

REPUBLIQUE DEMOCRATIQUE DU CONGO
MINISTERE DE L'ENSEIGNEMENT PRIMAIRE, SECONDAIRE ET
PROFESSIONNEL



Projet d'Éducation pour la Qualité et la Pertinence des Enseignements aux
niveaux Secondaire et Universitaire



Whizz Education's Final Report (PEQPESU Project)

Project dates: September 2019 - January 2021

Report submission date: 3rd of February, 2021

Contents

1.	<u>Summary of Project Achievements:</u>	2
2.	<u>Teacher Quality & Feedback:</u>	6
	a. Onboarding and refresher trainings	7
	b. Teacher professional development	8
	c. Qualitative teacher data	9
3.	<u>Adaptations (COVID Response):</u>	16
	a. Progress against COVID Roadmap deliverables:	17
	i. Summary of interim Roadmap progress	
	ii. Detailed analysis of Y7 and Y8 students' maths knowledge based on initial Maths-Whizz assessments	
	b. Other micro adaptations	21
4.	<u>Student Learning Progress & Outcomes:</u>	22
	a. Overview of Maths-Whizz learning data	23
	b. Focus on specific schools and students using Maths-Whizz Tutor	24
	c. Projections	26
	d. Perceived impact of the project on students	27
5.	<u>Lessons Learned</u>	32
6.	<u>Recommendations; Scaling and Sustainability plan</u>	36
	a. Recommendations	37
	b. Scaling & Sustainability	38
7.	<u>Appendices</u>	41

1. Summary of Project Achievements

In September 2019, Whizz Education partnered with PEQPESU and the DRC Ministry of Education to demonstrate measurable student learning trends through a one year pilot project, implementing a localised version of Maths-Whizz backed by teacher training and local support.

The project focused on 10,000 Grade 7 and 8 students in 20 Primary Schools, located in 6 provinces of DRC. Due to COVID-induced school closures which curtailed the principal activities, the project was extended until January 2021 with a slightly adapted focus and set of targets.

The table below summarise the key achievements during the course of the project cycle:

Nov 2019	a. Maths-Whizz and DRC curricula successfully aligned through close collaboration with the Ministry of Education	<ul style="list-style-type: none"> • Maths-Whizz Tutor comprises 1,223 learning objectives. Our rigorous mapping showed that 91% of Maths-Whizz content is properly aligned with the Programme National de l'Enseignement Primaire et le Programme Educatif du Domaine d'Apprentissage des Sciences. • A large proportion of the other 9% of lessons were retained because they complete and enrich the understanding of basic concepts by students.
Feb 2020	b. Translation, localisation and launch of full Maths-Whizz platform for DRC, enabling access to virtual learning across 6 provinces	<ul style="list-style-type: none"> • The Maths-Whizz platform was fully translated into French for DRC, including Maths-Whizz Tutor lessons for years 1 - 8, Teachers' Resource, worksheets, admin tools and the data reporting interface. • Teacher and student logins were provided and students began working on their initial diagnostic assessments in February 2020.

<p>Jan to Nov 2020</p>	<p>c. Successful teacher development activities delivered, enhancing professional skills and highlighting urgent capacity issues</p>	<ul style="list-style-type: none"> • 114 Teachers in 100% of project schools received initial training on how to deliver learning gains using the Maths-Whizz platform - Jan/Feb 2020 • 99 teachers developed their pedagogical knowledge and skills through an online professional development course hosted on WhatsApp - May-Aug 2020 • 55 teachers enhanced their maths subject knowledge by working through the Maths-Whizz Tutor - May-Aug 2020. Their Teachers' average Maths Age was 7.85, according to Maths-Whizz assessment data. • 82 teachers in 100% of project schools received refresher training - Sep-Nov 2020 • Feedback overwhelmingly speaks to the positive impact of the training on teacher subject knowledge, pedagogical skills, use of data and ability to deliver learning through ICT.
<p>Mar to Dec 2020</p>	<p>d. Over 2,000 Maths-Whizz assessments completed, leading to comprehensive analysis of student maths knowledge levels</p>	<ul style="list-style-type: none"> • Despite school closures and limited device access for 6 months of the year, 2,122 students completed their Maths-Whizz initial assessment. • Y8 students' average Maths Age was 11.13 (over 3 years higher than teachers, above) • The average maths Delta for boys was -3.06 (meaning boys are 3.06 years behind age-related expectations for mathematics). Girls were slightly less far behind age-related expectations, with an average maths Delta of -2.92. • There are no significant differences between rural and urban students. • Based on the assessment data we estimate that learning increases by: <ul style="list-style-type: none"> • 0.78 years between Years 6 and 7 • 0.23 years between Years 7 and 8 • Topics where students are furthest behind in the curriculum tend to center on core number concepts.

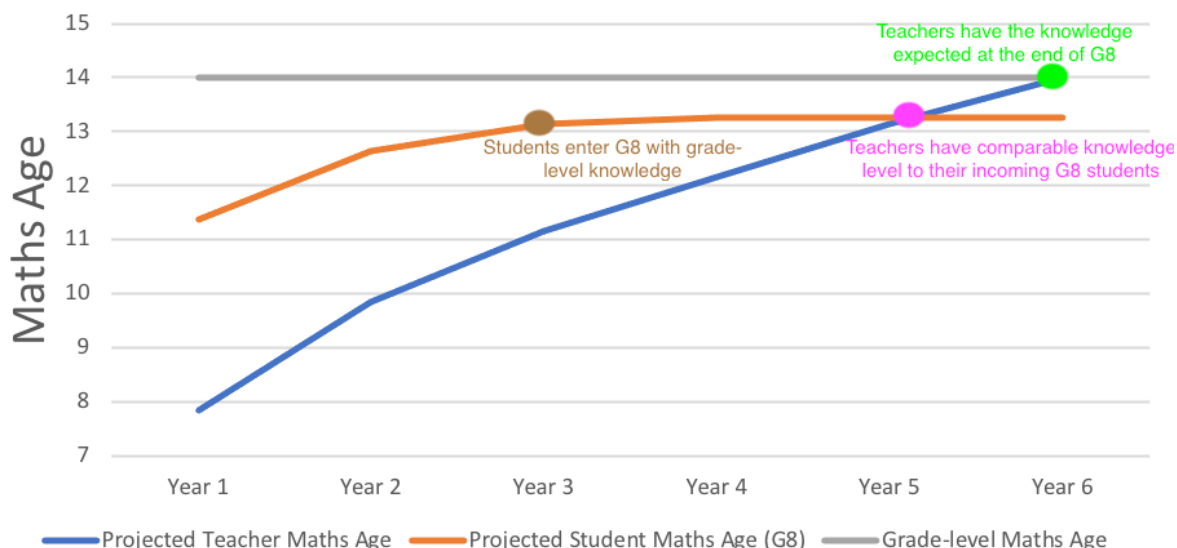
Project Achievement e: Teacher and student projections based on Maths-Whizz data

Using the Maths Age findings mentioned in c. and d. above, we have been able to project what level of tuition is required for teachers in DRC to elevate their maths knowledge to the level at which they can effectively support their students' learning.

Based on Whizz's historical research¹, learners who receive 75-90 minutes a week of tutoring via Maths-Whizz advance their knowledge by an average of 2 years in the first year. We expect accelerated learning to continue in subsequent years: 60-90 minutes of tutoring in year 2 should drive a further improvement of 1.3 years.

Thus, with sustained access to tutoring, teachers can **make up their 3.3-year knowledge deficit relative to students within two years**.

Figure i - Student & Teacher learning projections



From Year 3 onwards, 60 minutes of tutoring a week is expected to advance teachers' knowledge by 1 year over each 12-month period, allowing them to reach expected knowledge levels (a Maths Age of 14) within six years². The chart above (Figure i) also projects how access to individualised tutoring will help students to achieve grade-level expectations (orange line).³

¹ Whizz Education Proof Pack: <https://www.whizzeducation.com/wp-content/uploads/Proof-Pack-2020-Whizz-Education.pdf>

² These estimates are actually conservative because, despite their glaring knowledge gaps, teachers have had more exposure to the maths curriculum (as both students and educators), and can also be expected to apply more focus when learning online. Thus we may expect even greater levels of progress. An early indication of this is that teachers using Maths-Whizz Tutor achieved a learning objective every 12.9 minutes on average - an impressive rate of progress with respect to our global benchmark of 15 minutes per Progression.

³ The chart assumes that students from Y5 onwards receive access to virtual tutoring for the recommended amount of time. In each year of implementation, students who enter Y8 will therefore have higher knowledge levels than are currently observed. In particular, within 3 years students in Y8 (who will start the full-scale implementation in Y5) will possess the knowledge expected of them at that stage of their development. It is also important to note that when students in lower years (Y1-Y4) receive sustained access to tutoring, their knowledge gaps will not emerge in the first place (or, at least, will be far less pronounced than the figures we have seen so far for Y6-Y8 students).

Therefore sustained access to Maths-Whizz ensures, in the long run, that:

1. Students progress through the curriculum in a secure manner, with limited gaps in their knowledge.
2. Students already in Y5 can be supported to make up their knowledge deficits by the time they enter Y8. This requires **three years of full-scale implementation**.
3. Teachers can be supported to shore up their content knowledge to the level expected of the curriculum they teach to Y8 students. This requires **six years of full-scale implementation**.

2. Teacher Quality & Feedback



Supporting teachers' professional development was an integral focus of the project, right from the start. Our aim was to enhance teachers' pedagogical skills and subject knowledge, and equip them to effectively deliver learning gains through ICT.

All of our teacher support activities were positively received and have led to increased confidence, field application and behaviour change. Furthermore, they revealed a set of gaps in teacher subject knowledge which require urgent attention.

Section contents

- a. [Initial onboarding and refresher trainings](#)
- b. [Teacher professional development](#)
- c. [Qualitative teacher data](#)

a. Initial onboarding and refresher trainings

To initiate the project effectively in the 6 provinces we needed to sensitise and onboard key stakeholders about Whizz Education, the Maths-Whizz platform, and - crucially - how to deliver learning gains through it.

In December 2019 a specialist team from Whizz Education delivered 25 hours of onboarding training to 6 Provincial Focal Points seconded from the Ministry of Education. The Whizz Education Project Manager then visited each Province during January and February 2020 to facilitate a series of stakeholder engagement events and initial teacher training sessions.

Province	Stakeholder engagement activities
Kinshasa	<ul style="list-style-type: none">• Introduction calls and presentations with 4 Proveds in Kinshasa
Kikwit	<ul style="list-style-type: none">• Project presentation to Proved, IPP, Diprosec
Tshikapa	<ul style="list-style-type: none">• Project presentation to 6 participants at the Proved office• Information session with 20 parents and other community leaders in Kitangua (Institut Kusadika)
Mbandaka	<ul style="list-style-type: none">• Project presentation and info session for the Proved and his teams
Kisangani	<ul style="list-style-type: none">• Introduction meeting with the Proved and IPP• Project presentation at the office of the Provincial Ministry of Education (12 participants)
Lubumbashi	<ul style="list-style-type: none">• Project presentation session for 20 participants including MoE representatives, Proved, IPP and other stakeholders

i. Initial teacher training

The initial school training covered much of the same content as the Focal Point training above, but with increased focus on how to practically set up students on the Maths-Whizz platform and how to support them through the initial assessment.

Teachers in all schools completed 25 hours of initial training. *[See Appendix 1 - List of Schools and Training Received for full details.]*

Feedback from teachers about the initial teacher training was positive:

- Of the 114 participants (comprising teachers, Proveds and Inspectors), 94.7% strongly agreed (following the training) that they had a clear understanding of what Maths-Whizz is about and how it can enhance learning.

“I am happy to be part of this project. This training opens my eyes as a mathematics teacher. It is the reality as recommended by the DAS curriculum⁴.”

[Teacher, Kinshasa]

⁴ Domaine d'Apprentissage des Sciences

ii. Refresher training

Once schools reopened in October 2020 (following the COVID-19 lockdown) we conducted refresher training in each project school, focusing in particular on the Maths-Whizz assessment.

- We delivered face-to-face refresher trainings in 100% of schools (20).
 - 82 teachers attended a refresher training during October - December 2020
-

b. Teacher professional development

During the COVID-induced school closures we increased the volume and focus of our teacher training interventions. Within the period May - August 2020 we knew that student access to Maths-Whizz would be severely restricted. At the same time, we were mindful of the fact that many teachers possessed a smartphone or other internet-enabled device.

Lessons learned from other educational crises⁵ in low resource settings suggests that there is as much - if not more - value in developing teacher capacity at such times as there is in trying to maintain student learning. We therefore launched 2 professional development initiatives for teachers so that they would be better equipped to deliver classroom learning gains when schools reopened. (PEQPESU provided teachers with additional internet bundles during the period, enabling access and highlighting the project's responsive partnership working).

i. WhatsApp-hosted online teacher training course

- **Focus:** Developing teachers' pedagogical skills
- **Format:** Video content + facilitated online discussions
- **Content:** ICT integration in teaching and learning; Group work in the classroom; Exam success tips and techniques; How Maths-Whizz supports exams preparation; Refresher on Maths-Whizz implementation in schools
- **# Participants:** 99
- **Duration:** Approx. 50 hours (per participant); May - August 2020

Summary of feedback:

- 100% of respondents felt better prepared to deliver learning through ICT after completing the course

[See Appendix 2 - Interim Roadmap report - for further details]

ii. Maths-Whizz Tutor for teachers

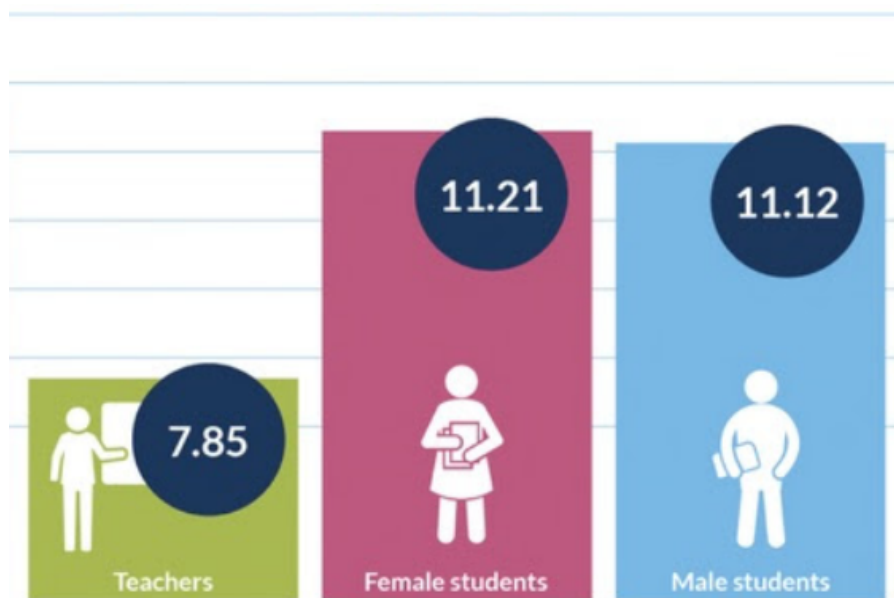
- **Focus:** Developing teachers' maths subject knowledge
- **Format:** Individualised tuition via the Maths-Whizz platform
- **Content:** DRC mathematics curriculum (primary & lower secondary)
- **# Participants:** 55
- **Duration:** May - August 2020

⁵ <https://www.globalpartnership.org/blog/4-lessons-evaluations-education-response-ebola>

Findings:

- Teachers' average Maths Age was 7.85 at the point of completion of the initial assessment
- The weakest topics among the cohort were Place Value, Mental Calculations (+ and -) and Handling Data
- Teachers' maths knowledge lagged behind that of their students on average - see graph below showing average Maths Ages (years):

Figure ii - Teacher & Student Average Maths Ages (@ Sept 2020)



[See Appendix 1 - Interim Roadmap report - for further details]

c. Qualitative teacher data

i. Overall end of project teacher survey data:

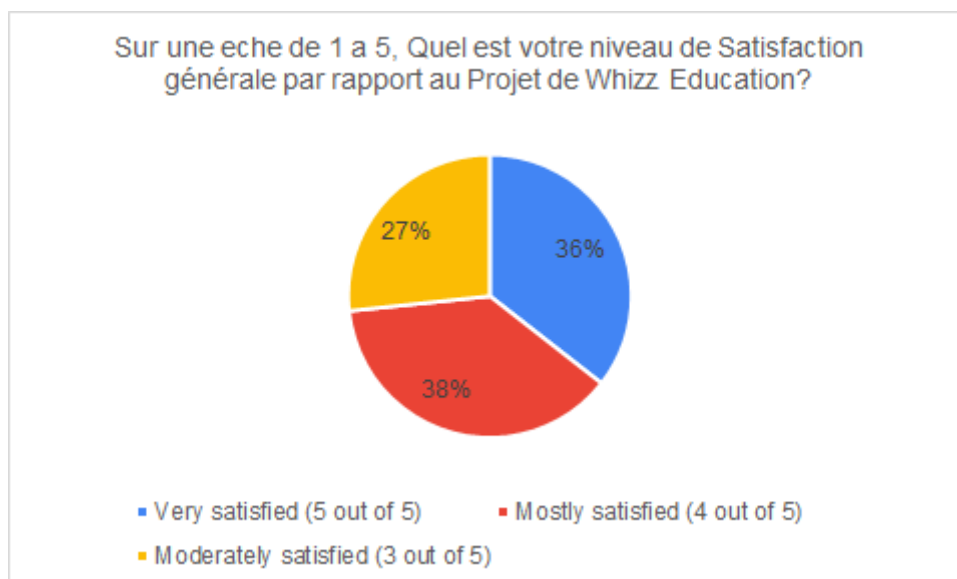
We conducted an end-of-project survey in January 2021 to gauge: a) Teacher overall satisfaction with the project; b) The extent to which teachers perceive that their knowledge and skills have improved over the course of the project; and c) How they have applied (or intend to apply) the learning from the various training activities we provided.

45 individuals completed the end of project survey. 8 of these were Head Teachers and 2 were Provincial Focal Points (MoE). The other 35 were teachers, comprising a 35.4% sample of all the teachers associated with the project. The survey findings are summarised below.

• **How satisfied were teachers with the project overall?**

100% of respondents expressed satisfaction with the project to some extent. No respondents were dissatisfied with the project.

Figure iii - Teacher satisfaction



The following comments were made in relation to this question:

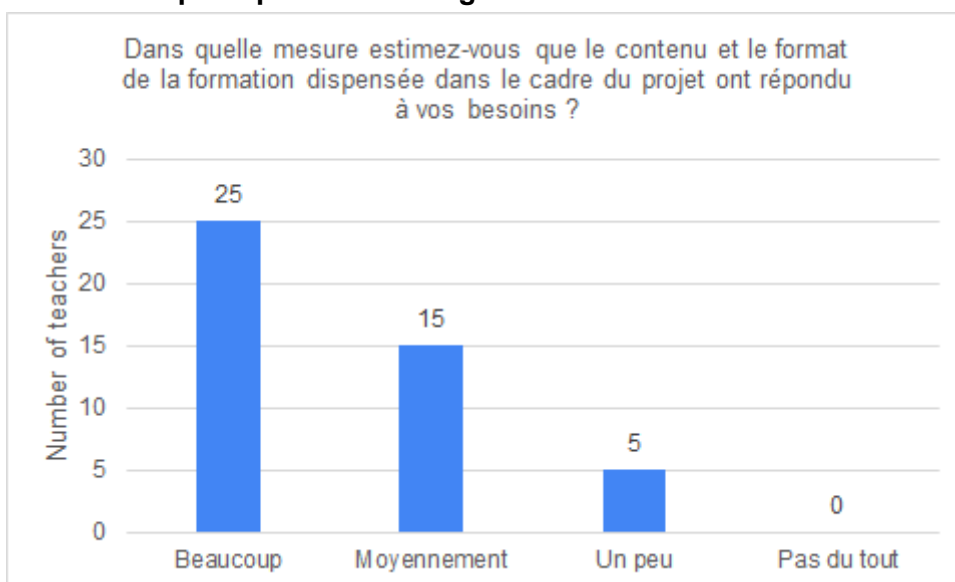
"The Whizz Education project provides educational support to the students, it gave us a taste for mathematics on a scientific level, and the tutor enabled the students to acquire computer skills".

"The project gave value to a discipline in the field of sciences which was starting to totally disappear."

- **To what extent do teachers feel that their learning needs were met through the project?**

A majority of respondents felt that their learning needs were well met by the project's teacher training activities. 40 of the 45 respondents (89%) felt that their learning needs were either moderately or well catered for.

Figure iv - Teacher perceptions: learning needs



The following comments were made in relation to this question:

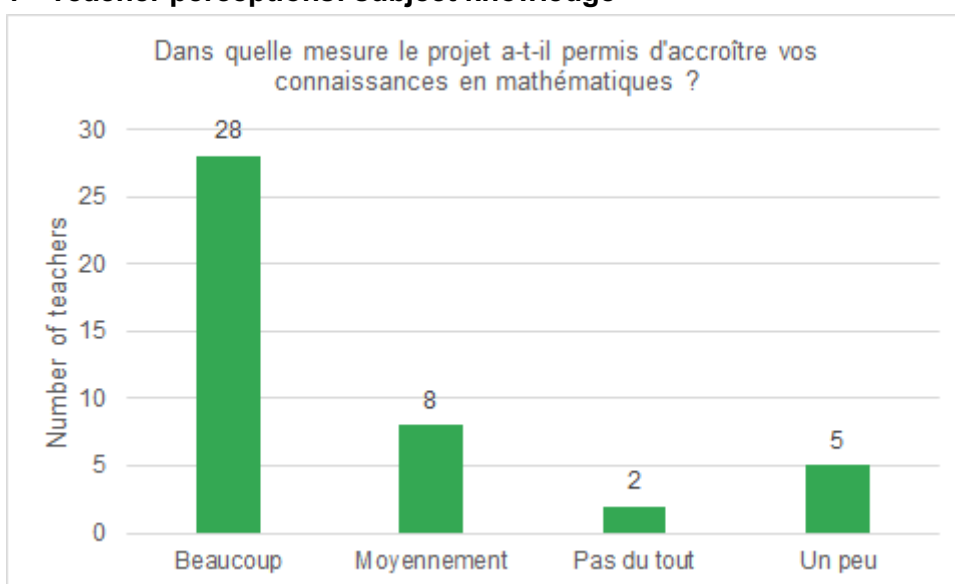
“We have been very well trained.”

“I didn't know it was possible to teach Maths from a computer. The Whizz training was timely.”

- **To what extent do teachers feel that their maths subject knowledge was improved by the project?**

28 out of 43 respondents (65%) felt that the project had improved their maths knowledge a lot. 36 out of 43 (84%) felt that it had improved their maths knowledge either moderately or a lot.

Figure v - Teacher perceptions: subject knowledge

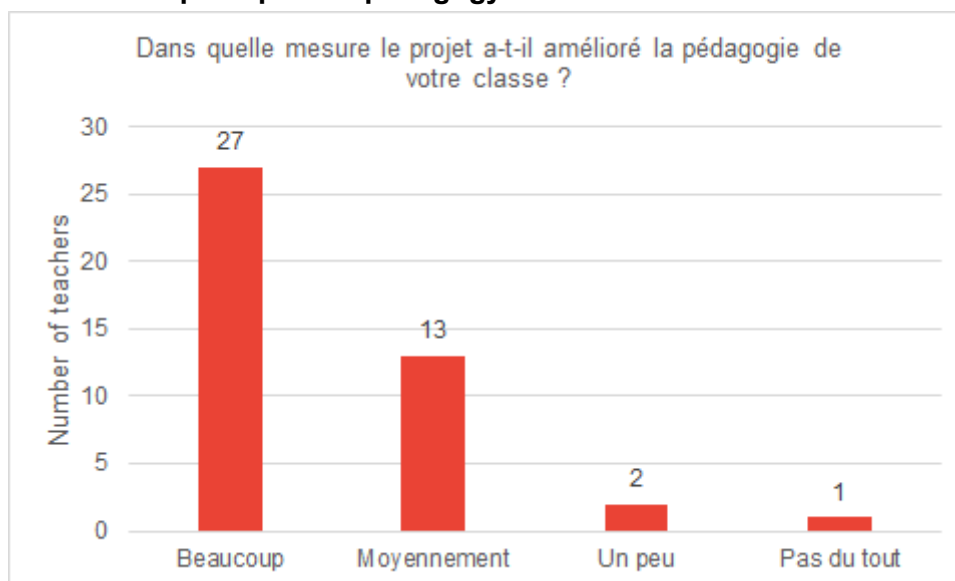


“...I understand even better some concepts that I [previously] found abstract.”

- **To what extent do teachers feel that their classroom pedagogy has improved?**

40 out of 43 respondents (93%) felt that the project had improved their classroom pedagogy either moderately or very well - slightly more than in regard to subject knowledge.

Figure vi - Teacher perceptions: pedagogy



“I teach much better than before.”

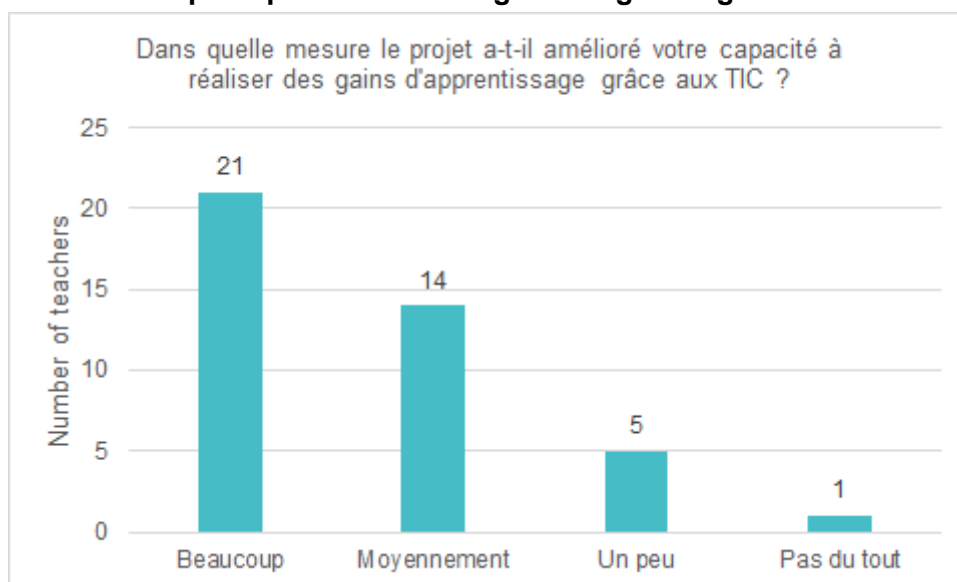
“Maths-Whizz has created a good collaboration between me and the learners.”

“The project has put the child at the centre of learning.”

- **To what extent do teachers feel that the project has positively impacted their ability to deliver learning through ICT?**

Only 1 respondent (teacher) felt that the project did not improve their ability to deliver learning through ICT. This teacher explained that he had good ICT skills already.

Figure vii - Teacher perceptions: delivering learning through ICT



The following comments were made in relation to this survey question:

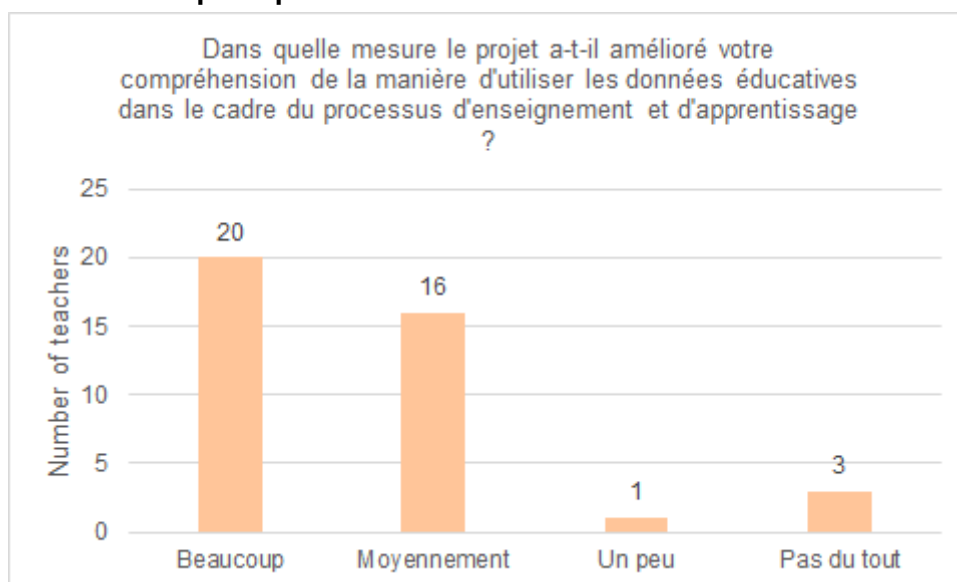
“I became very flexible and fast in computing.”

“Lots of information that we didn't know, we found out now thanks to the project.”

- **To what extent do teachers feel better able to use data to inform the teaching & learning process?**

Slightly fewer teachers felt that the project had contributed to this outcome “a lot”, compared to the others above. One assumption is that the COVID-induced school closures limited both the amount of learning data that was generated and teachers’ opportunities to interact with it. Nevertheless, a large majority felt their ability to use data to inform the teaching & learning process had been improved either moderately or a lot.

Figure viii - Teacher perceptions: use of data

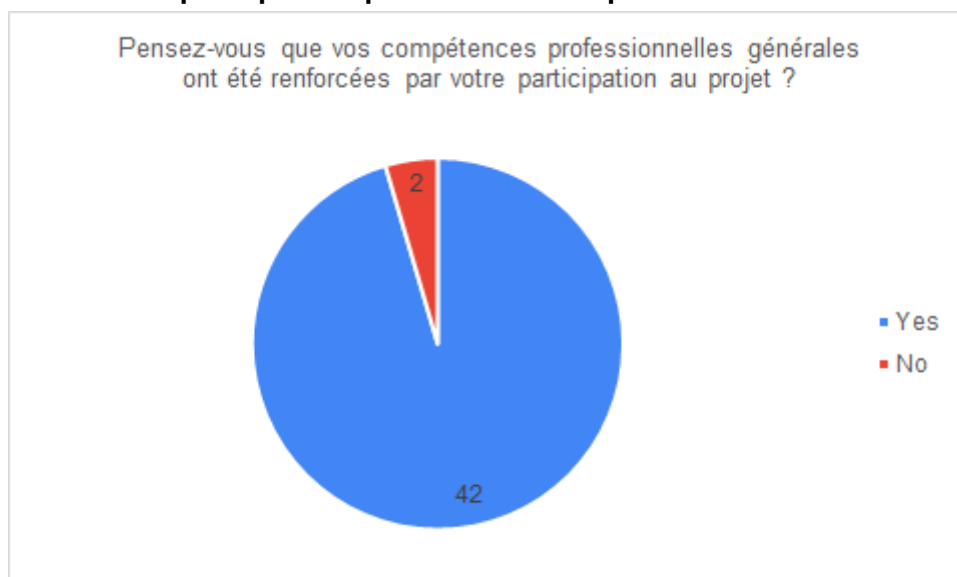


“Maths-Whizz reports are very important for decision making in the classroom and at school level.”

- **Do teachers feel that the project has enhanced their professional competences generally?**

42 out of 44 survey respondents (95%) felt that participating in the project had enhanced their professional teaching competence.

Figure ix - Teacher perceptions: professional competence



“I have now mastered many other platforms, thanks to you.”

“I have changed my teaching methods, even utilising the DAS approach.”

- **How have teachers applied the learning from the project's teacher training activities?**

Teachers' responses to this question tended to relate to general application of the learning in their classroom settings (rather than to specific examples):

“After the training and the multiple visits of the provincial focal point, we improved our way of transmitting the material and we moved from theory to practice.”

“Thanks to the tutor, I learn a lesson, I personally exploit it at home and then [apply it] in the classroom situation.”

“We have put the knowledge gained in the training into our classrooms and for the moment we have moved from theory to practice.”

“We did not apply the teachings during this time due to the epidemic.”

Not all teachers had the chance to apply the learning on the ground, mainly due to the disruption caused by COVID. This question therefore merits further follow-up at the end of the current academic term.

ii. Testimonials from teachers

We also collected testimonials (transcribed and in video format) from teachers and other educational stakeholders throughout 2020. The testimonials fall under 3 main categories:

- The benefits of Maths-Whizz
- Contextual Challenges
- The Impact of the Whizz Education Project.

[See Appendix 3 - Testimonials - for full details.]

3. Adaptations (COVID Response)



The project underwent a significant, material adaptation with the onset of COVID-19 and the resulting school closures. With access to learning severely disrupted during the initial response phase (April - August 2020), our focus shifted to teacher development. The recovery phase (September - December 2020) concentrated on in-school coordination and delivery of initial Maths-Whizz assessments - an activity which had to be postponed earlier in the year.

We also made a number of smaller course corrections and adaptations throughout the project period in response to data and insights collected from the field.

Section contents

- a. [COVID Roadmap progress](#)
- b. [Other micro adaptations](#)

a. COVID Roadmap progress

i. Response Phase - Summary of interim progress

We successfully met our interim roadmap targets overall:

- **90%** of targeted teachers completed the Maths-Whizz initial assessment.
- **124%** of the targeted number of teachers completed our teacher training course.
- **229%** of the targeted number of students completed the Maths-Whizz initial assessment.

[See Appendix 2 - Interim Roadmap report - for further details]

ii. Recovery Phase - Detailed analysis of Maths-Whizz initial assessments

Although not all students completed the initial assessment - as had been intended at the outset of the project - nevertheless a significant number did, enabling us to conduct the following detailed analysis. The findings below provide a rich and insightful snapshot of student maths knowledge levels, organised and disaggregated by gender, topic and community type.

Summary

A sample of 2,122 students were assessed on the Maths-Whizz virtual tutoring platform. Based on their initial assessment profile, we estimate that in the absence of interventions like Maths-Whizz, their learning increases by

- **0.78 years** between Years 6 and 7
- **0.23 years** between Years 7 and 8

Topics where students are furthest behind in the curriculum tend to center on core number concepts - Fractions, Decimals, Pencil Paper Subtraction and Mental Calculations (multiplication and division).

Girls are slightly ahead of boys, and there are no significant differences between rural and urban students.

Background and Methodology

This analysis is based on Maths-Whizz assessment data for students in the project during the period March 1, 2020 to January 24, 2021. In that period, we were able to assess 2,122 students. The primary focus is on:

- Students who transitioned from Year 7 to Year 8 (1,403 students)
- Students who graduated from Year 8 (665 students)

We also managed to assess 54 students who transitioned from Year 6 to Year 7 in a single school (Institut Kusadika). These students were assessed by the school in error, but their data

was retained to inform this analysis. Owing to the small sample size and nature of selection, we advise some caution in interpreting the results for this group. The data does, however, point to some interesting conclusions.

For each assessed student, we have computed:

- a) Their **Maths Age**, as a measure of current knowledge levels with respect to Whizz’s international curriculum; and
- b) **Maths Delta**, the difference between their Maths Age and actual age, as a measure of student attainment relative to age-related expectations.

Findings

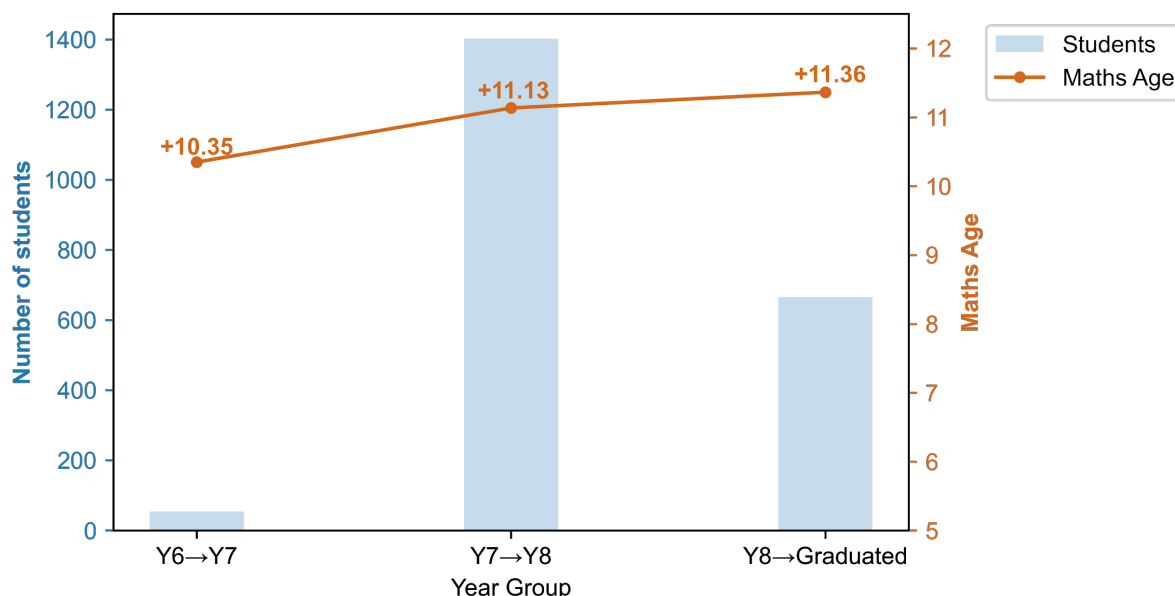
- **What does the assessment data reveal about annual rates of learning?**

The average Maths Age for each of the three cohorts is shown below. If we assume that each cohort is representative of their entire year group, this data suggests that in the absence of learning interventions such as Maths-Whizz, the annual levels of learning are:

- **0.78 years⁶** between Years 6 and 7
- **0.23 years** between Years 7 and 8

The dramatic fall between Years 7 and 8 is likely a consequence of school closures due to COVID-19, suggesting that the effect of learning loss (and inhibited learning gains) has disproportionately affected students who have just graduated from Year 8.

Figure x - Year-on-year average Maths Age at assessment



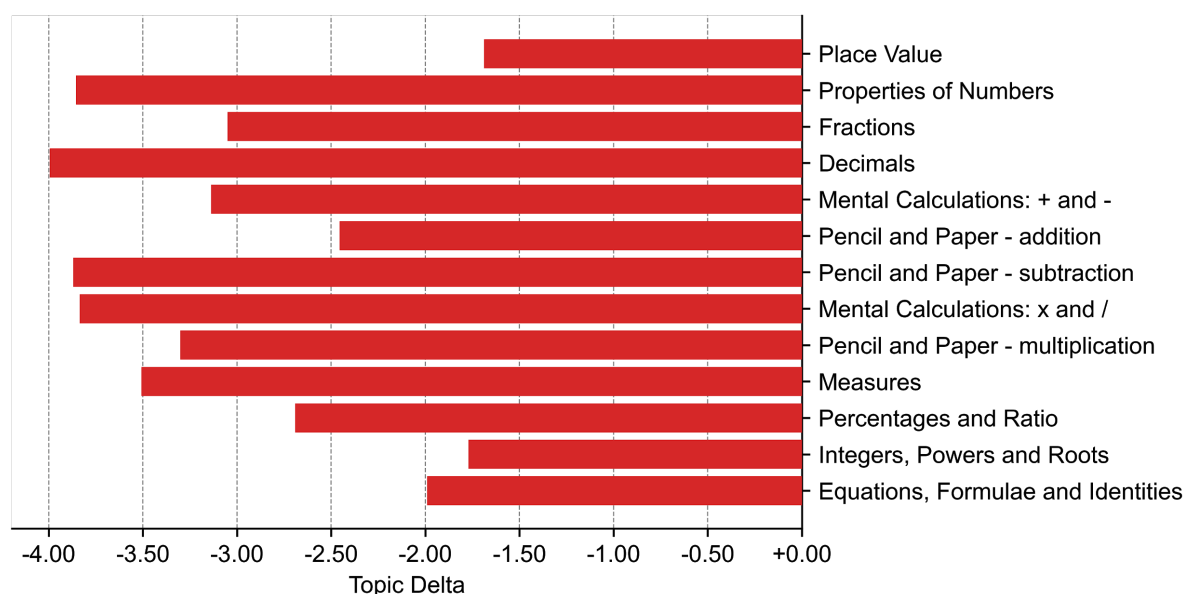
⁶ A student’s maths learning should progress by 1.0 years in this period, as per international expectations. The assessment data suggests that *on average* students’ annual maths learning progresses by 0.51 years - a deficit of 0.49 years.

For comparative context, in Project iMlango (rural Kenya), we established a baseline annual learning rate of 0.58 based on a similar model. Through continuous course corrections within the implementation, over time students who accessed Maths-Whizz for 30-90 minutes a week more than doubled their learning rates, resulting in accelerated learning in line with trends we have observed globally. We will evidence early indications of similar patterns in PEQPESU later on.

- **In which topics are students furthest behind?**

Since Maths-Whizz assesses students across several topics, we can measure students' knowledge deficits relative to their age-related expectations (Maths Delta) in a more granular way and highlight areas of the curriculum most deserving of attention and intervention efforts:

Figure xi - Maths Delta by topic

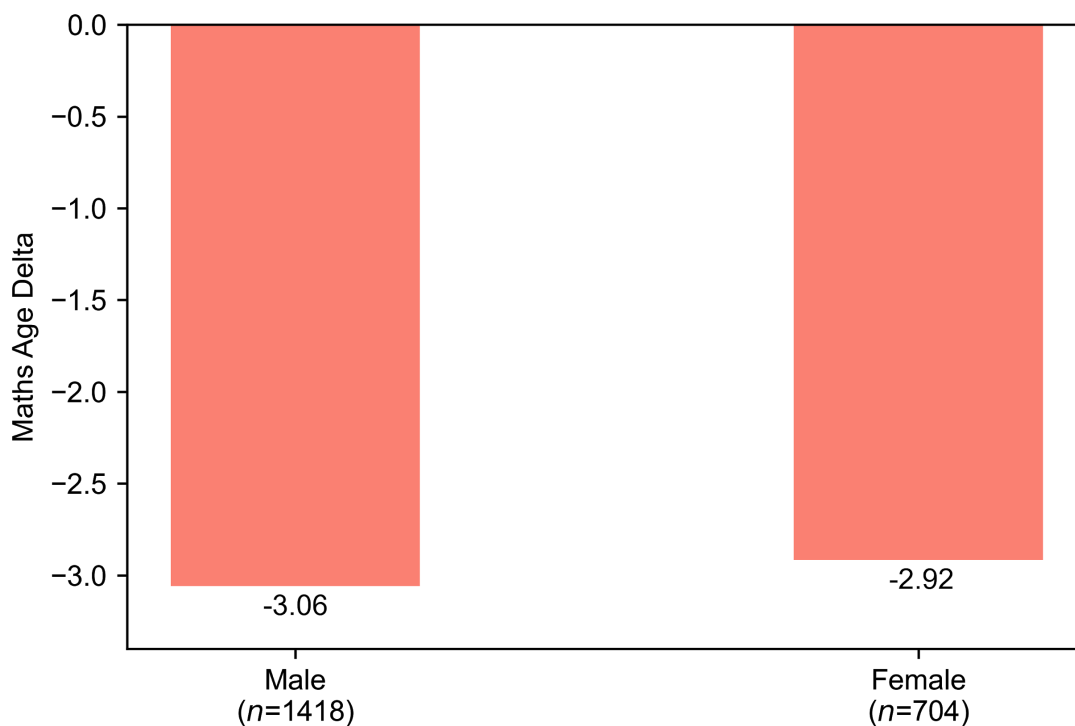


The topics that students exhibit the largest deficits in - Fractions, Decimals, Pencil Paper Subtraction and Mental Calculations (multiplication and division) - are all rooted in foundational knowledge of numbers. This suggests a direction for targeted intervention strategies as schools seek to recover gaps in their students' knowledge with limited time and resources.

- **How do boys and girls compare?**

Our sample of assessed students included 1,418 boys and 704 girls. (The disparity here may be attributed in part to the reversion to traditional household roles observed during school closures). The comparison chart below indicates that girls are less far behind age-related expectations than boys by around 0.14 years (or 7 weeks). This is powerful evidence that girls are at least as well equipped as boys to benefit from intervention strategies as they have fewer gaps to address.

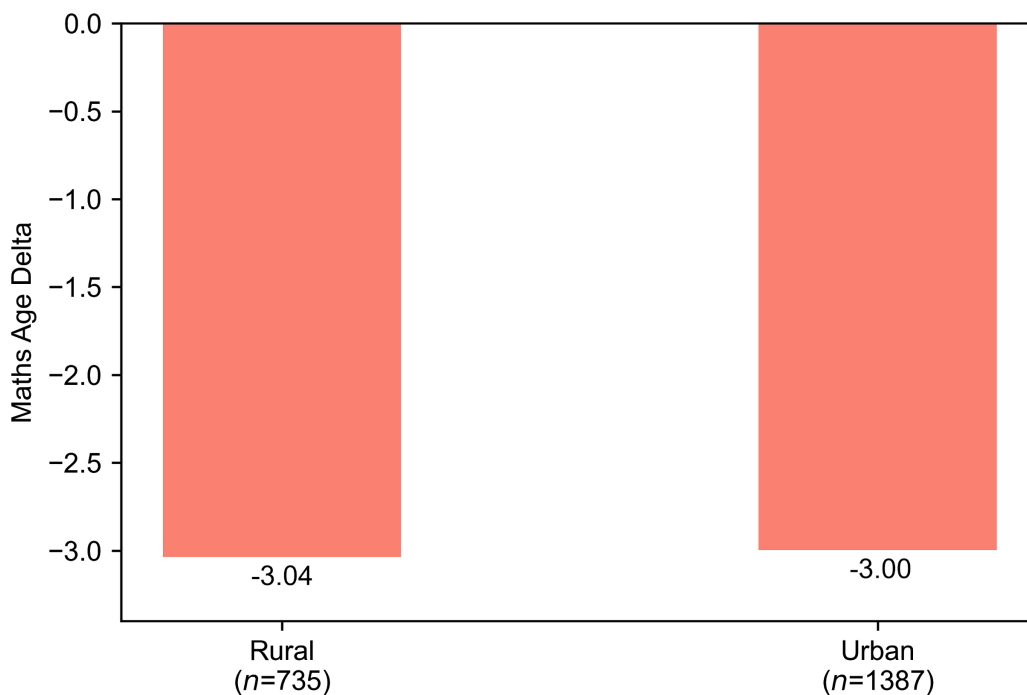
Figure xii - Maths Delta by gender



- **How do knowledge levels compare between different communities?**

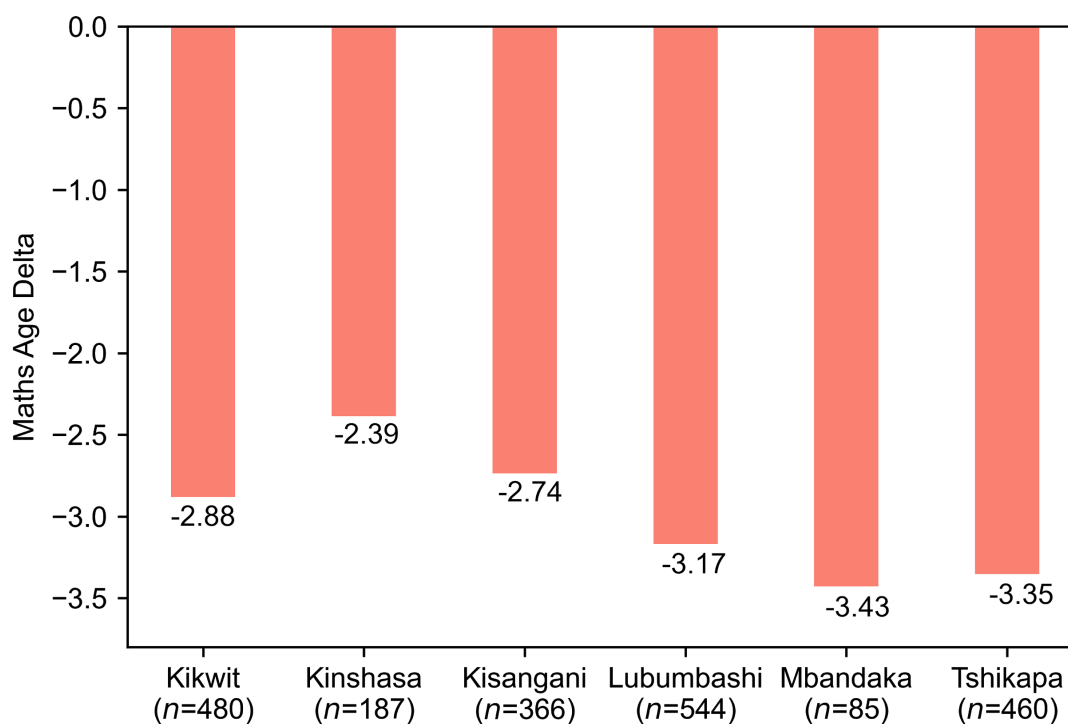
Our sample of assessed students included 735 students from rural schools and 1,387 students from urban schools. There is no discernable difference between the average Maths Delta of the two cohorts, suggesting that achievement levels are comparable between the two groups.

Figure xiii - Maths Delta by community type



We have also mapped Maths Delta by province. Between the two extremes, we can see that students in Kinshasa are almost a year ahead of students in Mbandaka. This indicates where some variation in intervention approaches may be necessary - for example, students in Mbandaka may require 90 minutes of Maths-Whizz tuition per week, rather than the usual 60 minute rate prescribed elsewhere.

Figure xiv - Maths Delta by province



b. Other micro adaptations

We slightly adapted the course of the project on occasion, in response to gaps or challenges experienced on the ground.

i. Designation of Maths-Whizz “champions” in all project schools:

- 20 key teachers were designated to follow up and report on all aspects of Whizz Education project implementation in their respective schools.
- This role was not envisaged at the project outset but was deemed necessary after some time to ensure effective and consistent field-level messaging and implementation.

ii. Additional school:

- A new school was added to the project in November 2020 to make up for the lack of an ICT lab at Institut de Mbandaka.
- College Maele met the minimum requirements for implementation including electricity, a secure computer room and internet connection. An initial remote training course was conducted, and Maths-Whizz assessments began in December 2020.

4. Student Learning Progress & Outcomes



Students using Maths-Whizz at Institut Lisanga, Kisangani

The onset of COVID-19 fundamentally undermined the project's principal aim: to deliver tangible learning gains through virtual individualised tutoring. Nevertheless, we captured some evidence of learning progress, suggesting the impact that Maths-Whizz can have in low resource settings such as this.

We also captured qualitative data from teachers on the impact they perceive the project to have had upon student performance and behaviour.

Section contents

- a. [Overview of Maths-Whizz learning data](#)
- b. [Schools and students using Maths-Whizz](#)
- c. [Projections](#)
- d. [Perceived impact of the project upon students](#)

a. Overview of Maths-Whizz learning data

Context

School closures in March 2020 prevented the vast majority of students from accessing Maths-Whizz Tutor - device access and internet connectivity were largely unavailable to them. Consequently, only 900 (out of 10,000 students) had completed their initial assessment by the end of August.

Learning progress on Maths-Whizz Tutor cannot start until the initial assessment has been completed. To maximise assessment completion, students in general did not start using the Maths-Whizz Tutor until 100% of assessments in their school had been completed.

Findings

A curtailed final term (mid-Oct to mid-Dec) meant that very few schools had completed 100% of their assessments by the end of the project. Nevertheless, some students have enjoyed moderate access to virtual tutoring and show early signs of accelerated learning. Overall rates of learning have improved in recent months due to schools reopening and the consequent supervision of students in the ICT lab. We anticipate further improvements through continuous course corrections applied throughout the lifecycle of implementation.

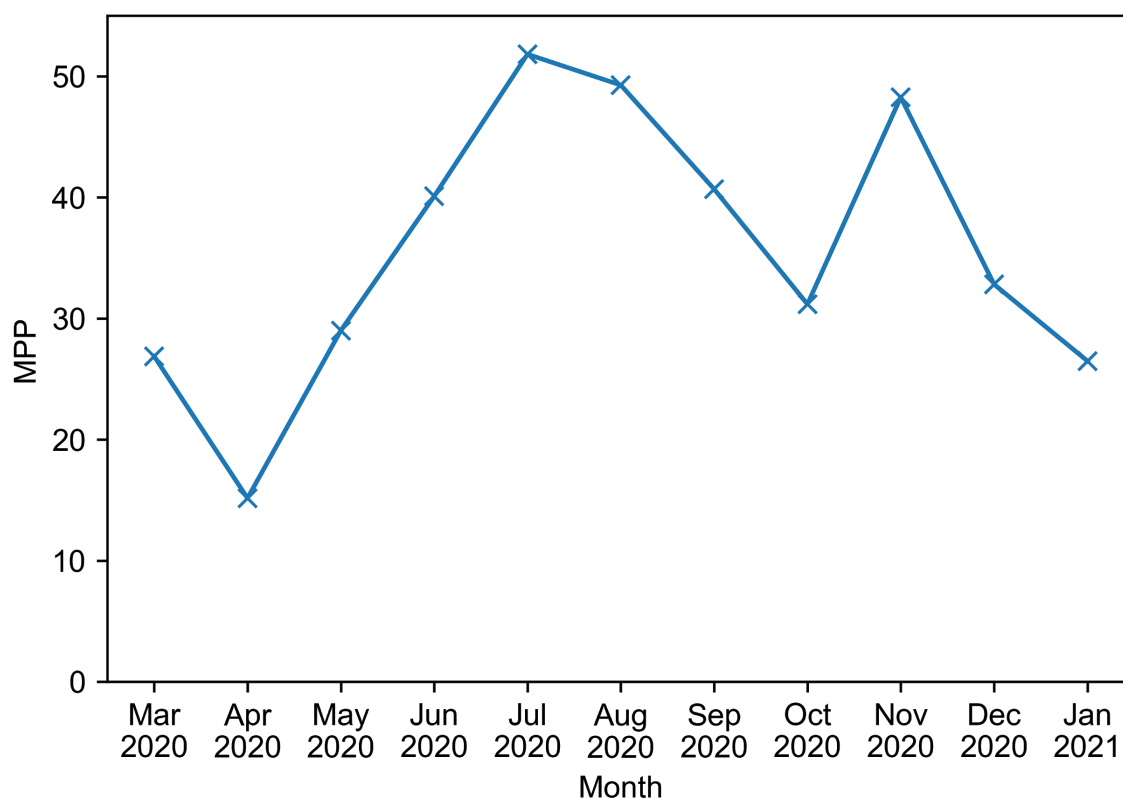
- **How have learning rates evolved during the initial phase of the project?**

For students that had access to virtual tutoring we have tracked learning gains in the form of Progressions (number of completed learning objectives). From this we have seen pockets of activity on the Maths-Whizz tutor that give early indications of the potential of virtual tutoring in this context.

One measure of how challenging students are finding tutoring content is *minutes per Progression (MPP)*, which tells us how long students take on average to complete a learning objective. The global average for MPP is 15. It tends to be higher in the early stages of implementation as students and educators familiarise themselves with the virtual tutoring platform. We are therefore seeking evidence of a downward-trending MPP over time.

By tracking MPP each month in the project, we can see an initial rise up to July 2020, followed by a steady decline, with an uptick in November.

Figure xv - MPP by month



The uptick in November merits further investigation - we assume that a particular group/school accounted for most Usage during that small period and were using it in such a way that led to slow rates of progress. However, the general decline from July onwards coincides with increased student and teacher familiarity with the platform and its associated good practices, as well as October school reopenings, when it became possible to again supervise students as they worked on the Maths-Whizz Tutor. Typically, during school closures teachers could not ensure that students were spending their Maths-Whizz time efficiently, nor address any language, platform or hardware challenges that students might be experiencing in real-time.

b. Schools and students using Maths-Whizz

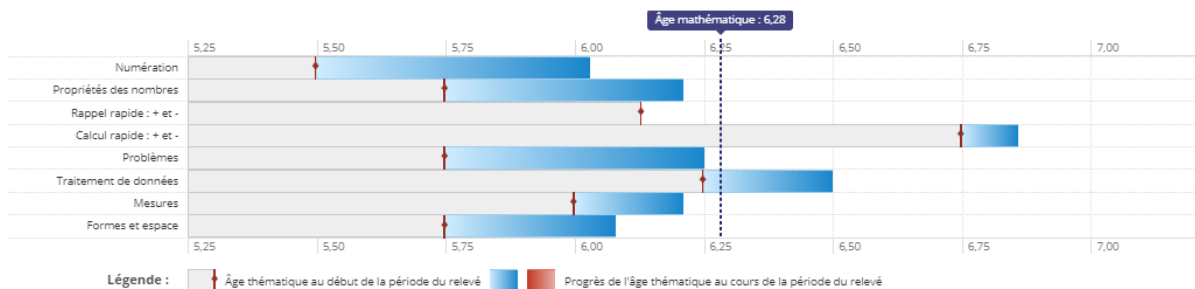
- **Early evidence of accelerated learning**

i. Students

A number of students have enjoyed moderate access to Maths-Whizz, showing impressive learning gains. Here we highlight a few such students to demonstrate the potential of virtual tutoring as a means of supporting accelerated recovery and learning.

Pladie Tshilenge Kabeya (Year 8 student at Institut Scientifique JUA) has received 363 minutes of virtual tutoring, earning 41 Progressions and a Maths Age improvement of 0.36. In other words, he has progressed through more than a third of a year's worth of the curriculum with just six hours of targeted instruction.

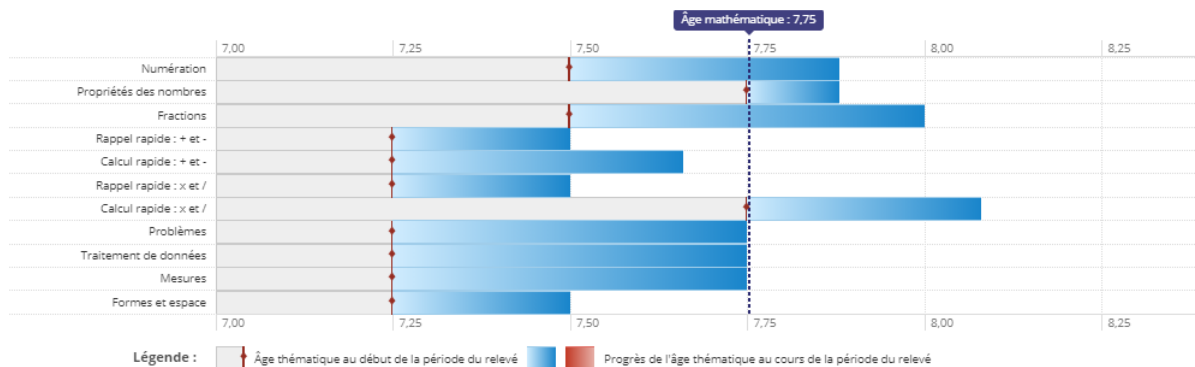
Figure xvi - Student profile 1



[Topic profile chart for Pladie Tshilenge Kabeya⁷]

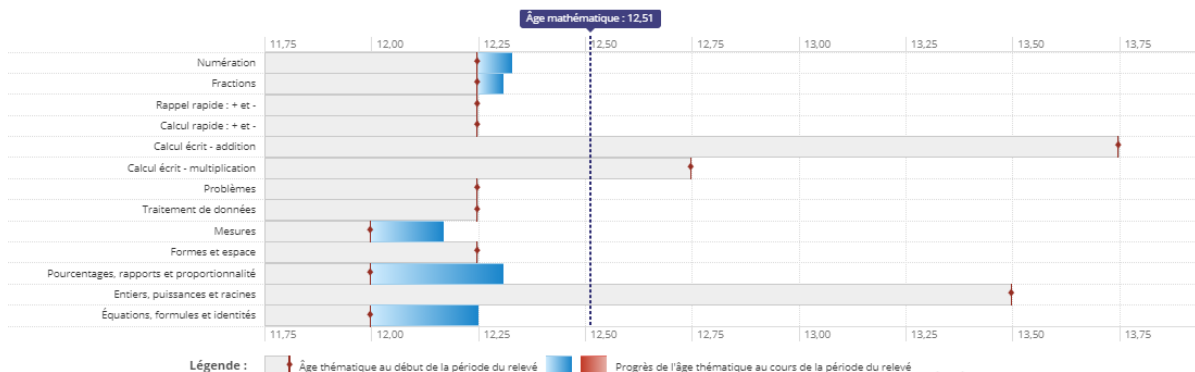
Chekina Mwemawimbi (Year 8 student at Institut Scientifique JUA) has received 477 minutes of virtual tutoring, earning 36 Progressions and a Maths Age improvement of 0.36. In other words, she has progressed through more than a third of a year’s worth of the curriculum with just eight hours of targeted instruction.

Figure xvii - Student profile 2



Gesvie Mule (Year 8 student at Collège Sadisdana) has enjoyed consistent access to Maths-Whizz since being assessed in late December. She has averaged 35 minutes a week since then, achieving 12 Progressions and a Maths Age improvement of around a month - an accelerated pace of learning. If Gesvie Mule sustains her current rate of Usage for a year, her Maths Age will increase by more than 1 year, denoting a degree of accelerated learning.

Figure xviii - Student profile 3



⁷ Student topic profile. The red lines denote the student's Maths Age within each topic at the point of completion of the Maths-Whizz initial assessments. The blue bars indicate learning progress on the Tutor since the assessment.

Whizz's historical research indicates that accelerated learning is achieved when students have sustained access to virtual tutoring throughout the year. The examples above point to early signs of this. As we saw with Project iMlango, we also expect rates of learning to increase throughout the lifecycle of implementation as we bring continuous course corrections to bear on the learning and teaching of mathematics.

The dramatic learning loss due to COVID-19 is a clear warning sign of the threats the pandemic poses to students' educational prospects. Further losses can be anticipated as disruptions continue, and educational inequalities are poised to widen. The examples above give us encouragement that virtual tutoring can both mitigate these effects and support accelerated recovery efforts. This initial evidence suggests that sustained access to virtual tutoring can drive accelerated learning, for individual students and - subject to robust implementation - even whole schools.

ii. Schools

There is preliminary evidence that these learning gains can scale up to individual schools. Selected examples:

- Students at College Saint Theophile received 147 hours of virtual tutoring and earned 328 Progressions at a minutes per Progression of 26.9.
- Institut Kitumani received 154 hours of virtual tutoring and earned 338 Progressions at a minutes per Progression of 27.4.

It is instructive to ask what are the enabling conditions that led to positive results in these schools in particular? While it is true that both of these schools have good reputations in terms of teaching quality, and their students perform relatively well at the national level, other factors are at play. Teachers at Institut Kitumani engaged with the project notably well from the outset, supervising the ICT lab efficiently to ensure that good practices were observed and that students were supported with any challenges faced.

At College Saint Theophile, teachers responded particularly well to visits and messaging from the Whizz Education project manager. Following these interventions, they too began to supervise the lab closely, monitoring students' behaviour and progress while they worked on the Maths-Whizz Tutor.

While their numbers fall significantly above our global benchmark of 15, they are trending towards reasonable rates of learning. If these trends continue (as we would expect with implementation support driven by continuous course correction) we would expect to see learning rates in line with international standards within a year.

c. Projections

Sustained access to virtual tutoring is essential to ensuring students' accelerated progression through the maths curriculum (as well as recovering any learning loss that may have accumulated). As stated above, students' maths knowledge levels are behind where they should be, *and* their maths learning increases by less than a year in a 1-year period. Without

access to a tool such as Maths-Whizz, the knowledge deficit will therefore only increase year-on-year, entrenching students in a negative learning spiral.

On top of this status quo ante, the pandemic has dealt a further blow to learning. Globally, countries are experiencing learning loss - a phenomenon which only widens the already huge poverty gap, leaving students in developing nations trailing further behind their international peers. Based on Maths-Whizz learning data in DRC we have been able to project a way out of this situation - see Figure i ([Summary of Achievements section](#)).

Learning outcomes are achieved through a long-term mindset and commitment. In our experience many programmes underestimate the time commitment required to achieve transformative learning impact - this stage of maturity is typically achieved over 5 to 10 years by which time education systems are strengthened and the now built in capacity, knowledge and capabilities of teachers, communities, stakeholders and institutions allows the sustainability of transformational learning outcomes that results in systemic impact. Once national scale implementation is achieved and local systems have been strengthened, economies of scale and economies of maturity allow for significantly lower programme costs and higher learning yields.

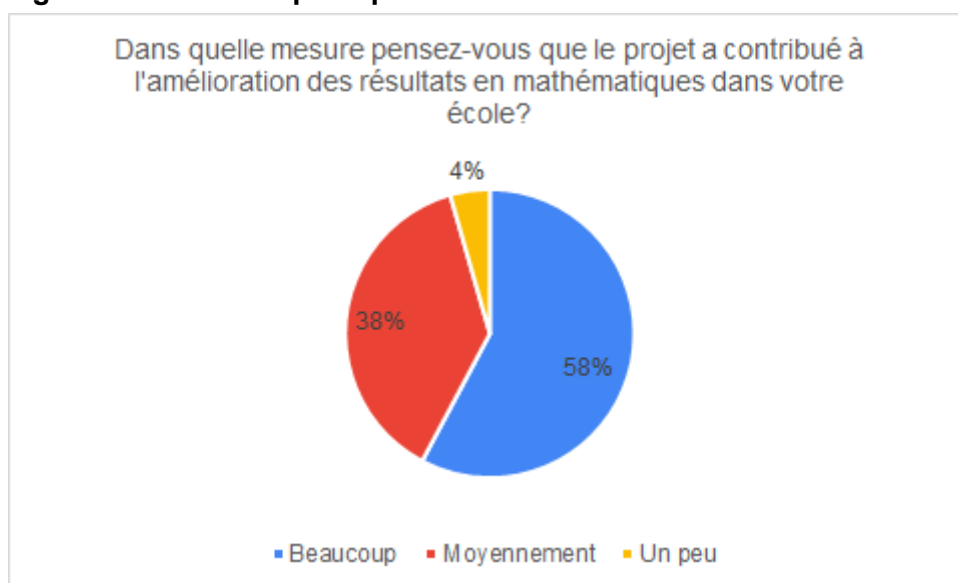
d. Perceived impact of the project upon students

In the end-of-project survey, we asked teachers and Head Teachers how they thought the project had impacted students. 45 respondents - including 35.4% of all the teachers within the project - completed the survey.

- **To what extent has the project contributed to improved maths results in schools, according to teachers?**

58% of respondents felt that the project had greatly contributed towards improved maths scores in their schools. 100% of respondents felt that the project had contributed to some extent.

Figure xix - Teacher perceptions: maths results



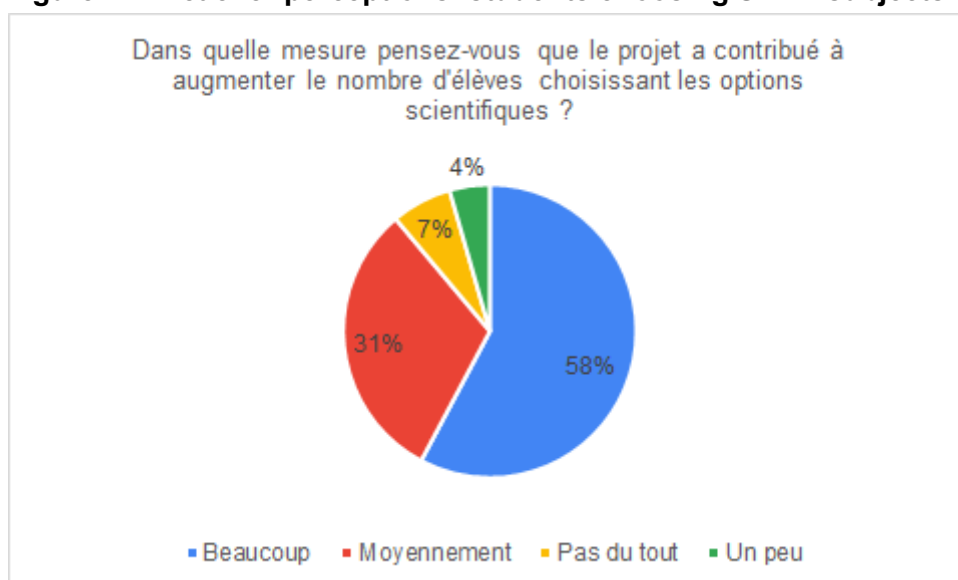
“Some students who are often weak in the classroom, after the assessments their scores have almost doubled.”

“Whizz improved the performance of moderate maths students as they started the Whizz lessons, even [tackling] concepts not yet introduced in their maths class.”

- **To what extent do teachers feel the project has contributed towards the number of students choosing scientific subjects⁸?**

The same proportion of respondents - 58% - felt that the project had greatly contributed in this regard. However, more respondents than above - 11% - felt that the project had not contributed at all, or only contributed a little.

Figure xx - Teacher perceptions: students choosing STEM subjects



“Many students shied away from maths. With this project, they found that it is a subject like any other.”

“The learners give themselves up to the scientific discipline, which was considered a bête noire in previous years. But thanks to the implementation of ICT, they are able to treat it as a game.”

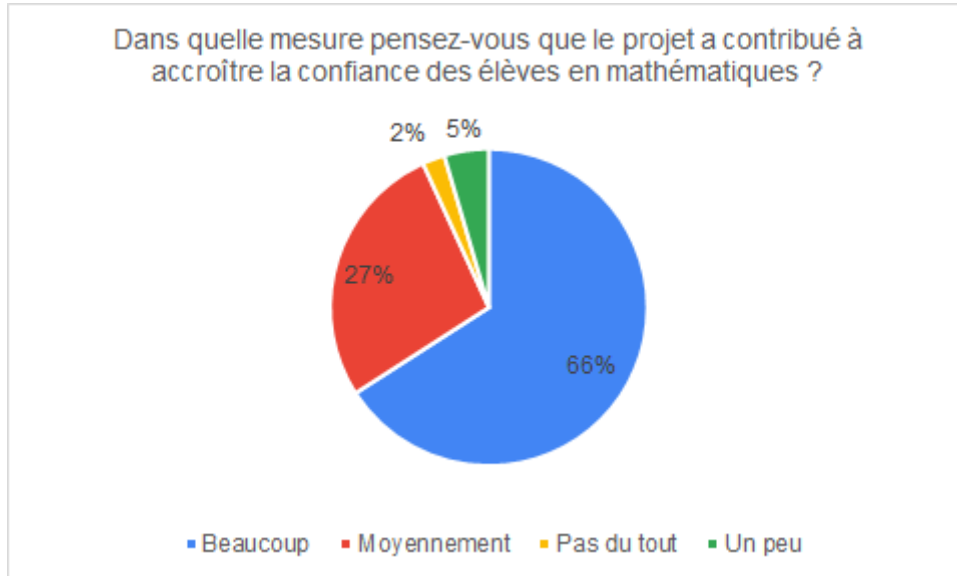
“Children who did not like mathematics saw that with Maths-Whizz, computer-assisted mathematics became very easy for them. In our school especially, the number of pupils increased in science compared to the past year.”

⁸ Poor uptake of STEM subjects by students was one of the contextual factors which the project was broadly intended to contribute towards overturning.

- **To what extent has the project increased students' confidence in maths, according to teachers?**

A larger proportion of respondents (66%) felt that the project contributed greatly towards this outcome than for the 2 above.

Figure xxi - Teacher perceptions: student confidence



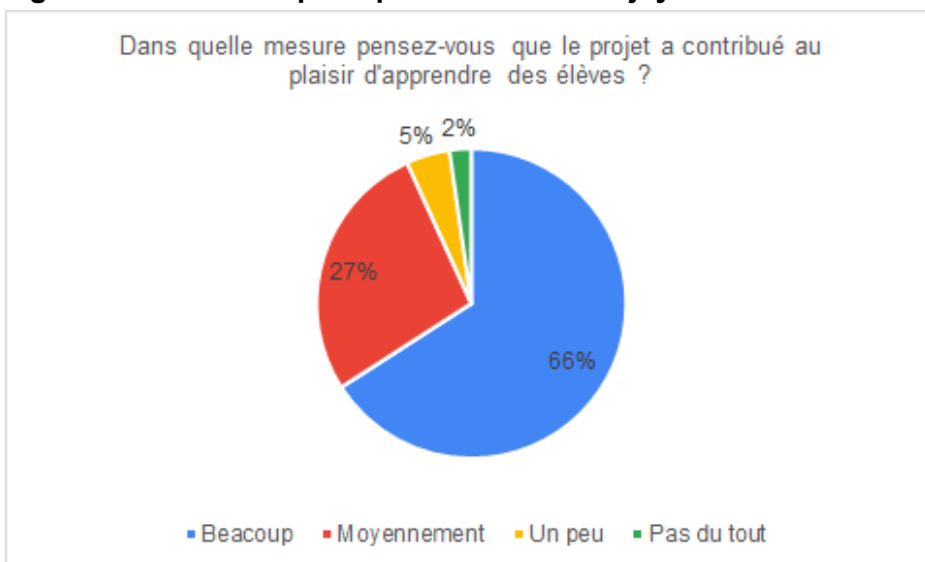
“Me personally I noticed that the learners who were less interested in this subject, now are motivated to [go to] the laboratory to work like the others.”

“The students have confidence because the marking and corrections are done peacefully.”

- **To what extent has the project positively contributed to students' enjoyment of learning?**

This question drew the exact same proportion of responses as the one above, though this is not because respondents conflated the 2. Individuals' responses varied from question to question.

Figure xxii - Teacher perceptions: student enjoyment



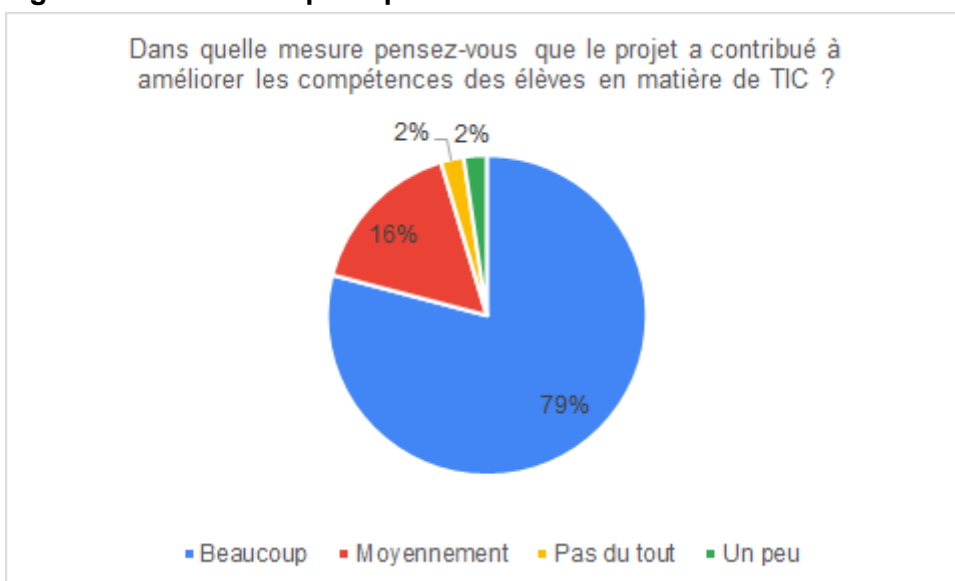
“A weak learner who considered mathematics to be like magic, now gives himself to the Whizz laboratory to practice, hence [showing] a desire to study this subject.”

“The children love it. They don’t even want to leave the lab after the session.”

- **To what extent has the project contributed towards improving students’ ICT skills?**

A larger proportion of respondents (79%) felt that the project contributed greatly to this outcome, than they did for any of the others above.

Figure xxiii - Teacher perceptions: student ICT skills



The following comments were made relating to improvement in students' ICT skills:

“Children who did not even know how to operate the computer are now able to do so without problem.”

“At the beginning many students could not easily turn on and off a computer, but with [Maths-]Whizz and the fact that they work [on it] often, they mastered the basics of ICT.”

5. Lessons Learned



We captured a number of lessons based on our experiences in the field as well as from qualitative teacher and Head Teacher data.

The innovative nature of the project - and the reception of it from stakeholders at all levels - carry lessons for the sector on how and why to scale-up.

Section contents

- a. [Importance of having dedicated field-based operatives](#)
- b. [Reputation and appetite for EdTech beyond the project schools](#)
- c. [Preventing gender-based violence](#)
- d. [Instrumental role of the community](#)
- e. [Stakeholder feedback and recommendations](#)

a. It is vitally important to have dedicated field operatives working with schools

- The Provincial Focal Point model worked well to an extent, but if this is to scale then the individuals need to be properly designated and committed to the project.
 - Most Focal Points retained work duties which took them away from the project for significant periods, meaning that schools received far less hands-on attention than is necessary.
 - To mitigate this, the Whizz Education Project Manager opened up direct communication links with teachers, bypassing non-engaged Focal Points. While this was partially successful, it is not a scalable solution. Dedicated field-level support is key to building effective relationships with schools. This cannot be achieved from Kinshasa.
 - Where the Focal Points were engaged, the project was able to function well.
 - We believe that the Focal Point model can work, but clear expectations around workload and time commitment need to be contractually established from the outset, and formal agreement reached with the Focal Points' existing employers. Whizz Education can draw on our implementation experience in similar contexts to work in consultation with the Ministry of Education on how to structure staff time, duties, etc to be able to support the project effectively.
-

b. The reputational impact of Whizz Education beyond the project schools suggests the appetite for EdTech in DRC is strong

- News of the project spread to schools and local communities outside of the project's orbit (albeit within the wider PEQPESU cohort of schools), generating a desire to take part in future iterations. This was an unexpected but welcome byproduct of the project's success.
- Sometimes this happened formally. The Provost in Mbandaka organised a meeting with the directors of other schools in his jurisdiction and invited the Whizz Project Manager to speak to them. They were highly stimulated by the positive testimonials they heard about the project and keen to know how they could benefit from the same. Similarly, the Director of Kusadika introduced Whizz Education to other school directors in his areas.
- Others got word of the project informally, through the stories of students and teachers who had discovered a tool that changed their perception of mathematics and opened the door to new opportunities through ICT:

- The Whizz Education Project Manager received calls from schools in Mbandaka and Kisangani who had heard about the impact of the project and wanted to know how they could become part of it.
 - The provincial Education minister invited Whizz Education for a presentation during our visit to Kisangani last year, because he heard about the project and believed it could have an impact on their results.
-

c. Projects such as this can help to prevent gender-based violence

- To protect them from potential sexual violence and early forced marriage, 42 girls at Institut Kusadika (75km from Tshikapa) were supervised in the school's ICT lab during the school closure period.
 - The availability of the lab and the access to - and interest in - Maths-Whizz meant that the girls could be meaningfully occupied in a place of safety during a time of significantly increased risk to them.
 - This activity was complemented by parental awareness raising about the importance of girls' education and their exposure to new technology.
 - Although anecdotal, this speaks to the value of learning through ICT as a means of engaging girls at a time when their educational careers face potential jeopardy.
-

d. Community mobilisation contributes instrumentally towards outcomes being achieved

- At each stage of project implementation, communities around the schools have been involved. For example, parents actively participated in supporting mathematics home learning during the first lockdown period.
 - In June we launched a “call for solidarity”, asking parents and teachers to share their devices (computers and smartphones) with students living in the neighbourhood so that they could connect to Maths-Whizz during the school closure period.
 - This was a real success, demonstrating how community mobilisation can address access barriers, even within an EdTech project in a low resource setting.
-

e. Qualitative stakeholder feedback and recommendations

Teachers and Head Teachers cited the following challenges, unmet needs and recommendations for the project in the end-of-project survey. The teachers responding to the survey comprise 35.3% of the full project cohort.

- **Challenges faced:**
 - 41 out of 45 survey respondents (**91%**) cited COVID / school closures as a main challenge faced during the project
 - 33 out of 45 survey respondents (**73%**) cited poor internet connectivity as a main challenge faced during the project
 - 25 out of 45 survey respondents (**56%**) cited lack of electricity as a main challenge
 - 25 out of 45 survey respondents (**56%**) cited large class sizes as a main challenge
 - 18 out of 45 survey respondents (**40%**) cited lack of ICT knowledge as a main challenge
 - 10 out of 45 survey respondents (**22%**) cited insufficient equipment of some kind (chairs, extension cables, computers, stabilisers etc) as a main challenge
- **Learning needs:**
 - 25 out of 45 survey respondents (**56%**) reported additional learning needs which could be addressed in a future iteration of the project
 - These include: i. Further familiarisation around ICT; ii. Various (non-specific) requests for deeper / additional / continuous training
- **Overall recommendations for the project (summary of recurring points):**
 - For it to continue
 - For more equipment to be provided (laptops for teachers, chairs, additional computers, etc)
 - For compensation (financial) to be provided to teachers to cover additional transport costs incurred while supporting the project during school closures
 - To resolve the lack of electricity in some schools

6. Recommendations; Scaling & Sustainability Plan



Based on the findings and lessons learned detailed in this report, we have developed a set of recommendations and proposed next steps for scaling and sustaining this innovative and impactful project.

Section contents

- a. [Recommendations](#)
- b. [Sustainability and Scalability](#)

a. Recommendations

Learning from the implementation shows that the **average maths Delta for boys was -3.06** (meaning boys are 3.06 years behind age-related expectations for mathematics). **Girls were slightly less far behind age-related expectations**, with an average maths Delta of -2.92. This means that students in DRC at this critical juncture in their education are lagging behind their international peers.

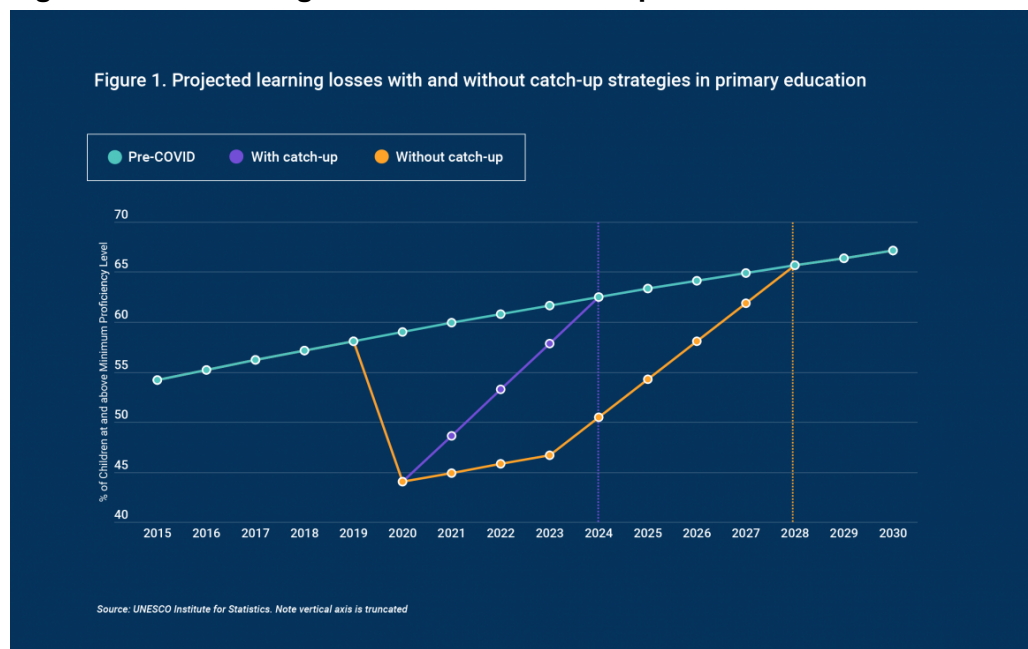
Recommendation 1: Implementation of individualised learning continues

In order to ensure that DRC's youth does not continue to fall behind their international peers, we recommend that implementation of individualised learning continues - to accelerate students' learning and bring them in line with international standards. The fact that we have a) identified a large gap in student learning, and that b) as a consequence of COVID-related school closures a focus on addressing this gap has not been viable, suggests that continuation of the intervention must be considered.

Recommendation 2: Catch-up strategies are implemented

In addition, it is likely that additional learning loss has already taken place. Our international comparisons suggest that the average loss incurred from school closures amounts to **8 months of learning (and counting)**.⁹ While school reopening dates after COVID are still unknown, the danger is that learning loss will substantially increase. A projection from the **UNESCO Institute of Statistics**¹⁰ shows that school systems which invest in student catch-up strategies beginning in the 2020-21 school year can expect to return to pre-pandemic learning levels in four years time. Schools systems that do not invest in dedicated catch-up strategies are forecast to take twice as long to recover.

Figure xxiv - Learning losses without catch-up



⁹ 8 months and counting: lockdown learning loss quantified: <https://mailchi.mp/01982a6c5acf/ngu1k7g0xm-242518?e=%5BUNIQID%5D>

¹⁰ <https://www.globalpartnership.org/blog/impact-school-closures-learning-can-be-curbed-adequate-catch-strategies>

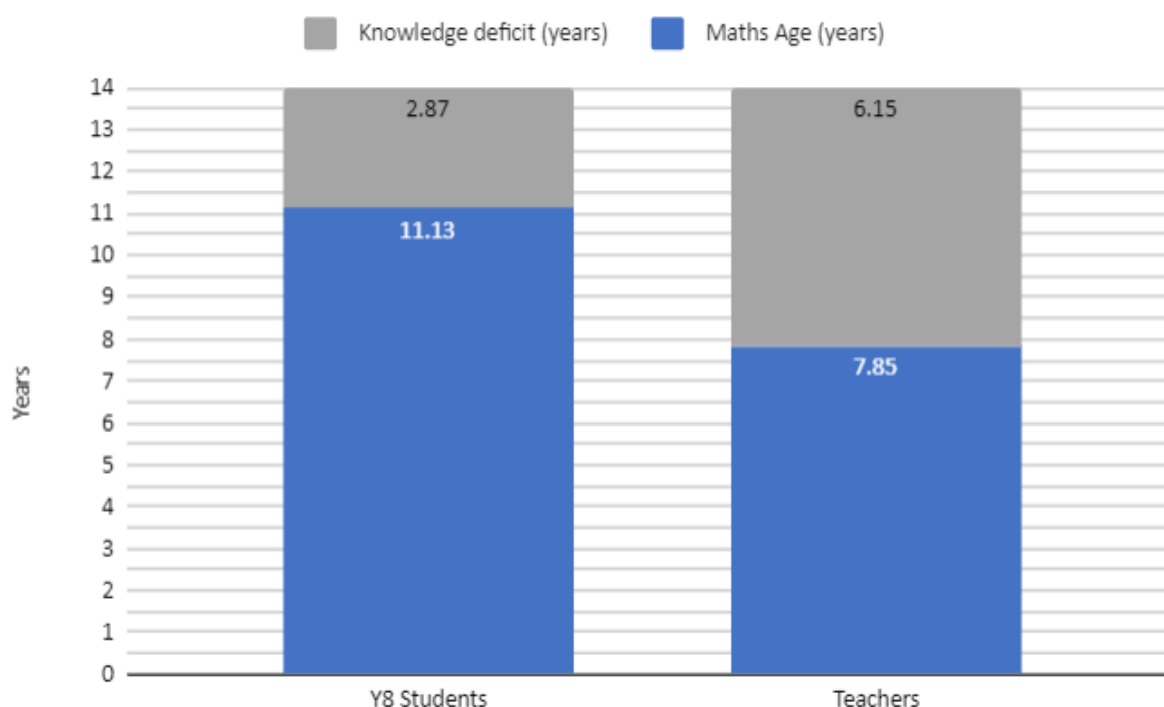
Recommendation 3: Scale the existing project

Recommendations 1 and 2 suggest not only that continuation of the project would be beneficial, but that scaling up would be instrumental in enabling the DRC to build back better from the pandemic and improve learning outcomes and education systems for the future. In order to scale up, we would take lessons learned, as described in Section 5, into account. In addition to these, we have gathered insights from other projects both globally and in similar contexts which can inform project design and implementation in a scale-up situation.

Recommendation 4: Implementation of targeted teacher upskilling and capacity building strategies

Our study (referenced in section 2 b) comparing student and teacher maths levels in DRC revealed that, on average, Year 8 students who completed an initial Maths-Whizz assessment were 2.87 years behind age-related expectations for mathematics. Teachers, however, were on average 6.15 years behind the age-related expectations of the Year 8 children they were teaching.

Figure xxv - Teacher & student knowledge deficits



Comparing student and teacher maths levels in DRC

It is vital that teachers possess the knowledge and skills to provide their students with quality learning experiences. Based on these findings, our final recommendation would be to focus attention on upskilling and building the capacity of teachers to enable young people in DRC to flourish, thereby improving their future life opportunities.

b. Sustainability and Scalability

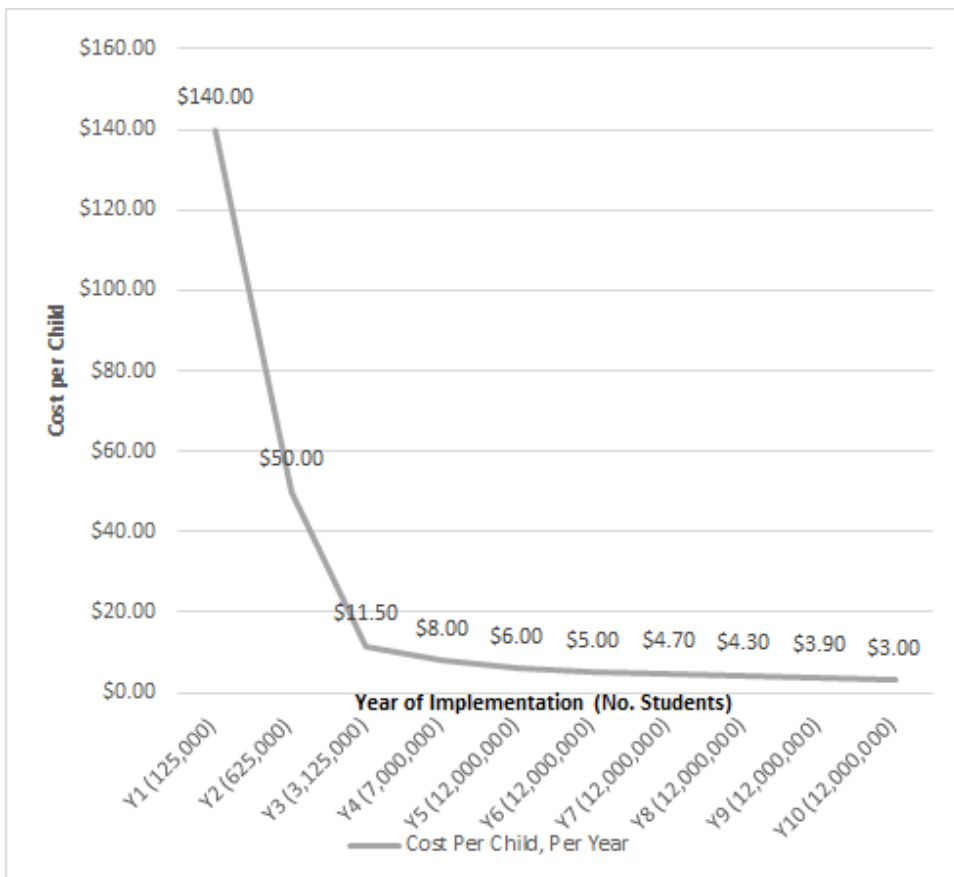
Sustainability is a core component of our project design and was baked into the work-plan to ensure longevity of project outcomes. However, the impact of COVID-19 created challenges for sustainability planning and execution. Due to school closures, the project was not able to progress at the planned speed. Demonstration of results to inform our sustainability and scalability plans was therefore delayed. (The results and lessons learned from a shorter-term

- Phase 1 - implementation such as this would typically inform our continuation work with all stakeholders.

We are, however, now actively building out a sustainability and scalability plan with relevant stakeholders, including:

1. A short-term (6-12 months) sustainability plan to maintain the project and continue supporting it in the existing project schools. During this period we will continue to build partnerships with relevant parties to secure a longer term sustainability vision.
2. A medium-term (2-3 years) plan to scale the existing project to at least 500 schools across multiple regions and maximise return on the investment that has been made by World Bank, PEQPESU and the Ministere de l'EPST into the existing Whizz project and others (such as the infrastructure for 500+ schools). This will ensure that the technology already invested in realises its potential and achieves optimum educational outcomes, being leveraged in ICT for learning projects that can deliver measurable learning gains at scale.
3. National Roll-Out (over a 5-10 year period) and potential expansion into science which will support the initial goals of PEQPESU to enhance the quality of teaching and learning of mathematics and sciences - thereby supporting the Democratic Republic of Congo's education reform goals of (i) A more equitable education system, in the service of growth and employment; (ii) Creating the conditions for a quality education system; (iii) Improving governance and management of the sector.

Figure xxvi- Indication of How Cost Per Child can Scale at National Level



PEQPESU and the Ministere de l'EPST have already made a critical investment in localising and translating the resources and educational platform which was imperative for delivering a Système Automatisé D'évaluation Des Apprentissages Du Domaine D'apprentissage Des Sciences (Das). Our recommendation, to ensure this investment is not lost, is to sustain the project in the existing 20 project schools in the short-term and scale the project nationally (over a 5-10 year period) to ensure that every child in DRC has access to equitable and quality learning opportunities, thus equipping DRC's youth with core STEM skills that are vital for them to improve not only their life opportunities but to contribute effectively to the DRC's development and growth.

Appendices

Appendix 1 - School training details

Appendix 2 - Interim Roadmap Report

Appendix 3 - Testimonials

Appendix 1 - List of schools and training received

School	Location	# attendees Initial training	Date(s)	# attendees Refresher training	Date(s)
College Bonsomi	Kinshasa	4	26 - 28 Dec 2019	4	12 - 13 Nov 2020
College Boboto	Kinshasa	6	26 - 28 Dec 2019	6	16 Nov 2020
Institut Scientifique de Ngaliema	Kinshasa	4	26 - 28 Dec 2019	3	17 - 18 Nov 2020
College St Theophile	Kinshasa	9	12 - 14 Aug 2020	6	19 - 20 Nov 2020
College St Raphael	Kinshasa	12	12 - 14 Aug 2020	8	19 - 20 Nov 2020
Institut Lisanga	Kisangani	4	15 - 18 Feb 2020	4	09 - 11 Nov 2020
Institut de Saio	Kisangani	6	15 - 18 Feb 2020	6	09 - 11 Nov 2020
College Maele	Kisangani	4	12 - 14 Dec 2020	0	-
Institut Kitumaini	Lubumbashi	8	21 - 24 Feb 2020	8	03 - 05 Dec 2020
Institut Jua	Lubumbashi	4	21 - 24 Feb 2020	4	03 - 05 Dec 2020
Institut Uwezo	Lubumbashi	6	21 - 24 Feb 2020	6	03 - 05 Dec 2020
Institut du Kasai	Tshikapa	4	22 - 24 Jan 2020	3	28 - 30 Oct 2020
Institut du Centre	Tshikapa	4	22 - 24 Jan 2020	4	28 - 30 Oct 2020
Institut Kusadika	Tshikapa (Kitangua)	6	22 - 24 Jan 2020	3	28 - 30 Oct 2020

Institut de Mbandaka	Mbandaka	6	26 - 28 Feb 2020	0	-
Institut Diangenda	Mbandaka	5	26 - 28 Feb 2020	3	14 Oct 2020
Institut Chretien Bolenge	Mbandaka	5	26 - 28 Feb 2020	2	15 Oct 2020
Institut Fraternite	Kikwit	6	28 - 30 Jan 2020	3	14 -16 Dec 2020
College Sadisana	Kikwit	5	28 - 30 Jan 2020	2	14 -16 Dec 2020
Institut Ngemba1	Kikwit	5	28 - 30 Jan 2020	3	14 -16 Dec 2020
Institut Massamba	Kikwit	5	28 - 30 Jan 2020	4	14 -16 Dec 2020

Appendix 2 - Interim Roadmap report:

https://drive.google.com/file/d/1ISJdJ_Wuad3N7OjVN0nDfiq4Ru_oKkes/view?usp=sharing

Appendix 3 - Testimonials (including video links)

- **The benefits of Maths-Whizz**

“The images the kid sees allow him to think and solve problems quickly. When there are no illustrations, things appear to be difficult. Curious students will be more successful. Kids will love the tool. But the problem we now have is their low level. Many among our students had no activity before the government proclaimed free basic education for all. We’ve received kids who cannot even write their name...”

[Teacher at Institut Uwezo, Lubumbashi]

“With Whizz I improved my way of teaching. I use more illustrations, more pictures. And the students become more active in class. In just a few months and even during the Covid-19 containment, Whizz has given us more training than we have had in a very long time”.

[Maths teacher at College Bonsomi, Kinshasa]

“We are happy to have Maths-Whizz in our schools. Here students fear Maths, but kids will start loving Maths because of the curiosity of doing it on a computer.”

[Teacher at College Sadisana, Kikwit]

- **Contextual challenges**

“I am very pleased that our province has been selected for this project. We have been monitoring your activities in our schools. There is a lot of enthusiasm among students and teachers. Unfortunately the challenges of our city are real. We have no electricity and our internet connection is not stable.”

[Mr Mungeta Herve, Provied of Mbandaka]

“Both our students and teachers have serious reading problems. However, I understand that in order to work well on your platform, you have to read the questions and instructions carefully. Maths-Whizz is a tool that reveals the weaknesses of our educational system. You allow us to make conscious decisions.”

[Mr Narcisse, Provied of Kisangani]

- **The Impact of the Whizz Education Project**

“We were worried about our Scientific classes. The students leaving Y8 didn't want it anymore. Thanks to Maths-Whizz the students regained confidence in themselves. Most of them tell us that they are no longer afraid of mathematics. As a positive consequence of Maths-Whizz here at the Institut Fraternite, this year the number of students enrolled in the Scientific options has almost doubled compared to last year. Our observation is that we have gone from 33 students last year to 54 this year.”

[Brother Arthur Nselolo, Director, Institut Fraternite, Kikwit] - [See Video](#)

“Our school has gained popularity since the arrival of these computers. Our enrollment has almost doubled this year. And Maths-Whizz has given these computers a purpose. We didn't know what to do with them.”

[Assumani Blanchard, Director, Institut du Kasai, Tshikapa]

“Students who never spoke in class are becoming more active. In my class everyone has the courage to answer the exercises on the blackboard.”

[Teacher at Institut Uwezo, Lubumbashi]

- **Video testimonials**

“Whizz has to continue ... it has improved our Maths knowledge”

<https://drive.google.com/file/d/1BTg5e96il7CKFEsPu7iz6kxIkIT2mKJN/view?usp=sharing>

“Maths-Whizz improves our ICT

skills”<https://drive.google.com/file/d/1idIRzvp8vaRXBHX4Rs1WtPctkid7bCbP/view?usp=sharing>

Students' learning data available to authorities who can access it in real time from their offices.

<https://drive.google.com/file/d/16RIld8mYxUViLuSF743tvLnEcWv6Je7/view?usp=sharing>

Advantages of Maths-Whizz

<https://drive.google.com/file/d/1Owo0RNgnPL7DeC1cCkcfmFFCnBJyxi8A/view?usp=sharing>

More students have chosen scientific options

<https://drive.google.com/file/d/1yUmViTPOLpa82or-7Qppr0cyeDkgY7h3/view?usp=sharing>