachers reported lower satisfaction with resources and material, and their own perceived knowledge and pedagogical skills compared to before schools closed.

Teachers with a disability were more satisfied with resources and materials after schools reopened. However, it is possible that these STEM teachers might have deemed the resources and materials for the face-to-face teaching prior to the onset of COVID-19 to be inadequate. They are therefore more positive about the resources and materials for remote teaching that were provided by the Rwandan Basic Education Board (REB) and implementing partners during school closures than other teachers. At the same time, teachers in day schools were less satisfied with resources and material and their own perceived knowledge and pedagogical skills than were teachers in boarding schools (which are predominantly schools of excellence). Schools of excellence were established in 2011 to promote learning in the sciences and act as models for other schools, and therefore are equipped with more and higher quality resources and infrastructure, including in terms of science and ICT facilities. Read more about schools of excellence in Rwanda in the [2020 Leaders in Teaching learning synthesis](#).

Compared to their counterparts, the youngest, least experienced male teachers were more satisfied with their own perceived knowledge and pedagogical skills, but reported being less motivated for the teaching profession. This finding—which reveals a gender, age, and experience context related to teaching quality—is important in terms of teacher retention: these teachers are at the beginning of their careers, and might require support if they are to be encouraged to stay in the profession.

Changing teacher perceptions based on different school and teacher characteristics

	Teachers with a disability	Teachers in day schools	Youngest, least experienced male teachers	All teachers
Satisfaction with resources and material				
Perceived knowledge and pedagogical skills				
Motivation for the teaching profession				

 More positive perceptions compared to before school closures
  More negative perceptions compared to before school closures
  No change

In response, programming and policy-makers could:

- Tailor teacher training plans in areas where perceptions have become more negative, such as teacher knowledge and pedagogical skills, satisfaction with resources and materials, and motivation for the teaching profession among the least experienced teachers. Teachers with a disability should not be left behind in these efforts.
- Continue to focus efforts, in terms of resources, infrastructure, and teacher training programmes, on less resourced schools (rather than schools of excellence).
- Explore opportunities to mentor or train newer teachers, to address their lower motivation compared to before the pandemic.

Resources

Cortez Ochoa, A., Hategeka, K.B., Leonard, P., Rose, P. (2022). *Training school leaders to support teaching practice – evidence from March 2020*. Leaders in Teaching Research and Policy Series, April 2022. Laterite, Rwanda and REAL Centre, University of Cambridge.

Cortez Ochoa, A. A., Leonard, P. and Rose, P. (2022). *STEM teacher and school leader engagement with continuous professional development in Rwanda since the outbreak of COVID-19*. Leaders in Teaching Research and Policy Series, September 2022. Laterite, Rwanda and REAL Centre, University of Cambridge.

Leonard, P., Nzaramba, S., Rose, P., Rudasingwa, M. and Sabates, R. (2022). *The effects of school closures in Rwandan secondary schools: Student retention, teacher turnover and student numeracy test scores*. Leaders in Teaching Research and Policy Series, April 2022. Laterite, Rwanda and REAL Centre, University of Cambridge.

Carter, E., Leonard, P., Onwuegbuzie, A. J., Rose, P., and Sabates, R. (2022). *Teaching quality in secondary education in Rwanda: Changing perspectives of STEM teachers before and after school closures*. Leaders in Teaching Research and Policy Series, July 2022, REAL Centre, University of Cambridge.

Laterite and the REAL Centre at the University of Cambridge. (2021). *Understanding teaching quality in Rwandan secondary schools: Learning from the Leaders in Teaching initiative in 2020*. Laterite, Rwanda and REAL Centre, University of Cambridge.

All of these resources are available online at www.educ.cam.ac.uk/centres/real/researchprojects/ongoing/leaders-in-teaching-rwanda/ or www.laterite.com/publications/leadersinteaching/.



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