



NEEDS ASSESSMENT STUDY REPORT

**Leading, Teaching and Learning Together
in Secondary Education (2017-2021)**

October 2018



**Leaders in
Teaching**



vvob****
education for development
Rwanda



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List of abbreviations and acronyms

CBC	Competence Based Curriculum
COP	Community of Practice
CPD	Continuous Professional Development
DDE	District Director of Education
DEO	District Education Officer
DHT	Deputy Head Teacher
ESSP	Education Sector Strategic Plan
FGD	Focus Group Discussion
G.S	Groupe Scolaire
HT	Head Teacher
ICT	Information and Communication Technology
LIT	Leaders In Teaching
LT2	Leading, Teaching and Learning Together
MCF	Mastercard Foundation
MEAL	Monitoring, Evaluation, Accountability and Learning
MINEDUC	Ministry of Education
NT	New Teacher
PLCs	Professional Learning Communities
PLN	Professional Learning Network
REB	Rwanda Education Board
SBM	School Based Mentor
SE	Secondary Education
SEO	Sector Education Officer
SIP	School Improvement Planning
SL	School Leadership
SSL	School Subject Leader
STEM	Science, Technology, Engineering and Mathematics
SWOT	Strength, Weakness, Opportunity and Threats
TTC	Teacher Training College
TPACK	Technological Pedagogical Content Knowledge
TVET	Technical and Vocational Education and Training
UR-CE	University of Rwanda-College of Education

Executive summary

Mastercard Foundation's Leaders in Teaching is an initiative that transforms teaching and learning in secondary education across Africa so young people have the skills and competencies they need to succeed in work and life. As part of the initiative, VVOB initiated a needs assessment in close partnership with the University of Rwanda-College of Education and the Rwanda Education Board. It was initiated to inform the development and re-development, as well as the delivery of Continuous Professional Development (CPD), including various diploma and certificate programmes at UR-CE.

Different categories of stakeholders involved in both school leadership and teacher support systems were involved in the needs assessment study as respondents. These stakeholders include:

1. School leaders (head teachers (HTs) and deputy head teachers (DHTs));
2. Sector Education Officers(SEOs);
3. School Based Mentors (SBMs);
4. School Heads of Departments and School Subject Leaders (SSLs) for Mathematics and Sciences and;
5. District Directors of Education (DDEs) and District Education Officers (DEOs).

Objective of the needs assessment

The main objective of the needs assessment was to map and analyse the existing practices in the school leadership and teacher support systems in secondary schools. Specifically, this needs assessment aimed at:

1. Exploring the existing practices, roles and responsibilities of stakeholders involved in CPD for school leaders and (new) teachers in Secondary Education (SE);
2. Analysing strengths, weaknesses/needs, opportunities and threats of the current CPD support systems on school leadership and teacher support in secondary schools;
3. Assessing the needs of stakeholders engaged in both system, in particular their training needs, with a focus on access to and capacity in ICT.

Based on purposeful and convenience sampling techniques 4 out of 14 districts where the project will be implemented, were selected and from each district 1 sector was selected. Finally, 18 secondary schools took part in the needs assessment. From these schools, a total of 114 respondents were involved in the needs assessment. Qualitative and quantitative methods were applied including interviews with key stakeholders (N=8), Focus Group Discussions (FGD) with programme beneficiaries (N=106), an ICT basic literacy survey and assessment with programme beneficiaries (N=76) and observations (STEM and ICT facilities) at 4 secondary schools.

The interviews and FGDs were used to explore the different roles and responsibilities of all stakeholders in both the school leadership and teacher support systems, as well as to analyse strengths, weaknesses/needs, opportunities and threats of both systems. To assess the level of application of ICT, an ICT basic literacy survey (self-report) was organised and compared with data collected through an ICT basic literacy assessment. Finally, the state of ICT facilities was observed, and classroom observation in STEM lessons took place.

Findings

The collected data gives a detailed picture of the roles and responsibilities of all stakeholders involved in both systems. From the district to the level of the school, the focus on the roles and responsibilities of the involved stakeholders moves more from management and coordination to leading teaching and learning in schools. Even though roles and responsibilities are to a certain extent clear, there is also quite some overlap between roles and responsibilities and somehow a disconnect between different levels: the district, the sector and the school.

During the observations at four schools, basic facilities such as water and electricity, and facilities for girls were found to be in place. The FGDs and interviews with key stakeholders however revealed that schools were in need of better-equipped laboratories and new textbooks (both teachers' and learners' guides) that are in line with CBC, for them to be able to deliver the curriculum more effectively. ICT basic facilities (e.g. computers) were also found to be in place at all schools however, management of the ICT facilities (e.g. installing Windows updates) was identified as a challenge.

The ICT basic literacy survey revealed that respondents generally felt quite comfortable in the basic use of ICT. However, the assessment showed a different picture, where respondents were performing poorly especially when it comes to more complex options such as formatting of documents, but also internet search or creation of PowerPoint presentations. Regardless of this poor performance, respondents were very excited about the potential of ICT and the integration of ICT in delivery of blended CPD services.

The SWOT analysis of the school leadership support system revealed that major strengths are that HTs share the school plan with their teachers, provide teaching materials and that DHTs and HTs are committed to promoting a gender balance and the use of ICT. Teachers were also found to be very happy with the support and encouragement of HTs. Logistic support from REB was further found to have contributed a lot to effective school leadership. School improvement planning (SIP) was identified as an area of improvement whereby more attention could go to HR related tasks of HTs and DHTs such as staff job descriptions, organising teacher CPD and formulating strategies for teacher retention. With regards to the CPD of HTs and DHTs, the FGDs with HTs and DHTs revealed that there was not always a good alignment between the CPD provided to HTs and DHTs at the sector and district level and that not all HTs and DHTs were trained in effective school leadership.

The SWOT analysis of the teacher support system revealed that major identified strengths were the close collaboration between teachers and administrative staff, exchange visits to other schools, the accountability week with parents, teachers and students, the number of qualified teaching staff and the increased emphasis on the use of ICT. New teachers were found to value the time devoted to handovers, lesson observations and supervision by a more experienced teacher. Uncertainty about the specific roles of an SBM, lack of competences and time to organise CPD for teachers and little knowledge about CBC were identified as main areas of improvement during Focus Group Discussions with SBMs and new teachers. For new teachers, lack of confidence to manage the classroom and matching theory with practice were identified weaknesses.

The SWOT analysis of STEM teaching revealed that STEM teachers were found to use learner centred techniques such as group work frequently, however, some of them did not feel sufficiently confident to apply such techniques effectively. STEM teachers were also found to struggle with the duration of the lesson periods which were found to be too short to develop coherent lessons that are in line with the CBC.

The findings and analysis of this needs assessment will further inform the development and delivery of CPD services to school leaders and teachers. The main aspects for follow up are listed below:

- Schools need more resources like well-equipped laboratories and new textbooks;
- Components of the ICT basic literacy survey and assessment could be integrated into certified CPD programmes so as to improve digital literacy skills;
- The school leadership and teacher support system in general and CPD of stakeholders in particular can be strengthened by a clearer framework on roles and responsibilities at different levels (in order to avoid overlap), and alignment between the different levels;
- To align school leadership at different levels, school leaders could be involved more closely in the process of the education policy development and teaching staff recruitment;
- More resources need to be foreseen for CPD, especially time.

1. Background: Leading, Teaching and Learning Together in Secondary Education

Teachers and school leaders are the two most critical sets of actors in raising the quality of secondary education in Rwanda, so that young Rwandans have the skills and competencies to succeed in the 21st century. Teachers are crucial when it comes to improving learning outcomes and learner wellbeing. School leaders who support, evaluate and develop teacher quality also have a high impact on learning outcomes. VVOB will raise the effectiveness of teachers and school leaders in secondary education by improving the delivery, sustainability and institutionalisation of Continuous Professional Development (CPD) services to school leaders and teachers; this in the framework of the Mastercard Foundation's Leaders in Teaching initiative. The project aims at enhancing school leadership and to set up an induction system for new teachers. The project focuses on advancing the implementation of the Competence Based Curriculum (CBC) while supporting the improvement of learning outcomes in Mathematics and Sciences in a gender-responsive environment.

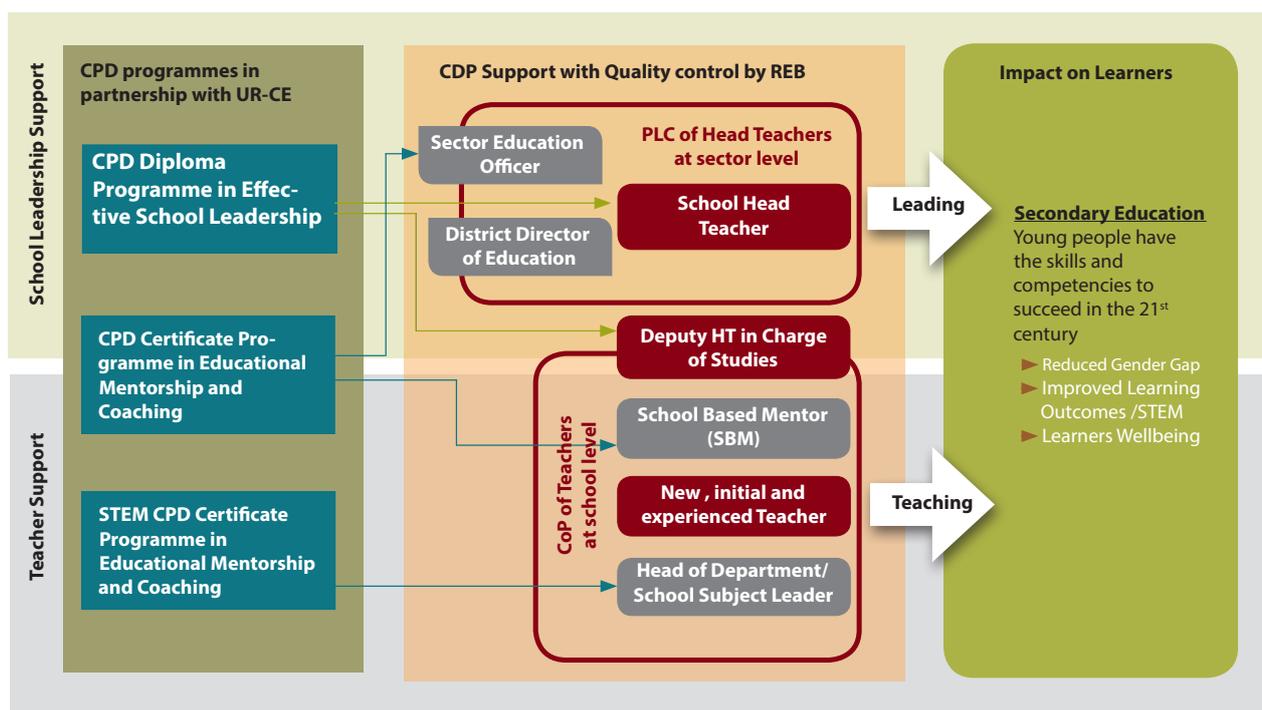


The Leaders in Teaching initiative focuses on supporting teachers and school leaders. VVOB will do this in close partnership with the University of Rwanda, College of Education (UR-CE) and Rwanda Education Board (REB). There is full alignment with the priorities and strategies of the Government of Rwanda, including the Education Sector Strategic Plan (ESSP), the new competence-based curriculum (CBC), the teacher development and management policy, and the girls in education policy.

In secondary schools, fewer girls complete 9 years of basic education than boys, reducing the proportion of girls in upper-secondary level (MINEDUC, 2016). The Girls' Education Policy (MINEDUC, 2008) argues that gender stereotyping and school-related gender-based violence contribute to higher drop-out rates and lower scores on certain subjects by girls, especially in Sciences, Technology, Engineering and Mathematics (STEM). Still, many teachers, students and parents believe that boys have higher ability to achieve in STEM than girls. In this view, VVOB's interventions in the LIT Initiative will focus on making secondary schools more gender responsive.

Six **Outputs** (excluding one Output on project-level M&E) have been identified, which describe CPD services for school leaders ("LEAD" pillar) and teachers ("TRAIN" pillar). The services (Figure 1) target key stakeholders in the school ecosystem and reflect characteristics of effective CPD: services are sustained and intensive, emphasize learning by doing; start from existing practices and challenges and focus on students' learning outcomes and well-being.

Figure 1: Intervention Logic



LEAD pillar: School Leadership Support

International literature identifies effective leadership as a critical factor in raising the achievement of learners. Research (e.g. Robinson et al, 2008; Leithwood et al, 2008) has shown that school leadership matters for quality education because:

- School leaders who develop, support and evaluate the quality of teaching have a strong indirect influence on learning outcomes;
- The impact of school leadership on learning outcomes is second only to the quality of teaching and learning;
- Effective school leadership is critical for raising learners' achievement;
- Effective school leadership is particularly important in improving poorly performing and disadvantaged schools.
- Successful school leadership has a positive impact on the entire school.

Both the draft version of the new Education Sector Strategic Plan 2013/14 – 2017/18 (MINEDUC, 2013) and the draft TDM Policy (MINEDUC, 2015) recognise the key role of school leadership in improving the quality of education.

Professional development of school leaders throughout their careers is one of the linchpins of VVOB's approach to school leadership. Appointed school leaders are often former teachers and don't necessarily have the competences to become an effective school leader. VVOB has already institutionalised school leadership practices in Rwanda's primary education system, and this will now be extended to secondary education. Collaboration between VVOB and URCE led to the introduction of a CPD Diploma in Effective School Leadership recognised by the Rwanda Education Board. 397 Head Teachers were awarded this CPD Diploma in Effective School Leadership in 2016. An end-line assessment of this first cohort was conducted in July 2016, using surveys, self-assessment and observations in schools. Some areas for improvement were identified that are being addressed in the revision of the course in 2017. HTs and DHTs will receive the same course and materials, as the 5 standards of effective school leadership are relevant for both groups. However, HTs and DHTs will receive different activities reflecting their different roles in school leadership.

VVOB's experience has shown that top-down strategies alone are insufficient and need to be complemented by strategies that provide continuous support and involve school leaders themselves.

Professional learning communities (PLCs) can be an effective form of professional development (e.g. Vescio et al, 2008; Ingvarson et al, 2005). In 2014-2016, VVOB trained 120 SEOs to initiate and guide PLCs. Regular coaching and feedback helped SEOs and HTs to improve the quality of their PLCs. An impact study was done at the end of 2016, showing the effectiveness of VVOB's approach and leading to recommendations for further improvement and fine-tuning of VVOB's interventions. An important conclusion that has emerged and which is confirmed by other research (e.g. Murphy, 2015; Brodie, 2013) is the importance of formal leaders (in Rwanda: SEOs) in creating effective PLCs. Other findings included the need for extensive coaching and feedback to help PLC members understand the bottom-up and collaborative nature of PLCs and the positive impact on head teachers' and teachers' motivation. Therefore, the revised CPD Diploma Course will put more emphasis on school collaboration and PLCs.

With support of VVOB, REB developed **National School Leadership Standards** that form the basis of VVOB's support to school leaders since 2014. To ensure school leaders in secondary schools can perform according to these standards, VVOB will initiate a school leadership support system, consisting of three services:

- **Output 1:** A CPD Diploma course on School Leadership for Head Teachers and Deputy Head Teachers in charge of Studies;
- **Output 2:** A General CPD Certificate course on Coaching, Mentoring and Professional Learning Communities (PLCs) for Sector Education Officers and engagement of District Directors of Education;
- **Output 3:** CPD support in PLCs of School Leaders at sector level, with coaching by trained Sector Education Officers and supervision by District Directors of Education.

TEACH pillar: Teacher Support

There is a body of research that provides empirical support for the claim that induction for beginning teachers and teacher mentoring programs in particular have a positive impact on retention, motivation and the quality of teaching (Ingersoll and Stroll, 2011; Aspfors and Fransson, 2015). Glazerman and colleagues (2010) found that it took time for any differences in effects to show up.

The draft TDM policy calls for a better link between pre-service teacher education and Continuous Professional Development (CPD), and a harmonised and free-flowing Initial Teacher Training/CPD teacher development system. This is because newly qualified teachers face many challenges during their first years of teaching. Personalised development, mentoring support and professional dialogue with monitoring can help them build the bridge between initial teacher education and a successful career in teaching. We believe that successful induction is not the responsibility of one person in the school, but is embedded in a school-wide support system where (D)HTs, mentor teachers, subject leaders and other teachers (through PLCs) all have a role to play.

New Teachers (NTs) will not receive direct training through the programme, but an induction system will be set up at the school level, consisting of supportive leadership, mentoring support and PLCs. The effectiveness of this induction system for NTs will be an important element in the Program's M&E.

In line with Rwanda's School Based Mentoring Framework, VVOB will initiate a teacher support system with induction of new teachers as entry point, consisting of three services:

- **Output 4:** A General CPD Certificate course on Coaching, Mentoring and PLCs for School Based Mentors;
- **Output 5:** A STEM CPD Certificate course on Coaching, Mentoring and PLCs for STEM Heads of Department or School Subject Leaders (aligned with school level support by AIMS);
- **Output 6:** CPD support in PLCs for teachers in schools, with coaching by School Based Mentors and STEM School Subject Leaders, and supervision by Deputy Head Teachers.

The programme is implemented in all secondary schools in 14 districts (approx. 744 schools). School Head Teachers, Deputy Head Teachers, Mentor Teachers and STEM Subject Leaders will be enrolled in Continuous Professional Development (CPD) Courses on effective school leadership, coaching and mentoring and will engage in Professional Learning Communities (PLC) at the level of the administrative sector and in schools.

For the sake of increasing effectiveness and efficiency of the delivery of CPD services to teachers and school leaders, VVOB will introduce blended learning modalities for the delivery of such services, in first instance for delivery of certificate programmes. Blended learning has much potential in terms of personalisation, flexibility, accessibility, cost efficiency and scalability of learning.



2. Needs Assessment

To re-develop and initiate the implementation of the CPD services and map existing practices of school leadership and teacher support systems in secondary schools in Rwanda, a needs assessment was conducted. A needs assessment is an indispensable step in programme development as the earliest decisions in the programme development process are among the most critical in determining long-term success (Watkin, Meiers and Visser, 2012). By involving various programme stakeholders as well as beneficiaries, needs assessments help to contextualise the programme's Theory of Change and to identify key priorities and strategies.

The needs assessment study is the first step in the Leading, Teaching and Learning Together programme's planning, monitoring, evaluation and learning strategy. This strategy contains the following steps:

- Needs assessment of stakeholders in school leadership and teacher support systems;
- Monitoring of activities and outputs, including milestones/deliverables;
- Evaluation of outcomes and main objectives of the project through Rapid Cycle Evaluation, including baseline, mid-line and end-line evaluation;
- Learning on overarching learning questions through additional mixed method research.

Needs assessment objectives

Effective school leadership and teacher support systems have been associated with quality education and strategies to improve students' learning outcomes. Despite qualified secondary school leaders and different strategies put in place to improve on the quality of education, students' learning outcomes are not satisfactory, especially in mathematics and sciences. In addition, girls' participation in upper secondary education is subject to high drop-out (MINEDUC, 2016).

Despite the establishment of school leadership and teacher support systems in secondary schools, little is known about involved stakeholders' roles, responsibilities and existing practices that can contribute to students' learning outcomes. The objectives of this needs assessment were thus threefold:

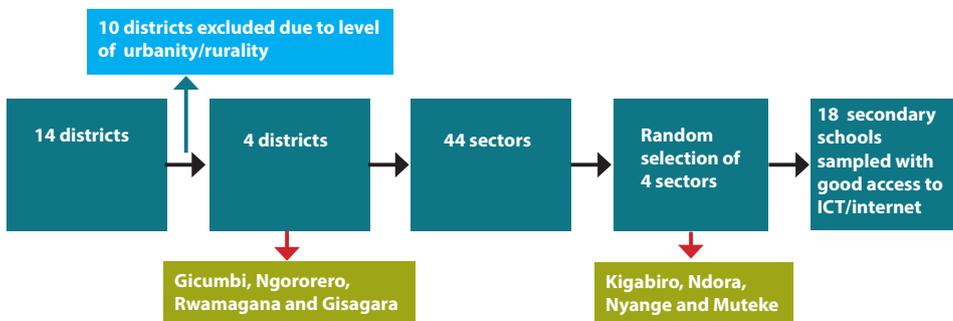
1. To map existing practices, roles and responsibilities of stakeholders involved in CPD for school leaders and (new) teachers in Secondary Education (SE);
2. To analyse strengths, weaknesses/needs, opportunities and threats of the current CPD support system on school leadership and teacher support in secondary schools;
3. To assess the needs of stakeholders engaged in both system, in particular their training needs, with a focus on access to and capacity in ICT.

Needs assessment methodology

This needs assessment applied qualitative and quantitative techniques to investigate the three objectives. Focus group discussions were triangulated with in-depth interviews and school/classroom observations. In addition, an ICT basic literacy survey and assessment was conducted.

Sampling

Out of the 14 districts where the project will be implemented, 4 districts were purposively selected. Criteria taken into account for the selection of the districts were: 1. A balanced representation of all four provinces and; 2. A balanced representation of (semi) urban and rural districts. As such, Gicumbi, Ngororero, Rwamagana and Gisagara were selected. From each of these 4 districts, 1 sector was randomly selected. Finally, 18 basic secondary education schools were purposively selected on the basis of their access to ICT. The flowchart below provides an overview of the sampling and the selection criteria applied in each sampling step.



Participants

Purposeful sampling was used to select staff from the selected districts, sectors and schools. Only those staff members that were either directly involved in the CPD programmes or were considered direct beneficiaries of the CPD programmes were selected for an interview or a focus group discussion. New teachers were defined as teachers with a maximum of three years of teaching experience. In order to also bring in the learner's perspective, a convenience sample of students attending Senior 2 and Senior 5 from the selected school were invited for a focus group discussion.

In total, interviews and focus group discussions were conducted with 114 respondents. The ICT basic literacy survey and assessment was conducted with the same respondents as the focus group discussions, except for the learners and the Mathematics and Science teachers. Unfortunately two headteachers were unable to attend the ICT survey assessment which thus adds to a total of 76 respondents. An overview of the participants per study instrument can be found below.

Table 1: Overview of participants included in the needs assessment

Study instrument	Number of respondents N = 114
In-depth interviews:	N=8
DDEs	2
DEOs	2
SEOs	4
Focus group discussions:	N=106
Head Teachers	20
Deputy Head Teachers	18
School-Based Mentors	20
Science and Mathematics Teachers	8
New Teachers	20
Learners	20
ICT basic literacy survey & assessment:	N=76¹
Head Teachers	18
Deputy Head Teachers	18
School-Based Mentors	20
New Teachers	20

¹ Please note that these are the same participants as the focus group discussions, so they are not added up in the total N.

Data collection

Data collection was conducted by a team of 8 enumerators from VVOB. All enumerators were trained in the use of the data collection tools by the MEAL team during a one-day workshop. For practical reasons, one school was selected per sector as a needs assessment venue. Hence, participants from other schools were asked to come to the needs-assessment venue for the interviews, focus group discussions and the surveys.

Content of the interview and focus group discussion guides

The interviews and focus group discussions with DDEs, DEOs, SEOs, head teachers, deputy head teachers, mathematics and science teachers and school based mentors focused on:

1. Stakeholders' roles and responsibilities related to secondary education as well as to school leadership and teacher support systems in secondary schools;
2. Strengths, needs, opportunities and threats related to school leadership and teacher support systems in secondary schools;
3. Strengths, needs, opportunities and threats related to gender, mathematics, science and ICT in secondary education.

- The focus group discussions with new teachers focused on:

1. New teachers' received support from school leaders;
2. New teachers' challenges in teaching;
3. New teachers' challenges related to gender and ICT in secondary education.

- The focus group discussions with learners focused on:

1. Best practices by school leaders that facilitate learning;
2. Learners' challenges and needed support related to learning;
3. Learners' perspective on gender and ICT in schools.

- The focus group discussions with new teachers focused on:

1. New teachers' received support from school leaders;
2. New teachers' challenges in teaching;
3. New teachers' challenges related to gender and ICT in secondary education.

- The focus group discussions with learners focused on:

1. Best practices by school leaders that facilitate learning;
2. Learners' challenges and needed support related to learning;
3. Learners' perspective on gender and ICT in schools.

Detailed interview guides and focus group discussion guides can be found in Annex 1-6.

Content of the ICT Basic literacy survey and assessment

An ICT basic literacy survey and assessment (Annexes 7 and 8 respectively) were developed in English and translated into Kinyarwanda. This survey was developed in KoBoToolbox, which is also accessible on mobile devices and can be used offline. The ICT basic literacy assessment was developed to cross-check the reliability of the survey data. The assessment was developed in the MoodleCloud learning management system. Both the electronic survey (on tablets) and the online assessment were piloted to VVOB staff who shared their experience and issues they encountered in completing the instruments. Both the ICT Basic literacy survey and assessment investigated five aspects of ICT basic literacy, as described in table 2 below.

Table 2: Aspects investigated in ICT Basic literacy survey and assessment

ICT Basic literacy aspect	Survey	Assessment
ICT hardware and safety precautions	Own ability to identify computer parts and peripherals, ICT devices and basic computer and Internet safety.	Computer parts and peripherals, ICT devices and basic computer and Internet safety.
Internet search	Own competence on Internet search, identification of, and participation in online professional development opportunities and evaluation of online resources.	Conduct Internet search of Online Professional Development opportunities of interest and give the name of, and URL to, the opportunity.
Document formatting	Own ability in making a text bold, Italic, underline it, conducting a spell and grammar check, changing font size, changing font type, adjusting margins, justifying and indenting text and inserting a table and image in a document.	Make a text bold, make a text Italic, underline a text, change the font size of a text, change the font type of a text, adjust margins of a text, justify a text, indent the first line in each paragraph
E-mail use	Own ability in composing, sending, forwarding, replying, attaching documents, downloading and saving attached documents, deleting e-mail message and creating group mails.	Compose an email, attach formatted documents/ files to the email, send the email to a given address and cc another given address.
PowerPoint	Own ability in creating and giving a basic presentation using presentation software.	Create a PowerPoint presentation consisting of three slides, 1) put the title of own presentation, own name, own school and own email on the first slide, 2) put a heading on the second slide and insert a table on this slide and 3) put a heading on the third slide and insert an image the slide.

Observations

ICT facilities

While organising the ICT basic literacy survey and assessment, observations were made with regards to the ICT facilities in the schools that were selected as needs assessment venues. Attention was paid to access to computers and laptops, electricity and internet connectivity, as well as the general state of the facilities, including maintenance.

Lessons on STEM

During the visit of a STEM consultant in the week of 28 May to 1 June, 4 secondary science lessons were observed at two schools (G.S Rwamagana and GS Rose). Data collected during the lesson observations were used to analyse strengths and weaknesses related to STEM teaching in secondary education.

Ethical considerations

To minimise risks to participant safety, VVOB staff involved in the needs assessment organised a one-day workshop to agree on working modalities of the whole exercise. In this workshop, enumerators (8 VVOB staff members) developed a common understanding on the needs assessment tools and data collection procedures that would ensure participants safety.

During data collection, prior to each interview and FGD session, interviewers explained the purpose of the needs assessment activity and the informed consent form to participants. Then, they sought voluntary informed consent from participants. Participants voluntarily consented to be part of the study by signing and returning an informed consent form developed in accordance with rules and regulations for conducting research activities in Rwanda from Rwanda's Ministry of Education.

Analysis

After interview sessions, transcripts were produced from notes taken. Each transcript was produced on the same day the related interview was conducted. Written notes and the transcripts were kept by the MEAL team at WVOB Rwanda.

Data from all sources were analysed, following qualitative and quantitative approaches as described below.

Qualitative analysis of Strengths, Weaknesses, Needs, Opportunities and Threats

The transcripts from all interviews and FGDs were first analysed to describe all roles and responsibilities of stakeholders involved in the school leadership and teacher support system in Rwanda, i.e. DDEs, DEOs, SEOs, Head teachers, Deputy Head teachers, School Based Mentors, New Teachers and Learners. In the findings, data are presented as a list of roles and responsibilities of these stakeholders, focusing on their roles and responsibilities in improving quality of education.

In addition, the transcripts from all interviews and FGDs were analysed through a SWOT analysis. SWOT Analysis gathers data about internal issues within a company, project or system – strengths and weakness – and external issues outside of the project or system – opportunities and threats. It then analyses this data to inform future goals, decisions, and strategies. The ultimate goal of SWOT analysis is to achieve a more successful outcome; for a project or system, the goal may be to improve services (Harrison, 2010).

Following this approach, the transcripts were coded to identify Strengths, Needs (instead of Weaknesses), Opportunities and Threats of both the school leadership and teacher support system. Particular attention went to analysing opportunities and threats related to gender and ICT as cross-cutting issues. In the findings, data are presented as tabulated in SWOT tables, for both the school leadership and teacher support system (see table 3 as template).



Table 3: SWOT Analysis Table (Template)

	Helpful (to achieving the objectives of the system)	Harmful (to achieving the objectives of the system)
Internal origin (attributes of the system – can be influenced)	Strengths: attributes, characteristics and factors that give advantage to the system	Weaknesses/Needs: attributes, characteristics and factors that weaken the system or needs
External origin (attributes of the environment – outside of its influence)	Opportunities: elements in the environment that the system or project could exploit to its advantage	Threats: elements in the environment that could cause trouble for the business or project

Quantitative analysis of ICT Basic Literacy survey and assessment data

Quantitative analysis of ICT basic literacy survey and assessment data from the ICT basic literacy survey were exported from KoboToolbox into a spreadsheet file. These data were analysed using descriptive statistics. Data collected from the ICT basic literacy assessment that covered basic ICT hardware were similarly exported and analysed. As for products submitted by participants, they were analysed to generate figures of those who could demonstrate diverse basic ICT competencies covered by the assessment components. Finally, data from the survey and the assessment were compared and contrasted to identify validity of survey data.

Methodological limitations

As with any study, this needs assessment had some methodological limitations. Given its operational nature and programmatic goals, the study mainly relied on qualitative research techniques with small samples of purposively or conveniently selected respondents. Given this design, the study can therefore not be considered representative for all secondary schools in Rwanda and generalising results to other settings should be done with care. In addition, enumerators and researchers involved in the study were all VVOB staff members which may have introduced some bias during the interviews and the analysis of the results.

3. Findings

Stakeholders' Roles and Responsibilities

With the intention to build effective school leadership and teacher support systems in secondary schools, the needs assessment study collected information on roles and responsibilities of all stakeholders with direct or indirect links to these systems. Roles and responsibilities were described per type of stakeholder.

Roles and Responsibilities of District Director of Education and District Education Officer

The main roles and responsibilities of the District Director of Education (DDE) and the district education officer (DEO) according to the interviewed stakeholders are planning, monitoring, inspection and evaluation of schools in their district. The planning of the schools focusses on planning logistics (infrastructure, materials) and follow up of teachers (hiring process, support teachers and head teacher setting up performance contracts). In addition, they coordinate partnerships with educational stakeholders.

DDE's and DEOs follow up on the school functioning, management and leadership by monitoring the implementation of the performance contracts and supervising teaching and learning activities, inspecting hygiene & sanitation, school feeding programmes and dropout rates. They report on MINEDUC indicators. Finally, they evaluate teachers and head teachers and make decisions accordingly (provide bonuses, promotion, firing or proposing mutations or transfers).

Some DDEs and DEOs also mention organising and monitoring of teachers' and head teachers' professional development and supporting CPD trainings by REB and Development Partners. Only few of them do this after identifying the needs of the head teachers. Some of them mentioned there was a gap in the monitoring of new teachers. The task of the district is to hire them; after this process, the school is responsible for the new teachers.

See an overview of the responsibilities of DDEs and DEOs in annex 10.

Roles and responsibilities of Sector Education Officer

As highlighted by all Sector Education Officers (SEOs) in the individual interviews, the overall responsibility of an SEO is to coordinate all education activities in the sector.

Regarding the inspection/evaluation of schools against set indicators, the SEOs have the responsibility to inspect teachers and head teachers on teaching and learning processes, and inspect schools on hygiene & sanitation, while making recommendations on identified gaps/issues during inspection. When it comes to the professional development for head teachers, SEOs plan and organise trainings for teachers and head teachers focusing on the implementation of a current teaching and learning methodology. During the time of the Needs Assessment, all SEOs reported that they regularly coach and mentor head teachers on the effective implementation of the Competence Based Curriculum. They do this through peer learning sessions among head teachers, through study visits, regular meetings with head teachers, teachers and parents, as well as collaborating with education partners as far as continuous professional development is concerned.

See an overview of the responsibilities of SEOs in annex 9.

Roles and Responsibilities of Head teachers

Head teachers (HTs) assume diverse roles and responsibilities. The only overlapping role/responsibility that was highlighted by all HTs in all the four districts pertains to the provision of teaching and learning materials. Other roles and responsibilities that were shared frequently by HTs were: 1) introducing new teachers to diverse aspects of the (school regulations, mission and vision of the schools, colleagues, etc.) and 2) organising and leading meetings with parents.

Roles and responsibilities that were shared less frequently during the focus group discussions, were 1) organising and leading meetings with students, 2) supervising the learning environments, 3) providing guidance in discipline and learning, 4) inspecting and evaluating teaching, 5) HR management (identify required staff and follow-up on recruitment procedures and policy), 6) linking the school and the community as well as other institutions and 8) setting a strategic plan for the school (in accordance with owners' plans and interests for private schools).

See an overview of the responsibilities of head teachers in annex 3.

Roles and Responsibilities of Deputy head teachers

The roles and responsibilities of the Deputy Head Teacher (DHT) are similar to the roles and responsibilities of the Head Teacher (HT). They act in absence of the HT. Apart from this task, the DHT has a role in finding learning resources, distributing books to students and teachers and monitoring their attendance. They monitor students (punctuality, attendance, use of learning materials) and control their discipline. Through class visits, they monitor teachers' implementation of the curriculum, the use of ICT and updated teaching resources in learning and the compliance with the timetable. They verify teachers' pedagogical documents, identify teachers who have challenges and need support and advise them in their teaching and lesson preparation. After monitoring, they report to the HT and advise him/her on learning issues. Some DHTs are validating the performance contract evaluations of teachers prepared by the head teacher before submitting them to the district.

DHTs lead teachers' professional development. They provide feedback to teachers on their teaching practices and organise and carry out teacher trainings during the holidays. Some DHTs organise field visits to other schools to learn from what is happening there or they create departments for teachers' mutual support. In one school the DHT stated that departments come together to discuss challenges but that this does not happen regularly. In another school, there is no formal CPD programme at school level. In some schools, they focus specifically on supporting new teachers by organising an orientation activity where the new teacher is introduced to the school and the community. Other DHTs are encouraging the new teachers to get in touch with other teachers to share ideas and to get support from them. In other schools new teachers get information on their roles and responsibilities from the DHT and the class visits are planned to assess how the lesson is prepared and how they deliver the lesson. This is meant to assess the new teacher's capacity and provided support if needed.

The DHT links the school with the parents. They prepare and lead meetings with parents on student learning issues and raise awareness of their children's learning. When there are barriers to education, the DHT invites parents to discuss them and find a solution together.

The DHTs support the head teacher in the school budgeting and give input to the HT on the strategic plan. They keep the list of staff and their qualifications and evaluate the teacher's performance based on their performance contract.

See an overview of the responsibilities of DHTs in annex 3.

Roles and Responsibilities of School Based Mentors

School based mentors (SBM) describe their tasks as capacity building through training, coaching and mentoring, motivating and reporting of other teachers. Most SBMs are involved in training other teachers to use the competence based curriculum. Some SBMs also train school subject leaders. The school based mentors coach and mentor teachers in teaching methodologies, classroom management, peace education, ICT in education and in preparing their lessons. The focus of the coaching and mentoring is on speaking and using English effectively as an instructional language. The SBMs report on the training activities to HTs.

See an overview of the responsibilities of SBMs in annex 12.

SWOT Analysis of support systems

As described in the methodology section, a SWOT Analysis was done to examine the strengths and weaknesses/ needs within the school leadership and teacher support system, as well as opportunities and threats from the external environment in which these systems operate.

SWOT Analysis for School Leadership System

Information collected through FGDs with HTs and DHTs were the primary data source for the SWOT analysis of the school leadership system. This information was complemented by information collected from other stakeholders on factors which could help or harm the school leadership system in secondary schools.

Table 4 elaborates on strengths, weaknesses/needs, opportunities and threats for the school leadership system.

Table 4: SWOT Analysis School Leadership System

	Helpful (to achieving the objectives of the system)	Harmful (to achieving the objectives of the system)
Internal origin (attributes of the system – can be influenced)	<p>Strengths:</p> <p>At the level of the school:</p> <ul style="list-style-type: none"> • Schools have adequate facilities: electricity and water; • Schools have a girls room; • Schools' teaching staff are qualified in education; <p>At the level of teachers and head teachers:</p> <ul style="list-style-type: none"> • HTs can set and share school vision with school staff; • HTs have high expectations of learners; • Schools teaching staff are qualified in education; • DHTs are committed to promote gender balance in schools; • HTs are aware of the importance of ICT in education; • DHT can manage students' data using ICT. 	<p>Weaknesses/Needs:</p> <p>At the level of the school:</p> <ul style="list-style-type: none"> • High teachers' absenteeism; • High students' absenteeism; <p>At the level of head teachers:</p> <ul style="list-style-type: none"> • School leaders have not defined staff job descriptions; • There is lack of CPD for DHTs; • Some HTs are not yet trained in school leadership; • DHTs have limited time for organising teachers' CPDs; • DHTs do not have time to support new teachers.
External origin (attributes of the environment – outside of its influence)	<p>Opportunities:</p> <ul style="list-style-type: none"> • Regular (pedagogical) meetings for HTs; • Local authorities work closely with school leaders; • School leaders work with different partners; • There is a favorable girls' recruitment policy; • There is a high girls' enrollment rate in schools. 	<p>Threats:</p> <ul style="list-style-type: none"> • DHTs' role of leading teaching and learning process is not recognised; • Schools lack sufficient budget; • Capitation grant allocated to schools is not sufficient; • HTs are not involved in the teachers' recruitment process; • Districts do not have appropriate teacher retention strategies; • Favorable girls recruitment policy could have a negative impact on the enrollment of boys; • School leaders are not involved in the development of the education policy; • There are delays in school staff's recruitment.

Strengths and opportunities of the school leadership system

As identified by the SWOT analysis, major strengths of the school leadership system are that school leaders are able to set and share a school vision and mission and are committed to promoting a gender balance in schools and using ICT to manage students' data and improving learning outcomes. At the level of schools, the basic infrastructure for a conducive learning environment was found to be in place. These strengths are supported by several externally driven opportunities such as a good collaboration with local authorities from the district and sector and, policies that promote a gender balance in education.

An example of a collaboration between with local authorities is illustrated with the following quote:

"When there are cases of students' dropout, we work with cell leaders to sensitise dropouts' parents. The school leader works with nearby leaders of cells to reach parents whose children stop schooling. Cell leaders help in reporting on dropouts' cases".

Weaknesses and threats of the school leadership system

Despite strengths and opportunities that contribute to effective school leadership, there are weaknesses and threats that can negatively affect school leadership. Whereas CPD of teachers is an important indicator of effective school leadership, it is clear that school leaders have limited time for organising CPD for teachers or supporting new teachers. Also, some head teachers are not yet trained in school leadership which limits their ability to improve their leadership practices. Lastly, head teachers have thus far been unable to formulate staff job descriptions which hampers teaching staff to optimally fullfull their roles.

Several externally driven threats have been identified which may be driving the previously described weaknesses. Firstly, there is only a limited involvement of school leaders in the development of the education policy. Also, a limited budget at the school level hampers school leaders in operationalising their School Improvement Plans, including among others adequate teacher retention strategies and better job descriptions as described above. Despite their important roles and responsibilities, DHTs are often not recognised as formal school leaders which results in a low salary and less motivation. Lastly, school leaders feel hampered by the delay in school staff recruitment which is centrally organised by the district.

SWOT Analysis for Teacher Support System

Information collected through FGDs of mentor teachers and new teachers were the primary data source for the SWOT analysis of teacher support systems. This information was complemented by information collected from other stakeholders on factors which could help or harm the teacher support system in secondary schools. Table 5 elaborates on strengths, weaknesses/needs, opportunities and threats for the teacher support system.

Table 5: SWOT Analysis on Teacher Support System

	Helpful (to achieving the objectives of the system)	Harmful (to achieving the objectives of the system)
Internal origin (attributes of the system – can be influenced)	<p>Strengths:</p> <p>At the level of the school:</p> <ul style="list-style-type: none"> • Sharing of the school vision by HT to teachers; • Organisation of training/workshops for teachers; • Classroom observations, ways of giving feedback and teamwork for mutual support and strengthening of ownership; • Learning from other schools; • Accountability week with parents, teachers and students; • Close collaboration among teaching and administrative staff which leads to strengthening of ownership; • Emphasis on the use of ICT in tracking student records and performance-for example in addressing school dropout. <p>At the level of (new) teachers</p> <ul style="list-style-type: none"> • Teachers' experience & documents that are shared with new teachers; • Encouragement by Head Teacher to new teachers for students to use internet and books for research; • Availability of time on the weekly timetable for research to update what he/she is teaching; • Handover with the outgoing teacher to new teachers & regular supervision during teaching and learning. 	<p>Weaknesses/Needs:</p> <p>At the level of the school:</p> <ul style="list-style-type: none"> • Insufficient teaching and learning materials; • Lack of ICT infrastructure and a reliable internet connection; • Overloaded timetable, makes it difficult for SBMs to accomplish their tasks. <p>At the level of teachers/SBMs:</p> <ul style="list-style-type: none"> • Teachers' resistance to change; • Limited ICT skills; • Low proficiency in using the language of instruction: English; • Lack of motivation: increase in SBM's roles and responsibilities but the salary remains the same; • Lack of competences and time for organising the CPD at school level; • Little knowledge on how to use/apply the CBC. <p>At the level of new teachers:</p> <ul style="list-style-type: none"> • Little teaching experience and experience with managing the classroom; • Lack of capacity to match theory with practice; • Lack of knowledge about learners' weaknesses; • Poor use of students' collaborative learning groups to enhance learning.
External origin (attributes of the environment – outside of its influence)	<p>Opportunities:</p> <ul style="list-style-type: none"> • Favorable and enabling policy environment; • New teachers are young and open to further professional development; • New teachers have little resistance to change; and they are motivated to teach in a learner-centred approach; • New teachers are more proficient in English; • REB provides some logistic support to teachers. 	<p>Threats:</p> <ul style="list-style-type: none"> • Insufficient books provided by REB which will affect student learning achievements; • Laboratories are not well constructed and built in schools and if available, not well equipped with STEM materials; • Physical access to schools is at risk due to climate change (e.g. in Ngororero, bridges have been washed away by heavy rains and heavy landslides).

Strengths and opportunities of the teacher support system

It is evident from the SWOT analysis of the teacher support system, that effective school leadership drives many of the strengths of the teacher support system. Teachers indicate that they value the collaboration with the head teacher, the encouragement from head teachers to use ICT and the internet and the trainings/workshops that are organised at the school level for teachers. Another strength, as indicated by new teachers, is the attention that goes to the induction of new teachers in the form of handovers, regular supervision, classroom observations and sharing of experiences. Collaborations with other schools as well as with the community and parents through accountability weeks are also considered a strength. At the opportunity level, the support provided by education partners, REB in particular, is considered to be driving many of positive changes at schools. A promising notion for the future is that many new teachers speak good English and have little resistance to change, meaning that there are opportunities for improving the command of English during lessons and changing negative routines.

Weaknesses and threats of the teacher support system

Although team work between both new and senior teachers can be considered a strength, there are still some identified weaknesses/needs when it comes to the induction of new teachers. Rather than just taking new teachers around the school and introducing them to school administration and staff, a more in-depth induction needs to be organised for new teachers. As indicated by the SWOT analysis, the challenge for new teachers is on class room management and control. During an induction programme, new teachers can be supported in matching the theory from their teacher training with classroom practice. Mentor teachers particularly lack time to support teachers in improving their English proficiency, especially senior teachers, and in the implementation of the CBC and in the organisation of CPD. In general, SBMs and SSLs need more training on coaching and mentoring and a reduction in the teaching hours/workload is required so that they can support fellow teachers more effectively.

Two major threats identified by teachers are the insufficient supply of books to schools and the poorly equipped STEM labs. Fortunately, the Rwandan government is aware of this and has the ambition to provide ICT infrastructure and equipment to all secondary schools. Through MINEDUC and REB, the Rwandan government is planning to construct more laboratories in schools for STEM subjects, provide more text books for both teachers and learners, as well as guides for STEM education to be enhanced and promoted in Rwanda. Lastly, some teachers have indicated that during the rainy season, physical access to schools is hampered which is driving teacher and student absenteeism during these months.

ICT Basic Literacy

ICT hardware and safety precautions

Head teachers, deputy head teachers, school-based mentors and new teachers reported (self-perceived) a rather high knowledge of diverse ICT hardware by completing a checklist. On average, 82% of respondents reported that they know about the different ICT hardware listed in the checklist. Almost all participants (74 out of 76 participants or 97.3%) reported that they know what a computer mouse is. Less participants reported that they know about the Ethernet port and basic ICT safety precautions (57.9% and 60.5% respectively).

Participants' self-perception on basic ICT hardware aligns with their results on the ICT basic literacy assessment. 81.5% of all participants passed the assessment with a score of at least 50%, while 73.6% of all participants scored 68% or more on the questions related to ICT basic hardware.

Document formatting

In the ICT Basic literacy survey, most participants reported that they were confident with document formatting. However, the assessment revealed a somehow different picture (see table 6): overall, participants scored higher than they self-reported in making the text bold, underlining the assessment and changing the font size. Their performance was almost similar to their self-perception on making the text italic. As for changing font type, adjusting margin, justifying a text and indenting the first line in a paragraph, they performed much lower than they self-reported in the survey.

Table 6: comparison between self-report survey and assessment on document formatting (ICT Basic literacy)

Document formatting options	% of participants feeling confident in ability (self-report survey)	% of participants being able to do formatting (assessment)
Bold	81.6	87.3
Underline	81.6	85.7
Italic	81.6	81.0
Changing font size	75.0	85.7
Changing font type	75.0	58.7
Adjust margin	75.0	50.0
Justify	75.0	60.3
Indent	75.0	11.1

Thirty-four participants (44.7%) perceived themselves as having at least an idea on how to prepare and give a presentation using PowerPoint. In the ICT basic Literacy assessment, however, only 28 participants (36.8%) were able to submit a presentation they had prepared using PowerPoint. Overall, participants' performance on preparing a presentation using a PowerPoint was below their self-perception on this competence.

Internet search

The most significant imbalance between participants' self-perceived competences and their performance was on Internet search. As Table 7 indicates, 71.1% of participants self-reported as at least having an idea on how to search online resources while only 13.2% were able to conduct an Internet search in the assessment. Also, participants' self-report on competences to find online CPD opportunities were not confirmed by their performance on the related assessment item. Because participants scored so low on internet searches which is considered a basic skills, advanced skills such as the evaluation of web resources, online and blended learning were not assessed.

Table 7: comparison between self-report survey and assessment results on Internet search and online/blended learning experience

Internet search and online learning experience	% of participants feeling able (self-report survey) to conduct Internet search and experienced in blended learning	% of participants being able to conduct Internet search (assessment)
Internet search	71.1	13.2
Evaluation of web resources	64.5	NA
Finding online CPD opportunities	56.6	7.8
Online learning	17.1	NA
Blended learning	13.2	NA

In addition to survey and assessment data, participants' reaction on the survey and assessment were noted. Overall, participants from all districts were excited about online learning and are looking forward to participating in the courses when they are delivered in blended learning mode, while some others expressed their excitement about the online assessment experience. This excitement is exemplified in this statement from a participant in Ngororero district:

"I am doing a master's degree in a West African country but they do not have an online system. Whenever I want to send my assignment, I go to Irembo (a portal to government services and information) and pay Rwfr 10,000 for them to help me submit each assignment. If they were using an online system, like you plan to do, I would be submitting my assignments myself, free of charge."

Observations

ICT facilities

During the ICT basic literacy survey and assessment in the participating schools (N=4) it was observed that these schools are equipped with at least 30 laptops. With the exception of one needs-assessment venue in Gisagara district where Internet related equipment was stolen, other data collection centres had 3G or 4G Internet connections. Despite these facilities and efforts made to gather high quality data, there were still diverse challenges related to ICT facilities:

- There was intermittent Internet and regular power cuts which led to Internet failures and affected the online ICT basic literacy assessment;
- Most PCs did not have an up-to-date version of Windows and Microsoft Office or licences were not activated;
- Due to the use by many students, many computers were not functioning properly and participants did not have the regular Windows interface they were used to. This may have affected their online ICT basic literacy assessment completion.

STEM Teaching

This section is based on the observation of 4 secondary science lessons at G.S Rwamagana Protestant (Rwamagana District) and G. S. Rosa Mystica (Kamonyi District) and one focus group discussion with 8 science and mathematics teachers at senior level. The following strengths and weaknesses were common to all lessons or were raised during the focus group discussions.



Table 8. SWOT analysis STEM teaching

Strengths	Weaknesses/Needs:
<p>At the level of schools:</p> <ul style="list-style-type: none"> • Head teachers consider STEM teaching as a priority; • Teachers have a good mathematical understanding of the subject (formulas, units); • Teachers manage to engage most learners despite large class sizes; • Lessons follow a logical structure moving through roughly 5 stages: engage, explore, explain, extend and evaluate (5 E's Framework). <p>At the level of STEM teachers:</p> <ul style="list-style-type: none"> • Teachers encourage learners to explain what they are writing; • Teachers realise the importance of working in groups and using concrete objects; • Teachers show a strong interest in learning more about science Technological Pedagogical Content and Knowledge (TPACK); • Teachers realise that a stronger focus on developing conceptual understanding, problem solving skills and motivation for science are points for improvement; • Teachers combine periods to get longer units of instruction (2 periods combined make about 1h30'). 	<ul style="list-style-type: none"> • Techniques used by teachers such as asking questions and group work are often ineffective and can be improved; • Few teaching resources are used, and if they are used, they could be used more effectively; • Teachers move quickly to the abstract level of scientific concepts, moving quickly through concrete and conceptual stages of development; • Conceptual knowledge of teachers can be improved (e.g., differences mass and weight, meaning of formula, meaning of g constant).
Opportunities	Threats
<ul style="list-style-type: none"> • The Rwandan government has prioritised the quality of STEM teaching and is investing in equipping laboratories and providing more guidance in STEM teaching. 	<ul style="list-style-type: none"> • Curriculum and textbooks introduce advanced knowledge and terminology early (e.g., phagocytosis in biology in S2); • Lesson periods are too short to develop a coherent science lesson (40' – 45'); • Students don't have learner books during lessons.

Strengths and opportunities of STEM teaching

Several strengths of STEM teaching have been identified through the FGDs with STEM teachers and the observations conducted during STEM classes. On the teacher side, teachers seem to be moving away from a knowledge based approach to a more learner centred approach, valuing the use of group work and giving more room for conceptual understanding and problem-solving skills. On the HT side, the prioritisation of STEM teaching by the Rwandan government has trickled down the level of HTs. HTs encourage and motivate STEM teachers and STEM teachers feel supported by HTs.

Weaknesses and threats of STEM teaching

Some weaknesses and threats around STEM teaching have also been identified. Although, the use of a learner-centred approach is showing progress, many teachers still struggle with using learner centred techniques in an effective manner. In particular, group work and conceptual understanding require more attention. Closely related to this weakness are several external threats which may hamper an adequate implementation of the CBC within STEM teaching. Firstly, curriculum and textbooks introduce advanced knowledge and terminology, not always adapted to the learner's knowledge and skills and learner's do not have their own books. Secondly, lesson periods are found to be too short to develop coherent lessons that are in line with the CBC.

4. Conclusions and way forward

Roles and responsibilities

The collected data gives a detailed picture of the roles and responsibilities of all stakeholders involved in both systems. For DDEs and DEOs the main roles that were identified are planning, monitoring, inspection and evaluation of schools in their district. From the interviews, it appears that teacher, new teacher and head teacher professional development was not an identified priority for district officials. After hiring teachers there is little follow up on their CPD by district officials. The SEO has a similar role in the coordination of education activities, but at the sector level. At the same time, the SEO is expected to coordinate and facilitate the CPD of head teachers and teachers: they organise trainings at the sector level and engage in coaching and mentoring.

At the level of the school, a HT is responsible for school management, setting a strategic plan, planning and budgeting, and following up on human resources. In addition, HTs also follow up on teaching and learning. While the DHT supports the head teacher in school management, the DHT follows up more closely on the monitoring of students and teachers so that the HT can dedicate more time to managerial tasks. DHTs report back to the HT and advise him/her on learning issues. In most schools that took part in the needs assessment, DHTs take the lead in teacher professional development, including a focus on the induction of new teachers.

Lastly, the needs assessment showed that school based mentors are fully engaged in building the capacity of teachers, and they do this through training, coaching, mentoring, motivating and reporting. The focus on capacity development in schools and the role of the SBM lies in the implementation of the CBC in general, and teaching methodologies, classroom management, peace education, ICT in education in particular. Coaching and mentoring by SBMs focuses on speaking and using English effectively as an instructional language and providing support to new teachers. SBMs can also train subject leaders who are often heads of a subject department in larger schools.

From the district to the level of the school, the roles and responsibilities of the involved stakeholders moves more from management and coordination to leading, teaching and learning in schools. Even though roles and responsibilities are to a certain extent clear, there is also quite some overlap between roles and responsibilities and somehow a disconnect between the different levels.

Based on the findings of the needs assessment, it can be argued that a better alignment between the different levels can benefit the overall support systems for school leaders and teachers, with a stronger focus on leading teaching and learning.

Support systems for school leadership and teacher support

At the school level, basic facilities such as water and electricity, and facilities for girls were often found to be in place but, schools need more resources like laboratories and new textbooks (both teachers' and learners' guides) that are in line with CBC, for them to be able to deliver the curriculum and quality education. Head teachers share the school plan with their teachers and provide teaching materials and teachers were very happy with the support and encouragement of HTs, but school improvement planning (SIP) can still be strengthened. Schools were found to have qualified school staff, with high expectations of students, but there is limited time for CPD of teachers. Even though CPD takes place, it does not seem that there is a good alignment between what

happens at different levels. More CPD activities, especially coaching and mentoring activities, are needed both at school and sector levels. Currently, none of the schools that took part in the needs assessment had teacher retention strategies. This was identified as a threat which could eventually lead to de-motivation of teachers and teacher absenteeism. At the school level, SBMs and SSLs need more insight in their roles and more resources, especially time. They can benefit from training on coaching and mentoring, as key aspects of school-based CPD. The position of the SBM is not always clear and better coordination and communication with the DHT and HT can improve support. New teachers are often motivated to start and seem to offer additional assets such as a good proficiency of English, however more attention could be given to their integration in the school and the opportunities that new teachers offer for teamwork with other teachers.

To address some of the challenges at the level of the school, the sector, district and national level has a role to play. Logistic support from REB contributes a lot to effective school leadership and should be continued. The national government is also ambitious when it comes to integrating ICT and promoting STEM and foresees investments in infrastructure in these areas. In addition, policies such as the girls' recruitment policy create strong opportunities to address gender equality in schools. To align school leadership at different levels, school leaders could be involved more closely in the process of the education policy development and teaching staff recruitment. CPD programmes at the sector level can be enhanced so that HTs and DHTs have the capacity to support the school based mentors and subject leaders.

ICT facilities

The four schools that were selected as needs assessment venues were equipped with basic ICT facilities, including laptops and desktops, that were connected to the internet. However, due to regular power cuts, stable connectivity was generally challenging. Poor management of the facilities led to poor use as well: most PCs and laptops were not well maintained and lacked up to date software installations. It is highly recommended for schools to work out a comprehensive ICT policy as part of their school improvement plan that addresses these issues.

ICT basic literacy

Even though respondents in the ICT basic literacy survey generally felt quite comfortable in basic use of ICT, the assessment showed a different picture, where respondents were performing poorly especially when it comes to more complex options such as formatting of documents, but also internet search or creation of PowerPoint presentations.

Regardless of this poor performance, respondents are very excited about the potential of ICT and the integration of ICT in delivery of blended CPD services. It is recommended to integrate all components of the ICT basic literacy survey and assessment in an ICT basic literacy course for future trainees of the project.

STEM teaching

There is a clear focus on enhancing the quality of STEM teaching at the national level which has trickled down to the level of headteachers. STEM teachers are showing progress in using more learner centred techniques such as group work, however, some of them do not feel sufficiently confident to apply such techniques effectively. In addition, the current lesson periods are found to be too short to develop coherent lessons that are in line with the CBC and current textbooks are not always adapted to the learner's knowledge and abilities. It is recommended to have learner book's readily available for all learners as well as better equipped labs to conduct practical experiments.

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