



# Making inclusion count: findings from the feasibility study testing tools for collecting disability data in schools in Sierra Leone

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# 1. Summary

## Background

Millions of children around the world are living with forms of functional difficulty, most of whom are in low- and middle-income countries. Most of these children have limited access to social services including basic education. The lack of standardised approaches to collecting and interpreting disability data within educational systems makes it difficult for governments to plan and monitor progress towards achieving the global intention of Education for All.

Despite calls by the United Nations (UN) to ensure that all children, including those with functional difficulties, have access to quality education, several challenges continue to hinder progress towards achieving inclusive education.

In low- and medium-income countries, teachers lack the skills in special needs education, school buildings have not been restructured to make them disability-friendly and access to assistive learning materials by children with functional difficulties is low. Addressing these challenges require governments to secure accurate and timely data on children with functional difficulties to enable planners to design inclusive interventions to help affected children achieve basic education.

Measuring disability continues to pose challenges in low- and medium-income countries, where childhood functional challenges remain undetected and unaccountable due to limited access to paediatric diagnostic services. Disability-related stigma poses further difficulties.

To address challenges with measurement of disability, the Washington Group on Disability Statistics (WGDS) advocates for the use of tools designed to collect internationally comparable data on functional difficulties in census and large-scale population data. Use of the Washington Group Short Set (WG-SS) of questions is now widespread, but due to its brevity, it misses many developmental and behavioural difficulties experienced by children.

The Child Functioning Module (CFM), developed jointly by UNICEF and WGDS, responds to the need for a tool which identifies difficulties most frequently experienced by children, but must be administered to a parent or caregiver. In response to the need for a tool to identify children with functional difficulties within schools, UNICEF/WGDS have developed the Child Functioning Module-Teacher Version (CFM-TV), which now requires validation. In this study, we explore use of two tools, WG-SS and CFM-TV, for collection of information on children with functional difficulties in schools in Sierra Leone.

Childhood disability is a significant issue in Sierra Leone, where disability-related stigma remains widespread, and children with disabilities often have limited access to social services, including education. The 2017 Multiple Indicator Cluster Survey (MICS) found that 23.1 per cent of children aged 5-17 years had at least one functional difficulty. The government has taken several measures to increase school

attendance for children with disability. Among others, MBSSE recently launched the National Policy on Radical Inclusion in Schools to increase attendance for marginalised children and establish an effective data collection system to monitor the progress of children with disabilities.

The objective of this study was to assess the feasibility of using the WG-SS and CFM-TV question sets in school settings in Sierra Leone, to generate reliable information on children with functional difficulties for use in the Education Management Information System (EMIS).

More specifically, the work addressed the following research questions:

1. What is the acceptability and feasibility of using either WG-SS or CFM-TV by teachers in schools in Sierra Leone?
2. What does the completion of WG-SS or CFM-TV tell us about prevalence, type, and severity of disability amongst children attending schools?
3. How useful is the data collected in schools for teachers and local education stakeholders with regards to, a) children's educational support and b) education sector planning and budgeting?

## Study setting

This study was conducted in Bombali and Karene districts, the northern and north-western regions of Sierra Leone respectively. Four primary and four junior secondary schools were purposively selected, ensuring balance between districts and rural and urban settings. A further two schools were selected (one from each district) to participate in the initial testing of tools but these were not involved in subsequent data collection exercises.

## Method

The study used a multi-stage, mixed methods design, with each stage informing and shaping the subsequent stages. The study was conducted in the following four stages.

1. **Initial testing of tools** – the aim of this stage was to understand the applicability of WG-SS and CFM-TV in schools in Sierra Leone. Tools were tested using 18 teachers from two schools to assess the functional difficulty of 270 children selected from registers.
2. **Co-creation workshop** – this stage brought together key stakeholders (MBSSE, National Commission for Persons with Disability, heads of study schools, including selected teachers and representatives from Community Teacher Associations) to plan for teacher training and school-based data collection.
3. **Teacher training** – 65 teachers from eight study schools were trained in their districts in data collection, data protection, formulating unique ID codes (for children and teachers) and using WG-SS and CFM-TV to collect data.



4. **School-based data collection** – using WG-SS and CFM-TV, trained teachers collected data from 3,306 children in December 2022. Teachers worked according to individual plans developed during training.

## Results

### Initial testing of tools

During initial testing of tools, WG-SS was used to assess 90 children (51 boys and 39 girls) and 2 per cent were found to have functional difficulties. Assessment scores by teachers were generally consistent. Teachers found the WG-SS questionnaire, with only six questions, easy to use for assessing children. Teachers found questions on seeing, hearing, mobility and self-care easier to respond to than those on cognitive and communication. Teachers reported challenges interpreting response options related to 'some difficulty' and a 'lot of difficulty'.

CFM-TV was used to assess 180 children (85 boys and 95 girls). This tool established a prevalence rate of 15 per cent. Domains where difficulty was most frequently identified were anxiety (ten children), depression (nine children), remembering (eight children) and accepting change (seven children). As with WG-SS, teachers struggled to interpret response options. Teachers also struggled with the length (18 questions) of the questionnaire, and initially the skip patterns, though this improved with practice. Specific questions which were challenging were those related to cognition, anxiety and depression.

### Considerations for data collection

Discussions from initial testing of tools and co-creation workshop identified the following areas of focus for teacher training and data collection:

Focus on class teachers, as they know their children more than subject specialist teachers.

Use paper-based data collections forms, rather than electronic forms on smartphones. IT skills among teachers are low and internet connectivity in some areas are either weak or non-existent, which will pose challenges for using smartphones.

Heads of schools to coordinate data collection activities.

Confidentiality must be considered at all times to protect children.

### School-based data collection

Overall, 3,306 children were assessed, 1,830 using the CFM-TV (55.4 per cent) and 1,476 WG-SS (44.6 per cent).

1,387 children aged between 5-7 years were assessed by WG-SS and 1.8 per cent were found to have a functional difficulty. There were slightly more girls with functional difficulty (2 per cent) than boys (1.6 per cent). The proportion of children identified as having a functional difficulty increased consistently with age.

From data generated by WG-SS, common domains identified were vision, mobility, cognitive and hearing.

Among 1,760 children aged 5-17 years assessed using CFM-TV, 259 (14.7 per cent) children had a functional difficulty; girls were again slightly more likely than boys to be identified as having a functional difficulty. Prevalence again increased with age.

Top occurring domains identified by CFM-TV include anxiety, depression, learning, remembering and accepting change.

There were variations in prevalence rates by school for both tools. For WG-SS, prevalence rates ranged from 0 per cent (school 2-MCJ) to 3.6 per cent (1-RCJ). For CFM-TV, prevalence ranged from 3.6 per cent (2-SPP) to 32.1 per cent (1-KAJ). For both tools, primary schools had lower prevalence rates, compared to junior secondary schools.

### **Implications of study**

This study established that class teachers have the capacity to use WG-SS and CFM-TV to collect data on functional difficulties of children in their classrooms. The study further established that CFM-TV collects more detailed data on a wider range of functional difficulties. This generates prevalence figures more closely aligned to those generated by the MICS survey in 2017. However, both tools used in this study produced a higher prevalence of functional difficulty, compared to that produced by the 2022 annual school census.

To ensure that the most useful and accurate data on functional difficulty can be integrated into EMIS, to inform policy formulation and planning, the following strategies should be considered:

**Research to understand value of functional difficulty data in classrooms, schools, and district and national education system.** Additional research is needed to understand how teachers, schools and the educational system can use functional difficulty data, whether information about functional difficulties in certain domains is more relevant to educational settings, and how frequently data needs to be updated.

**Consider integration of functional difficulty questions in the annual school census.** Guided by learning about value of data on different domains of difficulty, this approach could be piloted in a few schools, and gradually scaled-up across the country.

**Explore implications of involving class teachers in collecting data on functional difficulty.** This study established that class teachers know the children in their classrooms more than other teachers and were most able to complete functional difficulty assessments. Additional research is needed into the training required to enable teachers to collect and use functional difficulty data. Further information is also needed about the amount of time assessment requires. Identification of potential risks resulting from assessments can support their mitigation.

## 2. Introduction

### Inclusive education

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An estimated 240 million children in the world are living with some form of disability, and most of them are in low- and middle-income countries. Many of these children have limited or no access to public services, including access to health and education.

Globally, there is growing recognition of the importance of ensuring that all children have access to quality education, including children with disabilities. The UN Convention on the Rights of Persons with Disability calls on state parties to ensure that children with disabilities are included in basic education (1).

Despite these global calls for action, progress on achieving inclusive education is slow at all levels. At school level, most teachers lack skills in special needs education, buildings have not been transformed to make them disability-friendly and students do not have access to accessible learning materials and assistive devices. At community level, stigma of disability continues to be high, leading to further discrimination and exclusion of children with disabilities and their families.

Addressing these inequalities and ensuring that children with disabilities have meaningful and equitable access to education requires that governments routinely collect, analyse and use timely and reliable disability-disaggregated data. Such data can help education planners to formulate inclusive policies and budgets, while local education authorities and teachers can make their school environments and teaching practices more accessible and tailored to children's individual needs. However, collecting quality disability-disaggregated data within most education systems remains a challenge (2).

### Measuring disability

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Measuring disability in children is challenging. Diagnosis of specific impairments requires clinical evaluation of a child, often over a period of time. However, access to quality paediatric services in many low-income countries, including Sierra Leone, is extremely limited, if available at all. For this reason, many impairments and related functional difficulties experienced by children go undiagnosed and unaccounted for.

Furthermore, a clinical diagnosis of an impairment does not mean that a child's needs, including additional educational needs, are recognised, and that the child will receive appropriate support within educational settings. The lack of standardised ways to record data on children's disability status in low- and middle-income countries poses challenges in planning education services and resources and in monitoring progress towards achieving Education for All (3).

To address the urgent need of collecting comparable disability data, the United Nations Statistical Commission formed the Washington Group on Disability Statistics (WG), which over the years developed a range of tools to collect valid, reliable and cross-nationally comparable data on disability. The Washington Group has developed and tested six question sets, including WG Short Set (WG-SS) on functioning; WG-SS on functioning – Enhanced; WG Extended set; and WG/UNICEF Child Functioning Module (CFM) (4).

WG-SS is the most frequently used tool and measures functional difficulties across six functioning domains: vision, hearing, mobility, cognitive, self-care and communication.

The module has been extensively used globally, largely in censuses and national health surveys (5). It is also the preferred method to use with SDGs to measure assess the number of people with disabilities in a given population (6).

WG-SS (Appendix 1) has been validated for use for individuals aged five years and older. However, it has not been designed for use specifically with children and has been shown to miss many developmental and behavioural difficulties experienced by them. As a result, WG-SS often underestimates the prevalence of disability in children.

To address this challenge, the WG has worked with UNICEF to develop the CFM, which assesses functional difficulties in children. The CFM has two versions, one for children aged two to four years, measuring difficulty in eight functional domains, and one for those aged five to 17 years, measuring difficulty in 13 domains. The CFM has now been used in multiple settings in Multiple Indicator Cluster Survey (MICS) to collect comparable data on childhood disability internationally and enables disaggregation of other survey data by disability (7, 8).

The CFM has been developed to be used with a child's primary caregiver. More recently, in recognition of the need to collect disability data in educational settings, the WG and UNICEF have developed the Child Functioning Module - Teacher Version (CFM-TV). This is designed to be completed by teachers of children aged five to 17 years and covers 12 domains. Work to validate this module is currently underway.

A study in Senegal found that the CFM-TV (Appendix 2) is practical and effective to be used by teachers and their assessment is broadly consistent with the carer's response (9). However, evidence of the practical application of the CFM-TV in school settings, including teacher training, data storage and use, continues to be limited.

## Disability data in Sierra Leone

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The most recent and reliable source of data on childhood disability in Sierra Leone is the MICS-6 survey conducted in 2017, which found that 23.1 per cent of children aged 5-17 years had at least one functional difficulty with the most common being anxiety (12.9 per cent) and depression (9.1 per cent). Prevalence of sensory

disabilities, such as difficulties in seeing and hearing, was relatively low, around 0.2 per cent. The survey further showed that many children with functional difficulties were enrolled in school, but school attendance varied by type of functional difficulty (10). A report by UNICEF found that children with signs of anxiety and depression attended schools at similar rates as children without functional difficulties. In contrast, children with hearing or seeing difficulties had the lowest school attendance rates, at 50 and 60 per cent respectively (11).

The Ministry of Basic and Senior Secondary Education (MBSSE) also provides information on disability through its Annual School Census (ASC). The 2022 ASC report identified 44,792 children, of whom 49 per cent are girls, with various types of disabilities. Domains identified among children include: vision (21.7 per cent), hearing (21.3 per cent), learning (19.9 per cent), speaking (17.8 per cent) and mobility (13.8 per cent) (12).

MBSSE use a more limited definition of functional difficulty than MICS and the figures in the ASC report do not seem to account for the possibility that children might have multiple domains of difficulty.

The government of Sierra Leone has adopted SDGs, which commit them to collecting: “Quality, accessible, timely and reliable disaggregated data... to help with the measurement and progress and to ensure no one is left behind” (13).

In line with its international commitments, MBSSE, in with development partners, formulated the National Policy on Radical Inclusion in Schools. The aim was to enable children from marginalised and excluded groups (children with disabilities, pregnant girls, and children from remote locations and poor backgrounds) to enter and stay in school. This policy is now fully operational, and its key requirement is to take: “A robust approach to data collection, management and analysis” (14).

### 3. Study objectives

In this context, Sightsavers, in partnership with MBSSE and the Sierra Leone Union Disability Issues (SLUDI), developed a research study to better understand how data on disability is included in Sierra Leone Education Management Information System (EMIS), and to test different approaches to collecting reliable disability data at school level.

The first phase of this study involved an assessment of the current EMIS to:

- Examine the current status of EMIS and its strengths and weaknesses with regards to disability data.
- Identify opportunities for strengthening the current system to make it more disability inclusive.

The report presenting the findings and learnings from the first phase is available here: <https://research.sightsavers.org/project/sierra-leone-disability-data/>

In summary, the key learning from this work are as follows:

- The annual school census (ASC), which provides data for EMIS, is well planned and supervised to ensure methodological soundness.
- Although EMIS is supported by the government of Sierra Leone, it does not have a national policy or operational guidelines.
- Data generated by the ASC is not complemented by any real-time data to update it. Considering the rapid changes taking place in the education sector, especially increasing enrolment in schools, education data on EMIS becomes outdated a few months after publishing the ASC report.
- Disability data on EMIS is limited, focusing on a few disability domains, often the visible types of impairment, and does not support effective planning for children with disability in schools.
- EMIS in Sierra Leone requires significant developments and strengthening to be able to integrate quality disability data (15).

Based on the understanding of the structure and capacities of the broader EMIS, the second phase of the study was initiated to test approaches to collecting disability data in schools. This report provides an overview of this second phase of this study.

The objective of this second phase of the study was to assess the feasibility of using the WG-SS and the CFM-TV question sets in school settings in Sierra Leone.

More specifically, the work addressed the following research questions:

- What is the acceptability and feasibility of using either the WG-SS or the CFM-TV by teachers in schools in Sierra Leone?
- What does the completion of the WG-SS or the CFM-TV tell us about prevalence, type, and severity of disability amongst children attending schools?
- How useful is the data collected in schools for teachers and local education stakeholders with regards to a) children's educational support and b) education sector planning and budgeting?

## 4. Methods

### Study design

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The study used a multi-stage, mixed methods design, with each stage informing and shaping the subsequent stages. The overall structure of the study is summarised in Figure 1.

The first stage comprised a small-scale pilot of teacher training and the use of the tools (WG-SS and CFM-TV) with teachers from two schools. Learnings from the pilot fed into a co-creation workshop, which planned disability data collection in eight study schools. The co-creation planning process then fed into the training of all classroom teachers in the eight selected schools, school-based data collection and data analysis.

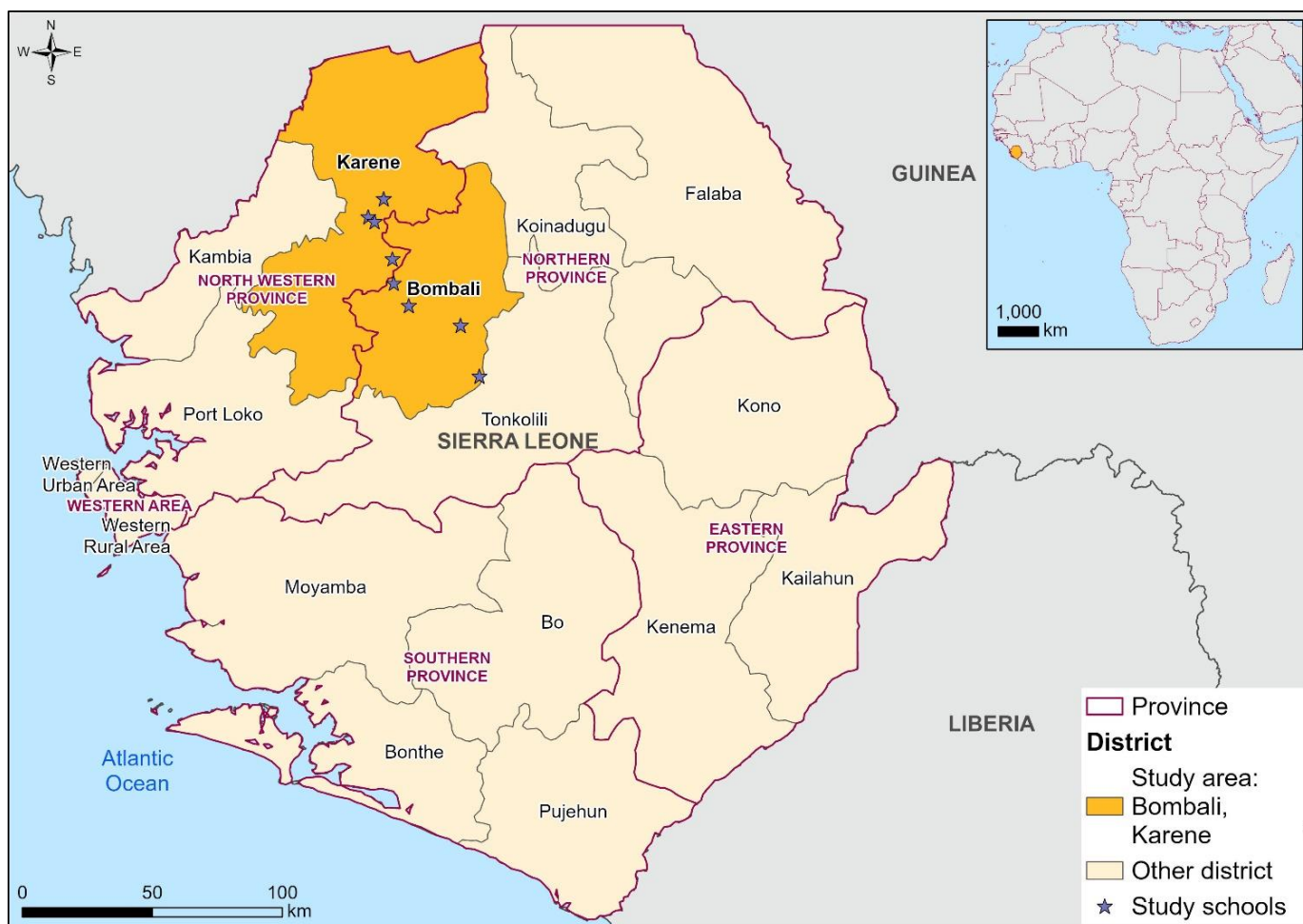


**Figure 1. Summary of study stages and activities.**

### Study location

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The study was conducted in Bombali and Karene districts in northern Sierra Leone, where Sightsavers is supporting 45 inclusive schools (Figure 2). Ten of these 45 schools were selected to participate in this study. The initial pilot of the teacher training and the tools took place in two schools (one in Bombali and one in Karene district); and the larger data collection pilot took place in eight schools (four in Bombali and four in Karene districts).



**Figure 2. Map of Sierra Leone showing study area.**

The eight schools were selected purposively to ensure:

- Representation of both urban (Bombali) and rural (Karene) settings
- Representation of four primary and four junior secondary schools
- Comparability of school characteristics (size, location, number of learners and teachers) to be able to test and compare the results of the two tools

The two schools participating in the initial pilot did not participate in the school-based data collection (Table 1).

**Table 1. Distribution of schools by district and assessment tool.**

District/school	School ID code	Number of streams	Total Enrolment	Tool allocated
<b>Bombali (Urban)</b>				
RC Primary, Mapaki	1-CMP	9	315	CFM-TV
SLMWBO Primary, Gbendembu	1-BGP	7	242	WG-SS
Kalangba Agricultural JSS, Kalangba	1-KAJ	8	441	CFM-TV



District/school	School ID code	Number of streams	Total Enrolment	Tool allocated
RC JSS, Binkolo	1-RCJ	9	400	WG-SS
<b>Karene (Rural)</b>				
St Pauls Primary, Kamalo	2-SPP	9	665	CFM-TV
SLMWBO Primary, Kambia	2-BKP	7	396	WG-SS
Wuror Memorial JSS, Rokulan	2-WMJ	9	425	CFM-TV
Community JSS, Makulon	2-MCJ	7	428	WG-SS

## Initial pilot in two schools

The objective of the initial pilot was to provide preliminary insights into the feasibility and acceptability of the two tools, WG-SS and CFM-TV, in the Sierra Leone context. Specifically, how teachers in Sierra Leone understood the key concepts and functional domains included in the tools and whether they felt comfortable in completing the forms.

Two schools (Kagbere Community Junior Secondary and Karene District Education Committee Primary) were selected purposively for the initial pilot, based on their central location and the number of children with disabilities enrolled in the schools.

From these schools, 18 class teachers were selected to ensure a good mix in terms of sex, length of service and prior exposure to children with disabilities. Information on the demographics of this group of teachers is available in Appendix 3. Of this group, six teachers were trained to use the WG-SS tool and 12 teachers were trained to use CFM-TV. Each group of teachers tested one tool only, to avoid confusion.

Piloting of each tool was conducted separately, during August 2022, while teachers were on holiday. The pilot of WG-SS with six teachers was conducted first, over a two-day period. This was followed by the pilot of CFM-TV with 12 teachers over a four-day period. The additional time required for the CFM-TV pilot was due to the longer and more complex nature of the tool, and the larger number of teachers involved in the assessment.

The two pilot exercises followed the same structure. The tool was first introduced to the teachers to generate a shared understanding of basic concepts, familiarise them with the layout of the form, and ensure comfort with the response options. During the introductory session, teachers also generated unique ID codes for themselves and for the children on their registers, which they would be assessing to ensure confidentiality.

Tools were introduced to teachers in Krio and English, and some discussion of particularly challenging content also took place in the main local languages (Temne,

Limba and Loko). However, as teachers were generally not able to use these languages in a written form, the tools were not translated, and were provided to teachers in English.

The WG-SS and CFM-TV tools were redesigned to capture demographic data on teachers and children, including their unique ID codes. The demographic section of the two tools is attached as Appendix 4. The forms/questionnaires in MS Word format were printed as paper-based forms. All questions in WG-SS and most questions in CFM-TV are answered using a four-point scale: no difficulty, some difficulty, a lot of difficulty and cannot do at all. CFM-TV questions on anxiety and depression are answered using a five-point scale: daily, weekly, monthly, a few times of the year and never.

During the pilot, the six teachers using WG-SS assessed a total of 90 children from their class registers, and the 12 teachers using CFM-TV assessed 180 children. All assessments were based on teachers' prior knowledge of each child. There was no engagement with children during the assessment.

To test the consistency of the assessment, all teachers were organised in pairs, with both members of the pair assessing the same group of children (30 children per pair). Both teachers within the pair were expected to have similar levels of prior exposure to the children they assessed. Following the introductory session, each teacher independently completed the relevant tool for 15 children. This was followed by a debrief to compare results and the differences in the assessment were discussed. Teachers then again worked independently to assess the remaining 15 children.

Following the assessments, the study team conducted in-depth interviews (IDI) with each teacher. The aim of IDIs was to explore and document the experiences of teachers in applying the tools, identify easy and difficult questions, and understand key challenges during the assessment and how teachers mitigated them.

Two focus group discussions (FGD) were conducted during each pilot, one after each set of 15 assessments. They explored the similarities and differences in the teachers' assessments. The second FGD was conducted after the second assessment of children to compare responses provided by teachers. All IDIs and FGDs were audio-recorded, transcribed in English, and analysed using NVivo.

## Co-creation workshop

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Following the initial pilot, preparation began for field testing of the tools in eight selected schools. The first activity was a co-creation workshop, which brought together key education stakeholders to jointly map out and plan the data collection process within each school.

A total of 24 stakeholders participated in the co-creation workshop, including representatives of MBSSE, EMIS specialists, officials from Bombali and Karene

education offices, members of the National Commission for Persons with Disability (NCPD), local community members and principals of the participating schools.

The co-creation workshop included presentations, group activities and discussions.

All workshop activities were documented by rapporteurs, who produced a report. Ten group discussions conducted during the co-creation workshop were audio-recorded, transcribed in English and analysed using NVivo.

## Training of teachers in eight study schools

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The training of class teachers from eight study schools was informed by the co-creation workshop and learnings from the initial pilot. The aims of the teacher training were to:

- Improve teachers' understanding of functional difficulties and how they relate to the concept of disability.
- Prepare teachers to effectively use the WG-SS or CFM-TV tools.
- Agree operational details of the data collection process.
- Identify and plan for provision of appropriate support during the assessment.

All 65 class teachers from the eight study schools were invited to participate in the training. 30 teachers from four study schools were trained on WG-SS, and 35 teachers from another four schools were trained on CFM-TV. The training was also attended by two EMIS ICT officers, two School Quality Assurance officers and two local government officials who chaired education committees in the study districts.

One teacher training was held in each district, lasting for three days (non-residential) and using a range of participatory methods, including brainstorming, role play, small work group sessions and case studies.

Each training began with an introductory session on disability data, followed by generating unique IDs for teachers and the children on each of their registers to ensure confidentiality. Teachers were then split into separate groups for WG-SS and CFM-TV and were introduced to the specific tool.

In these subgroups, facilitators guided teachers through the questionnaire and response options with sufficient time for discussion and questions. As expected, the introduction of CFM-TV lasted longer compared to WG-SS. The introduction of the tools was followed by several role plays, where teachers worked in pairs and asked each other about functional difficulties. Teachers then moved on to practice their assessment skills by completing the tool for two children selected from their registers and sharing their experiences with the group. Finally, operational details of the school-based data collection were discussed, and teachers mapped out their individual workplans and timelines.

All training activities were documented by rapporteurs, who produced a report. FGDs were also conducted with the teachers regarding their existing knowledge of

disability and previous experiences in disability data collection. These were also audio-recorded, transcribed in English and analysed using NVivo.

## School-based assessments

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School-based assessments took place in the first and second weeks of December 2022. All 65 class teachers trained participated in the data collection, where they assessed 3,306 children in total (1,476 using WG-SS and 1,830 using CFM-TV). All children listed in the teachers' registers, including those with irregular attendances and those who had dropped out during the academic year, were included in the assessment. All assessments were made based on teachers' existing knowledge of the students. There was no direct contact with children specifically for the purpose of completing the assessment.

Although all teachers worked individually, they provided support to each other to ensure quality and responded to queries. The study team also provided periodic visits to the schools to assess progress, provide support and quality assurance, and collect completed forms.

Teachers were also supported through two WhatsApp groups, one for each assessment tool. These groups included teachers, district education officials and the study team. The WhatsApp groups provided platforms for communication, sharing experiences and support.

The assessment of students (either WG-SS or CFM-TV) was done using paper-based forms, which included teachers' and children's IDs, functional difficulty domains and response options (see Appendices 1 and 2). The completed forms were collected by the study team. Data from the forms was then entered electronically using CommCare platform and subsequently downloaded in Excel for data analysis using R.

In this study, we used standard cut-off points for functional difficulty as recommended by the Washington Group. A child was determined as having a functional difficulty if the answer was 'a lot of difficulty' or 'cannot do at all' in at least one domain (or 'daily' for anxiety and depression in CFM-TV).

Teachers also completed a brief paper-based demographic form containing information on their sex, age, years of teaching experience, and highest qualification. These forms were also collected by the study team, entered electronically and used in the analysis.

## Ethical considerations

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Approvals to conduct this study were secured at several levels. First, we received an administrative approval from MBSSE (21/3/2021), and this enabled the study team to engage MBSSE officials and education authorities in Bombali and Karene districts. We also secured an ethics approval from the Sierra Leone Ethics and Scientific

Review Committee (21/07/2021), the institution responsible for reviewing and approving all research activities in the country. In addition, we consulted and obtained consents of the District Education Offices in the study districts to allow us access to the study schools.

During all study activities, written informed consent was obtained from all participants prior to data collection.

Considering that disability remains a highly stigmatised issue in many communities, the study team took every measure to protect the identity of children being assessed, and to ensure that confidentiality of all data was maintained. Teachers were trained on the importance of confidentiality. Teachers allocated each child on their register a unique ID code, which was used on study materials containing children's data. All completed assessment forms and any related documentation were returned to the study team, for storage in a secure location.

# 5. Results

## Initial pilot

The initial pilot was conducted with teachers from two schools. Six teachers were trained to use WG-SS and 12 teachers were trained to use CFM-TV.

### Assessment using WG-SS

Six teachers trained to use WG-SS were divided into three pairs, with teachers in each pair independently assessing the same 30 children. During assessment of the first 15 children, teachers took on average ten minutes per child to complete an assessment. After getting used to the form, during assessment of the second 15 children, teachers took an average six minutes to assess each child.

Out of 90 children (51 boys and 39 girls) assessed, two (2.2 per cent; both boys) were determined to have functional difficulties (FD) using standard cut-offs (a lot of difficulty or cannot do at all). One child was identified as having difficulty in seeing, and the other child was identified as having difficulties in remembering, self-care and communication.

In general, assessments by teachers assessing the same child were consistent in terms of the exact level of difficulty identified (no difficulty, some difficulty, a lot of difficulty, or cannot do at all), as well as presence or absence of functional difficulty using standard cut-offs (see Table 2). Details on consistency of assessment between teachers is attached as Appendix 5.

**Table 2. Piloting WG-SS: levels of agreement between teachers assessing the same child.**

Domain	Agreement (90 children assessed)		Total children with FD
	All categories	Presence of FD	
Seeing	97.8%	98.9%	1 (1.1%)
Hearing	100%	100%	0
Walking	100%	100%	0
Cognitive	92.2%	98.9%	1 (1.1%)
Self-care	98.9%	98.9%	1 (1.1%)
Communication	87.8%	98.9%	1 (1.1%)
Overall		97.8% (88/90)	2 (2.2%)

Agreement was highest for the domains of seeing, hearing, walking and self-care. Disagreement on exact level of difficulty was highest for communication and self-

care, but in almost all cases was between 'no difficulty' and 'some difficulty', so didn't result in differences in number of children identified with functional difficulty using standard cut-offs (where only 'a lot of difficulty' or 'cannot do at all' indicate the presence of functional difficulty). While agreement on presence/absence of functional difficulty was almost complete, it is worth flagging that for both children where functional difficulty was identified, it was only identified by one of the teachers.

Overall, teachers found the WG-SS questionnaire easy to apply, as it contained only six questions. During IDIs and FGDs, teachers reported that questions 1-3 and 5 (seeing, hearing, mobility and self-care) were easy to understand and respond to. Questions 4 and 6 (cognitive and communication) were more challenging. Question 4 (cognitive) was thought to be the most difficult to assess. This feedback is broadly consistent with the data on the extent of agreement between teachers, where Questions 4 and 6 had highest levels of disagreement. Table 3 provides more specific feedback from the teachers for each question in the WG-SS tool.

**Table 3. Piloting WG-SS: summary of question by question analysis.**

Domain	Assessment
<b>WG1 - seeing</b>	<ul style="list-style-type: none"> <li>Generally, there was no problem interpreting and responding to this question; most respondents described it as easy and straightforward.</li> <li>There were two disagreements between teachers:               <ul style="list-style-type: none"> <li>In Pair 1, one teacher assessed a child as having 'no difficulty', while the other indicated 'some difficulty'.</li> <li>In pair 2, one teacher assessed a child as having 'some difficulty', while the other assessed the same child with 'a lot of difficulty'. In the FGD that followed the assessment, teachers agreed that 'a lot of difficulty' was more accurate</li> </ul> </li> </ul>
<b>WG2 – hearing</b>	<ul style="list-style-type: none"> <li>Teachers had no difficulty understanding and interpreting this question.</li> <li>There were no disagreements between the assessors.</li> <li>No child was identified with a functional difficulty in this domain.</li> <li>Teachers noted that they were aware of cases when children in the early stages of hearing impairment covered up their difficulty in hearing due to their unwillingness to go through further investigation and treatment.</li> </ul>
<b>WG3 – mobility</b>	<ul style="list-style-type: none"> <li>Teachers rated this question as easy to understand and respond to</li> <li>There were no conflicting responses to this question.</li> <li>Overall, teachers noted that mobility was easy to assess, as children could not hide or fake this type of difficulty in this domain</li> </ul>
<b>WG4 – remembering/ concentrating</b>	<ul style="list-style-type: none"> <li>Teachers found this question difficult to understand and to respond to</li> <li>There were seven disagreements among assessors</li> </ul>

Domain	Assessment
	<ul style="list-style-type: none"> <li>▪ There were five disagreements between teachers in pair 1. These were between ‘no difficulty’ and ‘some difficulty’</li> <li>▪ There were two disagreements between teachers in pair 3. In one case this was between ‘no difficulty’ and ‘some difficulty’, but in the other it was between ‘some difficulty’ and ‘a lot of difficulty’. (This same child was also identified as having functional difficulties (a lot of difficulty) in self-care and communication domains). This child was classed with ‘a lot of difficulty’ during FDG.</li> <li>▪ Teachers indicated that they faced challenges assessing the cognitive domain/difficulties of children due to the large number of children in their classes, as one teacher noted: “You will find it difficult when you have a large class. I have a class of 74 children, which makes it impossible for me to monitor their individual participation.” (Teacher, initial pilot, 22/8/2023).</li> <li>▪ Teachers also noted that those with large classes could assess this domain only during periodic tests/examinations, and that the assessment of this domain required good knowledge of all children in the class.</li> </ul>
<b>WG5 – self-care</b>	<ul style="list-style-type: none"> <li>▪ Teachers found this question easy to understand.</li> <li>▪ There was only one disagreement between teachers for this domain:</li> <li>▪ In pair 3, one teacher assessed the child as having ‘no difficulty’, while the other teacher indicated ‘a lot of difficulty’. (This is the same child that was also identified as having functional difficulty with remembering/concentrating and communication).</li> <li>▪ We noted that teachers tended to associate this domain with cleanliness. They also noted that this difficulty was often present in children with mobility difficulties due to limb impairments or certain diseases.</li> </ul>
<b>WG6 – communication</b>	<ul style="list-style-type: none"> <li>▪ Teachers experienced some challenges in assessing this domain. This was particularly in relation to the phrase ‘understanding and being understood’, which was difficult to interpret by some teachers.</li> <li>▪ There were 11 instances of disagreement between teachers in this domain during the assessment.</li> <li>▪ There were 8 disagreements between the teachers in pair 1, all between ‘no difficulty’ and ‘some difficulty’.</li> <li>▪ There were 3 disagreements between teachers in pair 3. Two disagreements were between ‘no difficulty’ and ‘some difficulty’, and one disagreement between ‘no difficulty’ and ‘a lot of difficulty’. (This same child was also assessed as having functional difficulties in the cognitive and self-care domains).</li> </ul>



Domain	Assessment
	<ul style="list-style-type: none"> <li>Teachers noted that speaking was easy to assess but the assessment of how well the child could understand required some knowledge of the child.</li> </ul>

## Assessment using CFM-TV

Twelve teachers used CFM-TV to assess a total of 180 children, 85 boys and 95 girls. During the first 15 assessments, teachers took about 25 minutes per child. During the second 15 assessments, this dropped to about 15 minutes per child.

A total of 33 children (9 boys and 24 girls) were determined to have functional difficulties using standard cut-off points, giving a prevalence rate of 18 per cent. Girls were more than twice as likely to be identified as having a functional difficulty as boys in this assessment. Twelve children had functional difficulties in multiple domains (8 girls and 4 boys). The most frequent domains where functional difficulty was identified were anxiety (10 children), depression (9 children), remembering (8 children) and accepting change (7 children).

There were higher levels of disagreement between pairs of teachers assessing the same child with CFM-TV than WG-SS, both in terms of the level of difficulty experienced, and in the presence/absence of functional difficulty on the basis of standard cut-offs.

However, levels of agreement on the domains of seeing, hearing and walking were in line with those seen in the WG-SS. Disagreement on the exact level of difficulty experienced was highest for the domains of depression, anxiety, remembering, controlling behaviour and accepting change. As with WG-SS, most disagreements did not result in different assessment of the presence/absence of functional difficulty. Overall, teachers agreed on a child's functional difficulty status in 85 per cent of cases. However, it is worth noting that of the 33 children assessed as having a functional difficulty, there were only six instances in which this assessment was initially made by both teachers. Levels of agreement between teachers is presented in Table 4, and details on the consistency of responses provided by pairs of teachers is attached as Appendix 6.

During the initial pilot, teachers said that they found the CFM-TV hard to use and raised concerns about the length of the form:

“The first time I used the form, I did it slowly and took some time. I was faster [when] I understood the questions. But this one, assessing 20 children, with a tool of 18 questions and three pages was too much.” Karene district, IDI, 28/8/2022.

Teachers initially expressed difficulty in handling the skip patterns in Questions 1, 4 and 7 (use of glasses, hearing aids or assistive devices for mobility). However, after explanations and illustrations, and at times additional one-to-one support, teachers understood and applied the skip pattern correctly. Supervision of data collection and

peer support were found to be useful in improving understanding and application of these items.

As with WG-SS, some response options (degree of difficulty) were found to be difficult to understand. In addition, there were challenges with the response options for the anxiety and depression questions, such as frequency of being anxious or sad/depressed with the response options of daily, weekly, monthly etc.

Overall, teachers found questions CF1-10 and CF15 (vision, hearing, mobility, speaking and behaviour) easiest to respond to, and there were relatively few disagreements between assessments of the same child with CF1-10. Teachers agreed that these questions were relatively straightforward.

Questions CF11-CF14 and CF16-CF18 (learning, remembering, concentrating, accepting change, making friends, anxiety and depression) were harder to assess. This was evident in larger numbers of conflicting assessments of the same child in many of these domains. Importantly, teachers also noted that a child's behaviour, learning or psychosocial difficulties could be affected by challenges experienced at home and poverty:

“You know what, some children come to school hungry and because of that hunger, they appear sad and not interested in anything going on in the class.” Karene, IDI, 23/8/2022.

**Table 4. Piloting CFM-TV: levels of agreement between teachers assessing the same child.**

Domain	Percent agreement (180 children assessed)		Total children with FD
	All categories	Presence of FD	
Seeing	97.2%	100%	0
Hearing	97.8%	100%	0
Walking	98.3%	99.4%	0
Speaking	90.6%	100%	0
Learning	86.1%	99.4%	1 (0.6%)
Remembering	78.3%	95.6%	8 (4.4%)
Concentrating	87.8%	98.3%	3 (1.7%)
Accepting change	83.3%	96.1%	7 (3.9%)
Controlling behaviour	81.1%	97.2%	5 (2.8%)
Friends	89.4%	98.3%	3 (1.7%)
Anxiety	67.8%	94.4%	10 (5.6%)
Depression	66.7%	95.0%	9 (5%)

Domain	Percent agreement (180 children assessed)		Total children with FD
	All categories	Presence of FD	
Overall		85% (153/180)	33 (18.3%)

**Table 5. Piloting CFM-TV: summary of question-by-question analysis.**

Domain	Assessment
<b>CF1-3 – vision</b>	<ul style="list-style-type: none"> <li>▪ Most teachers found this question easy to respond to and were able to use the skip pattern correctly.</li> <li>▪ There were five instances of disagreement between two teachers assessing the same child: <ul style="list-style-type: none"> <li>▪ In four instances, the teachers disagreed on whether the child wore glasses, and also on whether the child experienced ‘no difficulty’ or ‘some difficulty’ with seeing.</li> <li>▪ In one instance, the teachers agreed that the child did not wear glasses, but one teacher reported ‘no difficulty’ and the other ‘some difficulty’.</li> </ul> </li> <li>▪ No children were assessed as having a functional difficulty in this domain.</li> <li>▪ Some teachers noted that the assessment of whether the child wears glasses could be difficult, as some boys were wearing plain sunglasses for fashion, while other children had glasses but failed to wear them in class</li> </ul>
<b>CF4-6 – hearing</b>	<ul style="list-style-type: none"> <li>▪ Teachers found this domain easy to assess.</li> <li>▪ There were four instances where teachers assessed the same child differently: <ul style="list-style-type: none"> <li>▪ In two cases, teachers disagreed about whether a child used a hearing aid or not. In one of these cases, both teachers agreed that the child had ‘no difficulty’ in hearing, and in the other one teacher indicated ‘no difficulty’, while the other indicated ‘some difficulty’.</li> <li>▪ In two other cases, teachers agreed that the child did not use a hearing aid, but one teacher reported ‘some difficulty’ while the other reported ‘no difficulty’.</li> </ul> </li> <li>▪ No children were assessed as having a functional difficulty in this domain</li> </ul>
<b>CF7-9 – mobility</b>	<ul style="list-style-type: none"> <li>▪ Teachers found questions on mobility easy to respond to</li> <li>▪ There were three instances of teacher disagreement: <ul style="list-style-type: none"> <li>▪ In two cases, teachers disagreed on whether the child used a device or assistance for walking, and on whether the child experienced ‘no difficulty’ or ‘some difficulty’ with walking.</li> <li>▪ In one further case, there was agreement that the child did not use a device or assistance for walking, but one teacher reported ‘no difficulty’ and the other reported ‘some difficulty’.</li> </ul> </li> </ul>

Domain	Assessment
	<ul style="list-style-type: none"> <li>No child was assessed as having a functional difficulty in this domain</li> </ul>
<b>CF10 - speaking</b>	<ul style="list-style-type: none"> <li>There were some challenges with this question, as most teachers initially understood the question to be about the ability of children to express themselves in the English language. This was clarified through discussions.</li> <li>There were 17 instances of disagreement between teachers. In all instances this was between 'no difficulty' and 'some difficulty'</li> <li>No child was identified as having a functional difficulty in this domain.</li> <li>Teachers observed that speaking difficulties could be related to conditions like stammering, slurred speech and heavy tongue and this would be important to reflect in the assessments</li> </ul>
<b>CF11 – learning</b>	<ul style="list-style-type: none"> <li>Teachers expressed difficulty responding to this question. Most teachers associated difficulty in learning with academic performance and argued that academic performance often changes throughout the year and can be determined by changes in the child environment.</li> <li>There were 25 instance instances of conflicting responses on this domain:</li> <li>13 of these disagreements were between the teachers in pair 3</li> <li>In 24 instances, one teacher assessed the child as having 'no difficulty' and the other as having 'some difficulty'.</li> <li>There was one instance where one teacher reported 'no difficulty' and the other reported 'cannot do at all'. This was also the only child identified as having a functional difficulty in this domain</li> </ul>
<b>CF12 - remembering</b>	<ul style="list-style-type: none"> <li>Teachers had some difficulty scoring this question. Most of them linked this difficulty to the phrase: 'compared to children of the same age'.</li> <li>There were 39 instances of conflicting responses:</li> <li>16 of these were between the two teachers in pair 3</li> <li>In 30 cases, one teacher assessed the child as having 'no difficulty', while the other assessed the child as having 'some difficulty'.</li> <li>In one case, one teacher assessed the child as having 'a lot of difficulty', while the other teacher reported 'cannot do at all'.</li> <li>In eight cases, disagreements meant that teachers made different assessments on the presence of functional difficulty. In seven of these, one teacher selected 'no difficulty' while the other selected 'a lot of difficulty'; and in the eight, one teacher selected 'some difficulty' while the other selected 'a lot of difficulty'.</li> </ul>

Domain	Assessment
	<ul style="list-style-type: none"> <li>▪ In total, 10 children were assessed to have a functional difficulty in this domain, in 8 cases by just one teacher, and in two cases by both teachers.</li> <li>▪ Teachers noted that children’s ability to remember often declines due to increasing distractions and difficulty circumstances in their homes (such as hunger or conflict)</li> </ul>
<b>CF13 - concentrating</b>	<ul style="list-style-type: none"> <li>▪ Teachers expressed some difficulty with responding to this question.</li> <li>▪ There were 22 instances of conflicting assessments of the same child: <ul style="list-style-type: none"> <li>▪ In 18 cases, one teacher reported ‘no difficulty’ while the another reported ‘some difficulty’.</li> <li>▪ In one case, a teacher reported ‘a lot of difficulty’ while another reported ‘cannot do at all’</li> <li>▪ In 3 cases, the disagreements meant that different conclusions about the presence of functional difficulty were reached. In two cases, one teacher reported ‘no difficulty’ while the other reported ‘A lot of difficulty, and in one case, one teacher reported ‘some difficulty’ while another reported ‘a lot of difficulty’.</li> </ul> </li> <li>▪ In total, four children were identified with functional difficulties in this domain, in three cases by just one of the teachers, and in one case by both.</li> <li>▪ Teachers noted a strong link between remembering (CF12) and concentrating (CF13) domains.</li> <li>▪ Teachers also argued that some perceived signs of concentration (e.g. looking at the teacher) does not mean that the child follows on what is taught: <p>“Some teachers will find it difficult to detect concentration, because the child will all appear to be looking at you but then the mind is somewhere else. It turns out that they cannot answer any question on the lesson.” Bombali, FGD, 12/11/2022</p> </li> </ul>
<b>CF14 - accepting changes</b>	<ul style="list-style-type: none"> <li>▪ Teachers expressed that they had trouble in assessing this domain.</li> <li>▪ There were 30 instances of conflicting assessments of the same child: <ul style="list-style-type: none"> <li>▪ In 23 cases, one teacher reported ‘no difficulty’ while another reported ‘some difficulty’.</li> <li>▪ In the other seven cases, the disagreements meant that different conclusions about the presence/absence of functional difficulty were reached. There were five cases where one teacher reported ‘no difficulty’ and the other reported ‘a lot of difficulty’, and two where one reported ‘some difficulty’ and the other reported ‘a lot of difficulty’.</li> </ul> </li> </ul>

Domain	Assessment
	<ul style="list-style-type: none"> <li>▪ In total, seven children were identified as having a functional difficulty in this domain, in all cases by just one of the teachers.</li> <li>▪ Teachers described the inability to accept changes as stubbornness and associated it with disruptive behaviour. The item was understood as an assessment of whether the child would change their behaviour in response to feedback: “She doesn’t easily accept change; she argues with her colleagues, and even when you tell her to stop, she doesn’t obey until she has satisfied herself.” Teacher, group discussion during teacher training in Karene district, 19/11/2022.</li> </ul>
<b>CF15 - controlling behaviour</b>	<ul style="list-style-type: none"> <li>▪ Teachers found this question challenging.</li> <li>▪ Teachers had difficulty agreeing on what constitutes controlling behaviour and why children have difficulty controlling their behaviour.</li> <li>▪ There were 34 instances of conflicting assessments of the same child:</li> <li>▪ In 29 instances, one teacher reported ‘no difficulty’ while the other reported ‘some difficulty’.</li> <li>▪ In five instances, the disagreements meant different conclusions about the presence of functional difficulty were reached. In two cases, one teacher reported ‘no difficulty’ while the other reported ‘a lot of difficulty’. In two other cases one teacher reported ‘some difficulty’ while the other reported ‘no difficulty’, and in one case, one teacher reported ‘no difficulty’ while the other reported ‘cannot do at all’.</li> <li>▪ In total, five children were identified with functional difficulty in this domain, in all cases by just one teacher.</li> <li>▪ Teachers noted strong linkages between this domain, and that of accepting change. They noted that children who struggled to accept change often struggled to control their behaviour</li> </ul>
<b>CF16 - making friends</b>	<ul style="list-style-type: none"> <li>▪ Teachers expressed the view that making friends is a personal choice and should not be associated with functional difficulty. They argued that some people by nature preferred to keep to themselves.</li> <li>▪ There were 19 instances of conflicting assessments of the same child:</li> <li>▪ In 16 of these cases, one teacher reported the child had ‘no difficulty’, while the other reported ‘some difficulty’.</li> <li>▪ In 3 of the cases, the disagreements meant different conclusions about presence of functional difficulty were reached. In two instances, one teacher reported ‘some difficulty’ while the other reported ‘a lot of difficulty’, and in</li> </ul>

Domain	Assessment
	<p>the third, one teacher reported 'no difficulty' when another reported 'a lot of difficulty'.</p> <ul style="list-style-type: none"> <li>▪ A total of four children were identified as having functional difficulty in this domain, in three cases by just one teacher, and in one case by both teachers</li> </ul>
<b>CF17 - anxiety</b>	<ul style="list-style-type: none"> <li>▪ Teachers struggled to assess children in this domain.</li> <li>▪ The term 'anxiety' was misinterpreted by many teachers; some associated it with either being nervous or excitement and enthusiasm to do something. For example, some teachers spoke about children who were 'anxious to respond' to questions in class, and always put their hands up straight away.</li> <li>▪ Teachers also struggled with the response options to this question.</li> <li>▪ There were 58 conflicting responses within the teacher pairs: <ul style="list-style-type: none"> <li>▪ Teacher pairs 3 and 6 both had 18 disagreements.</li> <li>▪ In 48 cases, although teachers disagreed about the frequency of anxiety, neither teacher identified presence of functional difficulty. In 23 of the cases, one teacher selected 'never' while the other selected 'a few times a year'.</li> <li>▪ In the other 10 cases, one teacher selected 'daily', indicating the presence of functional difficulty, while another did not.</li> </ul> </li> <li>▪ A total of 10 children were identified as having a functional difficulty in this domain, in all cases by only one teacher.</li> <li>▪ Teachers in junior secondary schools noted that examinations, and especially end of year tests, contributed to anxiety and depressions among students</li> </ul>
<b>CF18 – depression</b>	<ul style="list-style-type: none"> <li>▪ Teachers found this domain hard to assess and argued that it required an in-depth knowledge of the child.</li> <li>▪ There were 60 instances of conflicting assessments in this domain: <ul style="list-style-type: none"> <li>▪ Teacher pair 3 had 19 disagreements, and teacher pair 6 had 14.</li> <li>▪ In 51 cases, although teachers disagreed about the frequency of depression, neither identified presence of a functional difficulty.</li> <li>▪ In the other 9 cases, one teacher reported 'daily', indicating the presence of a functional difficulty, while the other reported a lower frequency.</li> </ul> </li> <li>▪ A total of 9 children were identified with functional difficulty in this domain, in all cases by just one teacher.</li> <li>▪ Some teachers associated feeling sad with being hungry or in grief</li> </ul>

## Considerations for teacher training and data collection

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During the co-creation workshop, and based on the learnings from the initial pilot, education stakeholders made a number of decisions regarding teacher training and collecting disability data in schools.

### Class teachers, as the key assessors

Workshop stakeholders agreed that class teachers were better placed to assess functional difficulty experienced by children than others, for example subject teachers. It was argued that class teachers spent more time with children in their classes and therefore had in-depth information about their performance, behaviour and relationships. Class teachers must therefore be the primary assessors of functional difficulties in schools.

### Content of teacher training

Based on the lessons learnt from the initial pilot, it was decided that the teacher training should focus on the following issues, which teachers found particularly difficult:

- Better understand some functional domains, specifically cognitive (learning, remembering, concentrating), anxiety and depression.
- Better understand and provide guidance on the response options, specifically 'some difficulty' versus 'a lot of difficulty' and 'a lot of difficulty' versus 'cannot do at all'.
- Pay attention to data protection and confidentiality.
- Ensure completed forms are kept in secured locations by the heads of schools until they are collected by the study team.
- Provide quality technical support to teachers who will be using CFM-TV, as it is a longer and more complex tool.
- Ensure that children are not invited for face-to-face assessments. Teachers should use their existing knowledge of the children in their classes.
- Ensure teachers develop their individual workplans and timelines for data collection to prevent disruption of normal school activities.
- Ensure supervision and continuous support during data collection to address emerging issues.

### Use of paper-based questionnaires

Stakeholders, including teachers, agreed that paper-based forms would be most appropriate for data collection. This suggestion was influenced by the fact that ICT skills among teachers were insufficient to use electronic forms; they worried that the use of tablets or smartphones might slow down the data collection process and



possibly increase errors. In addition, internet connectivity in some school locations was unreliable, meaning teachers would have to keep data on their tablets/phones or move to other locations to upload data. Finally, power supply in rural communities was problematic and recharging smartphones or tablets could delay the data collection process.

## Heads of schools as coordinating focal points

Although heads of schools were not involved directly in the assessment of children, it was suggested that they coordinate the process in their schools. This approach helped to respect the management hierarchy established by MBSSE, which puts headmasters in charge of all activities conducted in their schools. For this purpose, the specific roles assigned to the heads of the pilot schools were receiving assessment forms and stationery from Sightsavers; distributing them to the class teachers; and keeping completed forms in safe locations until they are collected by the study team.

## Confidentiality

It was agreed that data protection and confidentiality should be emphasised during teacher training. It was agreed that completed forms should be kept in secured locations by the headmaster and that the completed forms should contain only child ID. Therefore, before the assessment, a nine-digit code (e.g. 1-234-567-89) was generated for each child to indicate district, school, class and serial number in the class register. Teacher ID codes, made up of six digits (e.g. T-234-00) were also developed.

## Data collection in schools

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### Teachers' demographics

65 teachers participated in data collection in eight study schools, 30 for WG-SS and 35 for CFM-TV. Overall, 15.4 per cent of teachers were female. The age of teachers ranged from 20 to 64 years and their academic qualifications were diverse, with 33.8 per cent holding teachers certificate (TC), the lowest teaching qualification in the country. 30.8 per cent had higher teachers certificate (HTC); 7.7 per cent had bachelor degrees in various subjects but only one teacher had a bachelor degree in education, and 4.6 per cent of teachers had postgraduate qualifications.

Teachers' experiences in education also varied, with 38.5 per cent having taught for more than 12 years. Characteristics of teachers using WG-SS and CFM-TV were broadly similar, although WG-SS teachers were more likely to have only a school leaving certificate, and 1-4 years of experience. Details on the demographic characteristics of teachers is provided in Appendix 7.

## Characteristics of children assessed by teachers

A total of 3,312 children were included in the school registers of the 65 teachers involved in the pilot; 3,306 were assessed. The slight difference between the number of children on the registers and those assessed results from some children leaving and others joining study schools in the period between the teacher training and the actual assessment. More children were assessed in Karene district (58 per cent) compared to Bombali.

Overall, 1,830 children were assessed using CFM-TV (55.4 per cent), and 1,476 children were assessed using WG-SS (44.6 per cent). In general, data completeness was excellent: all WG-SS forms were completed in full, and only eight CFM-TV forms contained missing data.

Table 6 below shows the number of children assessed by district, school and sex. Although primary school enrolment runs from age five upwards, a number of younger children were present in primary schools.

As teachers were asked to complete the tool for each child in their class, 90 forms were completed for children in the 3-4-year-old range. These are reflected in the table below, but were subsequently excluded from the analysis, as neither WG-SS or CFM-TV is suitable for use with children under the age of five.

Similarly, a number of learners aged 18 and above were attending junior secondary schools. These learners aged 18 and above (the oldest individual in the sample was 20 years old), were also excluded from analyses, as CFM-TV is appropriate for learners aged from 5-17. No children aged under five were identified with functional difficulties using either tool. Among those aged 18-20, nobody was identified as having a functional difficulty in the schools where WG-SS was used, and 12 individuals were identified as having a functional difficulty in the schools where CFM-TV was used.

**Table 6. Number of children assessed by sex, tool and school (3,306 children).**

	Age	WG-SS				CFM-TV				Total
		1-BGP	1-RCJ	2-BKP	2-MCJ	1-CMP	1-KAJ	2-SPP	2-WMJ	
Age	3-4	9 (3.7%)	0 (0.0%)	57 (14.2%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	24 (3.6%)	0 (0.0%)	90 (2.7%)
	5-9	118 (49.0%)	0 (0.0%)	165 (41.2%)	1 (0.2%)	143 (45.8%)	0 (0.0%)	323 (48.4%)	0 (0.0%)	750 (22.7%)
	10-14	112 (46.5%)	219 (53.5%)	172 (43.0%)	223 (52.3%)	158 (50.6%)	218 (50.3%)	321 (48.1%)	174 (41.7%)	1,597 (48.3%)
	15-17	2 (0.8%)	11 (3.5%)	194 (44.8%)	183 (44.7%)	6 (1.5%)	184 (43.2%)	0 (0.0%)	226 (54.2%)	806 (24.4%)
	18-20	0 (0.0%)	0 (0.0%)	21 (4.8%)	7 (1.7%)	0 (0.0%)	18 (4.2%)	0 (0.0%)	17 (4.1%)	63 (1.9%)

Sex	Male	116 (48.1%)	217 (53.1%)	192 (48.0%)	250 (58.7%)	166 (53.2%)	206 (47.6%)	331 (49.6%)	233 (55.9%)	1,711 (51.8%)
	Female	125 (51.9%)	192 (46.9%)	208 (52.0%)	176 (41.3%)	146 (46.8%)	227 (52.4%)	337 (50.4%)	184 (44.1%)	1,595 (48.2%)

## Prevalence of functional difficulty using WG-SS

Among 1,385 children aged 5-17 years assessed using WG-SS, 25 children (1.8 per cent) had a functional difficulty; there were slightly more girls with functional difficulty (2 per cent) than boys (1.6 per cent). See Table 7.

**Table 7. Status of functional difficulties by sex (WG-SS).**

Functional difficulty status	Male	Female	Total
No functional difficulty	719 (98.4%)	641 (98.0%)	1,360 (98.2%)
With functional difficulty	12 (1.6%)	13 (2.0%)	25 (1.8%)

The proportion of children identified as having a functional difficulty increased consistently with age (Table 8). Among children aged 5-9 years old, only one child (0.4 per cent) was identified as having a functional difficulty. Among children 10-14, this increased to 1.8 per cent, and for those aged 15-17, it was 2.9 per cent.

**Table 8. Functional difficulty by age.**

Functional difficulty status	Age 5-9	Age 10-14	Age 15-17	Overall
No functional difficulty	283 (99.6%)	713 (98.2%)	364 (97.1%)	1,360 (98.2%)
With functional difficulty	1 (0.4%)	13 (1.8%)	11 (2.9%)	25 (1.8%)

## Prevalence of functional difficulty using CFM-TV

Among 1,760 children aged 5-17 years with complete records assessed using CFM-TV, 259 (14.7 per cent) children had a functional difficulty; girls were again slightly more likely than boys to be identified as having a functional difficulty (14.8 per cent versus 14.6 per cent). Prevalence again increased with age. For those aged 5-9, 4.9 per cent were identified having a functional difficulty. This increased markedly to 18.2 per cent for the 10–14-year-old group and to 18.3 per cent among those aged 15-17 (Tables 9 and 10).

**Table 9. CFM-TV prevalence of functional difficulties by sex.**

Functional difficulty status	Male	Female	Total
No functional difficulty	777 (85.4%)	724 (85.2%)	1,501 (85.3%)

<b>With functional difficulty</b>	133 (14.6%)	126 (14.8%)	259 (14.7%)
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**Table 10. CFM-TV prevalence of functional difficulties by age.**

<b>Functional difficulty status</b>	<b>Age 5-9</b>	<b>Age 10-14</b>	<b>Age 15-17</b>	<b>Overall</b>
<b>No functional difficulty</b>	443 (95.1%)	710 (81.8%)	348 (81.7%)	1,501 (85.3%)
<b>With functional difficulty</b>	23 (4.9%)	158 (18.2%)	78 (18.3%)	259 (14.7%)

## Variations in prevalence by school and teacher

While overall prevalence levels for the two tools are broadly in line with expectations, we do note substantial variation at the level of the individual school, and even more so at the level of the individual teacher.

Table 11 shows that school-level prevalence using WG-SS ranges from 0 per cent to 4.2 per cent, with one school (1-RCJ), accounting for 17 of the 25 children identified as having functional difficulties using this tool. This variation is not explained by school phase/child age, as both the school with the highest and the lowest prevalence are junior secondary schools.

**Table 11. WG-SS prevalence of functional difficulty by school.**

<b>Functional difficulty status</b>	<b>1-BGP</b>	<b>1-RCJ</b>	<b>2-BKP</b>	<b>2-MCJ</b>	<b>Total</b>
<b>No functional difficulty</b>	228 (98.3%)	385 (95.8%)	339 (98.8%)	408 (100.0%)	1,360 (98.2%)
<b>With functional difficulty</b>	4 (1.7%)	17 (4.2%)	4 (1.2%)	0 (0.0%)	25 (1.8%)

Table 12 shows that school-level prevalence for CFM-TV ranged from 3.6 per cent (2-SPP) to 32.1 per cent (1-KAJ). It is noted that both primary schools have lower prevalence rates than the JSS schools, so it may be that the age of the child does play a role in the performance of the tool, as certain difficulties become more apparent at older age.

**Table 12. CFM-TV prevalence of functional difficulty by school.**

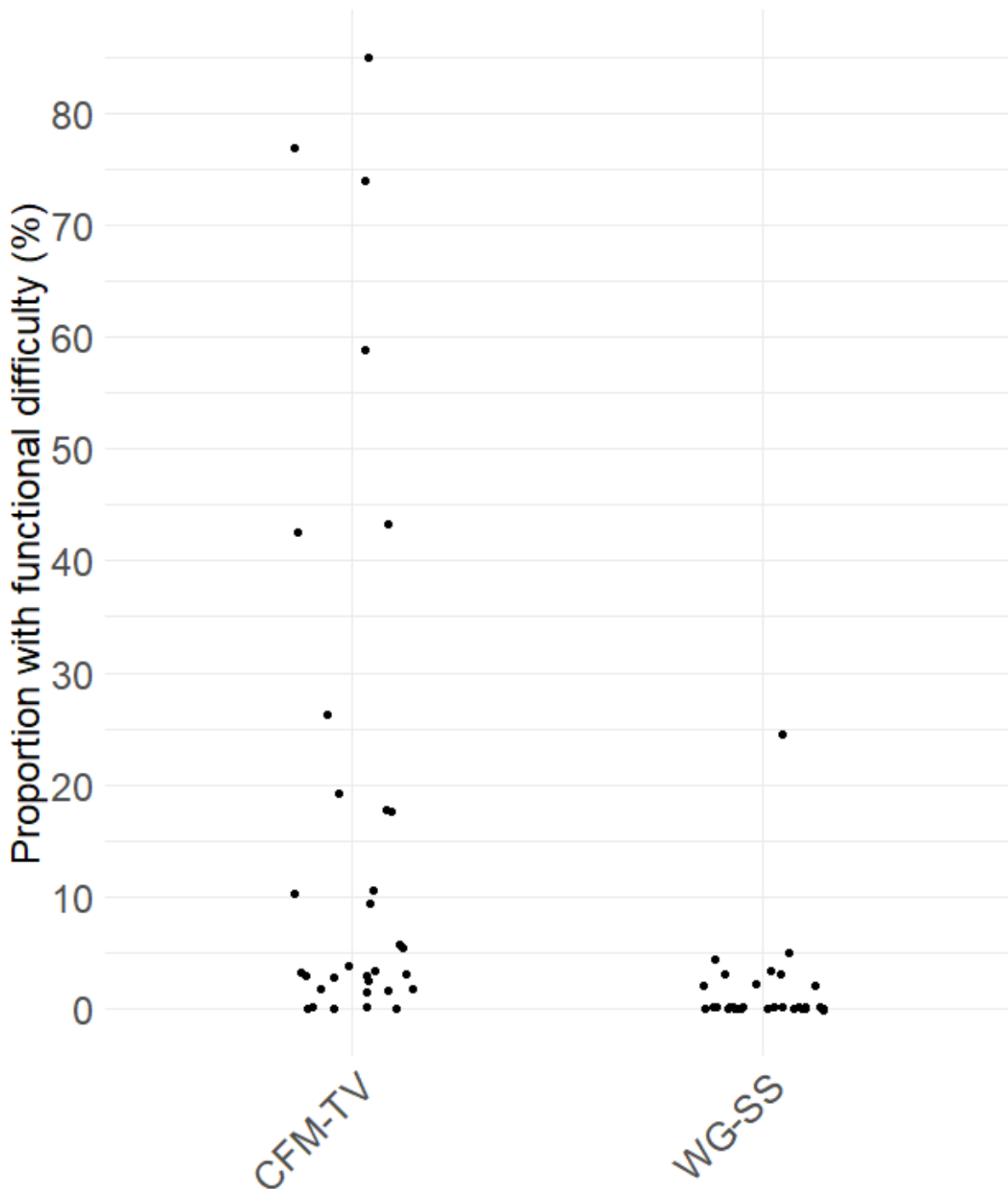
<b>Functional difficulty status</b>	<b>1-CMP</b>	<b>1-KAJ</b>	<b>2-SPP</b>	<b>2-WMJ</b>	<b>Total</b>
<b>No functional difficulty</b>	276 (88.5%)	279 (67.9%)	621 (96.4%)	325 (82.7%)	1,501 (85.3%)
<b>With functional difficulty</b>	36 (11.5%)	132 (32.1%)	23 (3.6%)	68 (17.3%)	259 (14.7%)

Another explanation for the school variation data shown by both tools may be that the schools selected for the pilot have been supported by Sightsavers, as inclusive schools, for a number of years, and it is possible that some schools attracted or proactively recruited more children with functional difficulties than others.

Figure 3 shows the proportion of children identified as having a functional difficulty at the level of the individual teacher. For CFM-TV, there are three individual teachers who indicate that over 70 per cent of the children in their classes have functional difficulties.

There are an additional three teachers who indicate that between 40 and 70 per cent of children in their classes have functional difficulties. For WG-SS, there is only one clear outlier: one teacher who indicates that 25 per cent of children have functional difficulties.

These patterns require further exploration to understand whether they relate to variations in how teachers have interpreted questions or response scales, or whether the classes taught by these teachers do actually have such high proportions of children with functional difficulties.



**Figure 3. Proportion of children with functional difficulty by tool, disaggregated by teacher.**

It is worth noting that when the data from the outlier teachers is removed from the sample, it has a notable impact on the overall prevalence of functional difficulty. This is shown in Tables 13 and 14. In the WG-SS assessment, if the outlier teacher is removed, the prevalence of functional difficulty in the four pilot schools drops from 1.8 per cent to 0.8 per cent. In the CFM-TV assessment, the prevalence drops from 14.7 per cent to 9 per cent, if three outlier teachers with more than 70 per cent

prevalence are removed, and to 5.4 per cent if 6 outlier teachers with more than 40 per cent prevalence are removed.

**Table 13. Overall prevalence of functional difficulty when data from outliers is removed (one teacher with WG-SS more than 10 per cent and 3 teachers with CFM-TV greater than 70 per cent).**

Functional difficulty status	CFM-TV	WG-SS	Total
No functional difficulty	1,469 (91.0%)	1,314 (99.2%)	2,783 (94.7%)
With functional difficulty	145 (9.0%)	10 (0.8%)	155 (5.3%)

**Table 14. Overall prevalence of functional when data from outliers is removed (one teachers with WG-SS more than 10 per cent and six teachers with CFM-TV more than 40 per cent)**

Functional difficulty status	CFM-TV	WG-SS	Total
No functional difficulty	1,395 (94.6%)	1,314 (99.2%)	2,709 (96.8%)
With functional difficulty	80 (5.4%)	10 (0.8%)	90 (3.2%)

## WG-SS domains of functional difficulty

The functional difficulty data from WG-SS was broken down to indicate the domains in which functional difficulties were identified. Out of 25 children identified as having a functional difficulty by WG-SS, 18 children had difficulties in one domain, four in two domains, and three in three domains.

Overall, the domains most frequently identified were vision, mobility and cognition – seven children (0.5 per cent) were identified with functional difficulty in each of these domains. This was followed by hearing and communication – six children in each of these domains (0.4 per cent). Two children (0.1 per cent) were identified to have difficulty in the domain of self-care.

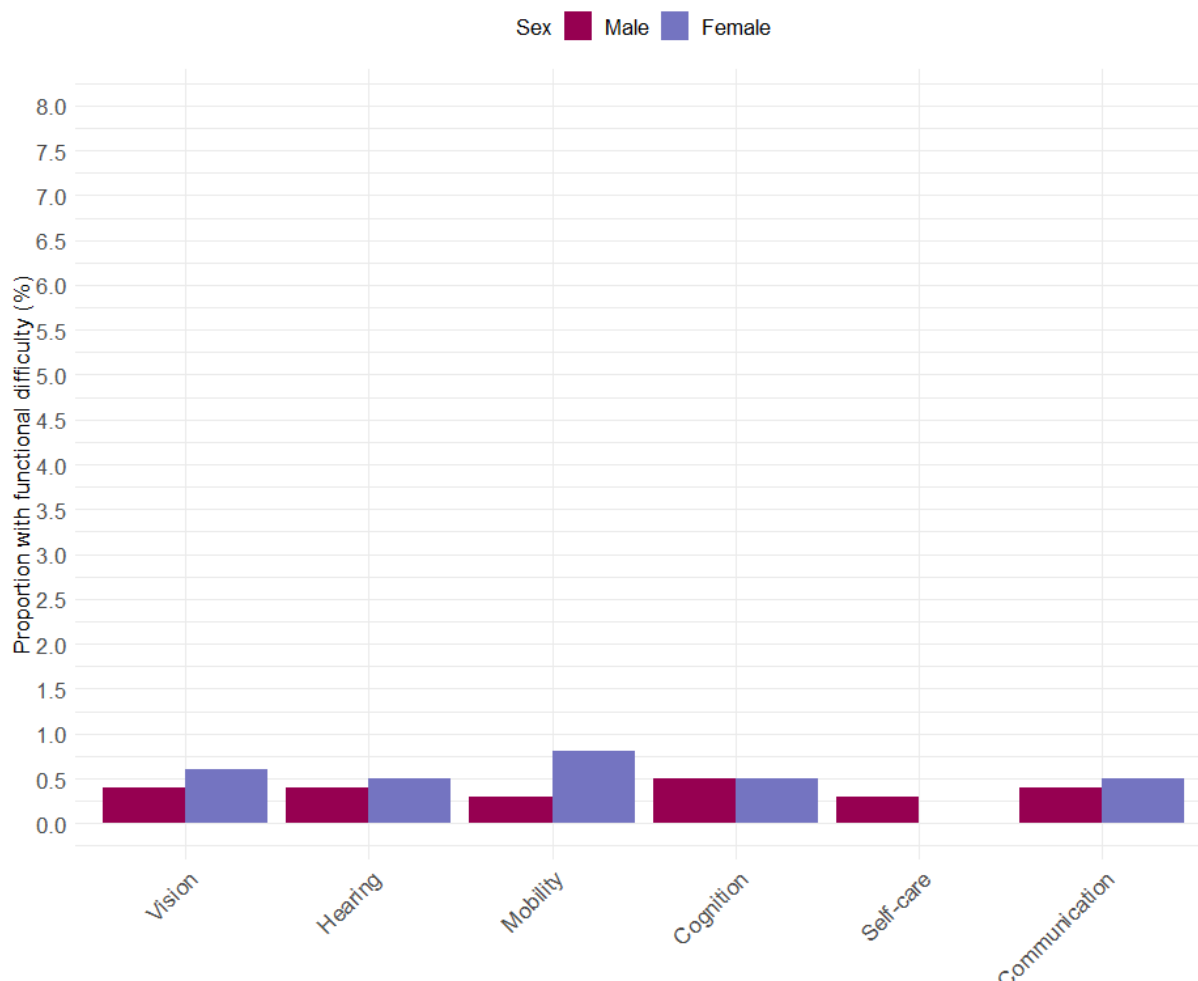
Table 15 provides a breakdown of functional difficulty by domain and sex. In line with the slightly higher prevalence of functional difficulties amongst girls than boys, girls were slightly more likely to be identified with functional difficulties in most domains (vision, hearing, mobility and communication). The proportions of boys and girls with difficulties with cognition were the same, and no girls were identified as having difficulties in the domain of self-care. These figures are also graphed in Figure 4.

**Table 15. Breakdown of functional difficulties by WG-SS by domain and sex.**

Domain	Male	Female	Total
Vision	3 (0.4%)	4 (0.6%)	7 (0.5%)
Hearing	3 (0.4%)	3 (0.5%)	6 (0.4%)

Domain	Male	Female	Total
Mobility	2 (0.3%)	5 (0.8%)	7 (0.5%)
Cognition	4 (0.5%)	3 (0.5%)	7 (0.5%)
Self-care	2 (0.3%)	0 (0.0%)	2 (0.1%)
Communication	3 (0.4%)	3 (0.5%)	6 (0.4%)

Proportion of children with functional difficulty, by domain, disaggregated by sex



**Figure 4. Proportion of children with functional difficulty by WG-SS, by domain, disaggregated by sex.**

Table 16 and Figure 5 provide the breakdown in functional difficulty domains by age. Prevalence in most domains increased with age, although there was a drop in cognition and communication from the 10-14 group to the 15-17 group.

**Table 16. Breakdown functional difficulty by WG-SS by domain and age.**

Domain	Age 5-9	Age 10-14	Age 15-17	Total
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<b>Vision</b>	0 (0.0%)	4 (0.6%)	3 (0.8%)	7 (0.5%)
<b>Hearing</b>	1 (0.4%)	3 (0.4%)	2 (0.5%)	6 (0.4%)
<b>Mobility</b>	0 (0.0%)	3 (0.4%)	4 (1.1%)	7 (0.5%)
<b>Cognition</b>	1 (0.4%)	5 (0.7%)	1 (0.3%)	7 (0.5%)
<b>Self-care</b>	0 (0.0%)	1 (0.1%)	1 (0.3%)	2 (0.1%)
<b>Communication</b>	1 (0.4%)	4 (0.6%)	1 (0.3%)	6 (0.4%)

Proportion of children with functional difficulty, by domain, disaggregated by age group

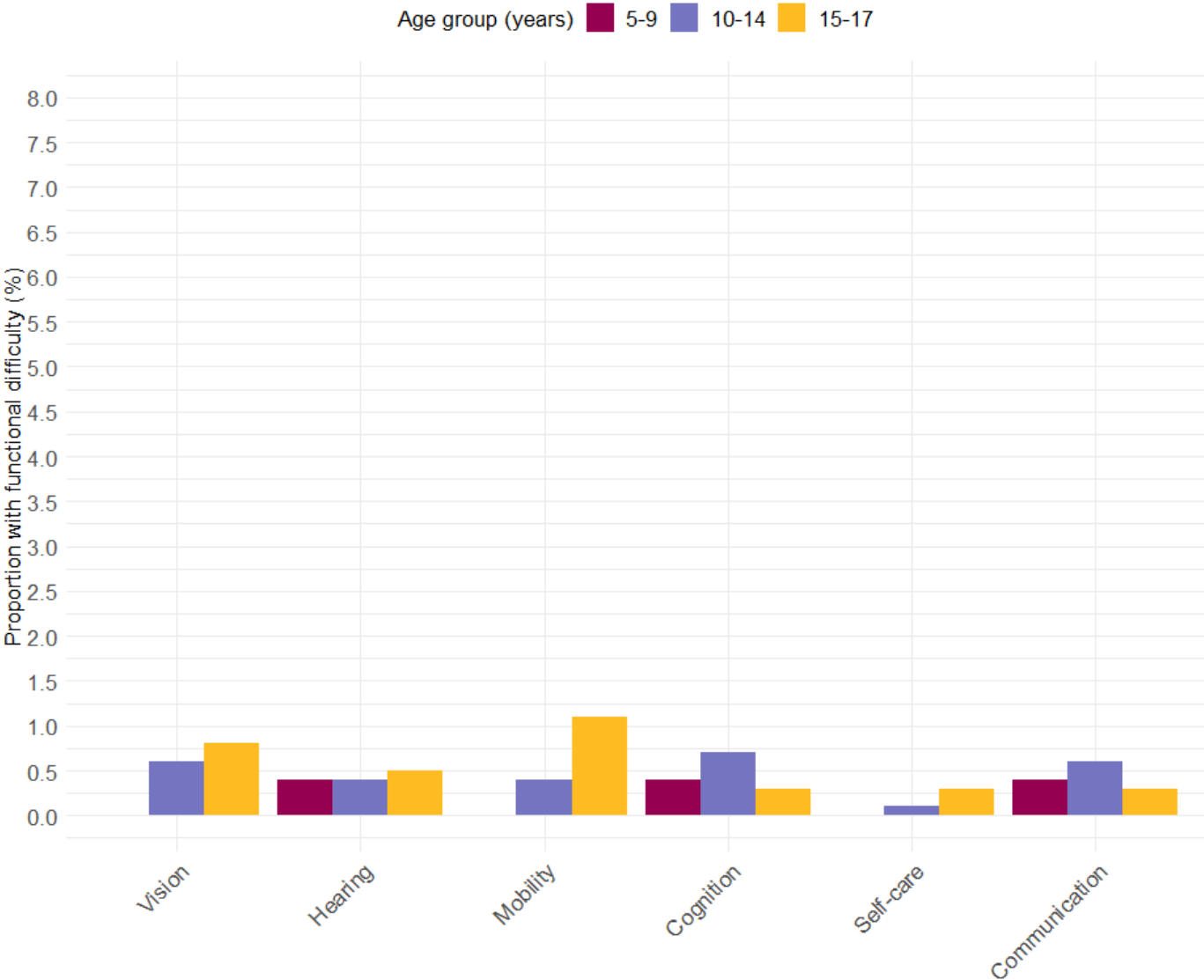


Figure 5. Proportion of children with functional difficulty by WG-SS, by domain, overall and by age.

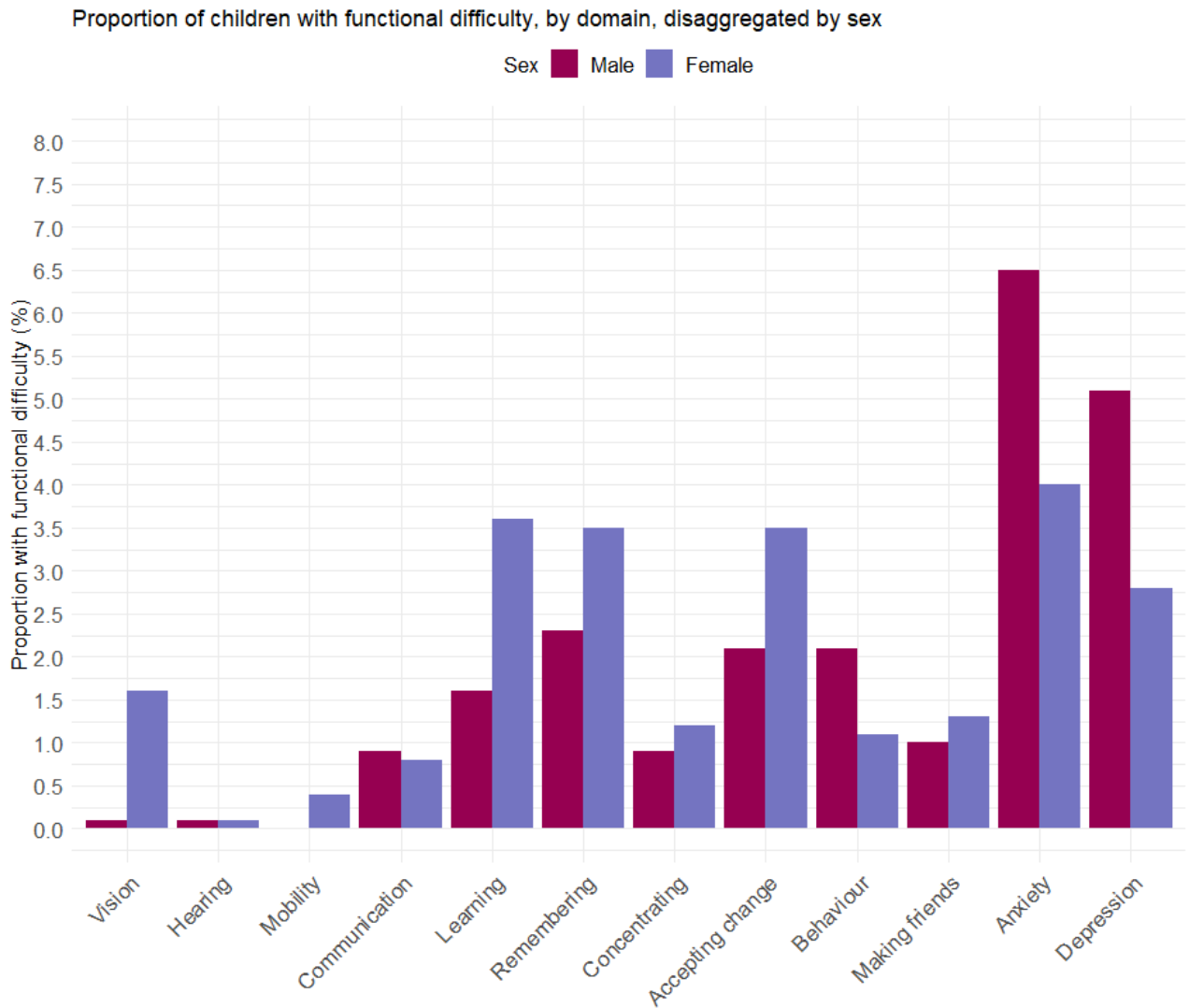
## CFM-TV domains of functional difficulty

Among 259 children with functional difficulties identified by CFM-TV, 162 children had difficulties in one domain, 77 in two, seven in three and 13 in four or more. The most common domains were anxiety (5.3 per cent) and depression (4 per cent). This is followed by remembering (2.9 per cent), accepting change (2.8 per cent), and learning (2.6 per cent). The least common domains were mobility (0.2 per cent) and hearing (0.1 per cent).

Distribution of functional difficulty by domains by sex is presented in Table 17 and Figure 6. More girls than boys were identified with functional difficulties in most domains (vision, mobility, learning, remembering, concentrating, accepting change, and making friends). Proportions were similar for boys and girls for communication difficulties (0.9 per cent) and hearing difficulties (0.1 per cent). Boys were more likely than girls to be identified as having difficulties with controlling their behaviour, anxiety and depression.

**Table 17. Distribution of functional difficulty by CFM-TV by domain and sex.**

Domain	Male	Female	Total
Vision	1 (0.1%)	14 (1.6%)	15 (0.9%)
Hearing	1 (0.1%)	1 (0.1%)	2 (0.1%)
Mobility	0 (0.0%)	3 (0.4%)	3 (0.2%)
Communication	8 (0.9%)	7 (0.8%)	15 (0.9%)
Learning	15 (1.6%)	31 (3.6%)	46 (2.6%)
Remembering	21 (2.3%)	30 (3.5%)	51 (2.9%)
Concentrating	8 (0.9%)	10 (1.2%)	18 (1.0%)
Accepting change	19 (2.1%)	30 (3.5%)	49 (2.8%)
Behaviour	19 (2.1%)	9 (1.1%)	28 (1.6%)
Making friends	9 (1.0%)	11 (1.3%)	20 (1.1%)
Anxiety	59 (6.5%)	34 (4.0%)	93 (5.3%)
Depression	46 (5.1%)	24 (2.8%)	70 (4.0%)



**Figure 6. Proportion of children with functional difficulty by CFM-TV, by domain and sex.**

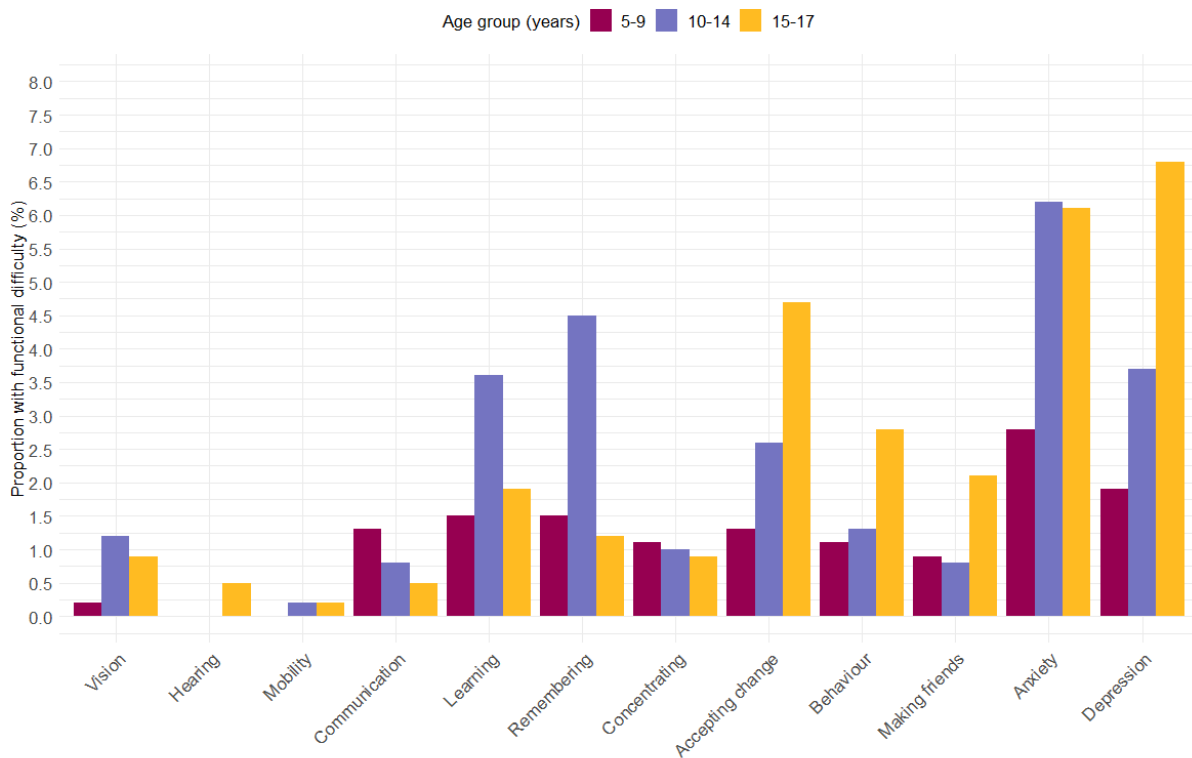
Table 18 shows the distribution of functional difficulty by domain across different age groups. In general, prevalence is consistently lowest for children aged 5-9, with the exception of the communication domain, where it was the highest in this age group.

Prevalence of functional difficulty among 10–14-year-olds was highest in vision, learning and remembering domains. The 15-plus age group had highest prevalence of functional difficulties in most domains – hearing, mobility, accepting change, controlling behaviour, making friends, anxiety and depression.

**Table 18. Functional difficulty by CFM-TV by domain and age.**

Domain	Age 5-9	Age 10-14	Age 15-17	Total
Vision	1 (0.2%)	10 (1.2%)	4 (0.9%)	15 (0.9%)
Hearing	0 (0.0%)	0 (0.0%)	2 (0.5%)	2 (0.1%)
Mobility	0 (0.0%)	2 (0.2%)	1 (0.2%)	3 (0.2%)
Communication	6 (1.3%)	7 (0.8%)	2 (0.5%)	15 (0.9%)
Learning	7 (1.5%)	31 (3.6%)	8 (1.9%)	46 (2.6%)
Remembering	7 (1.5%)	39 (4.5%)	5 (1.2%)	51 (2.9%)
Concentrating	5 (1.1%)	9 (1.0%)	4 (0.9%)	18 (1.0%)
Accepting change	6 (1.3%)	23 (2.6%)	20 (4.7%)	49 (2.8%)
Behaviour	5 (1.1%)	11 (1.3%)	12 (2.8%)	28 (1.6%)
Making friends	4 (0.9%)	7 (0.8%)	9 (2.1%)	20 (1.1%)
Anxiety	13 (2.8%)	54 (6.2%)	26 (6.1%)	93 (5.3%)
Depression	9 (1.9%)	32 (3.7%)	29 (6.8%)	70 (4.0%)

Proportion of children with functional difficulty, by domain, overall and disaggregated by age group



**Figure 7. Proportion of children with functional difficulty by CFM-TV, by domain, overall and disaggregated by age group.**

## Comparison with other disability data from schools

As Sightsavers had been supporting disability-inclusive education at the eight study schools, we were able to obtain information about the number of children with disabilities enrolled at each study school.

To better understand whether WG-SS and CFM-TV were identifying children who were in need of disability-related support at study schools, we compared the data generated in this study to this programmatic data.

It is important to note that there is no expectation that figures would be identical: while all children with disabilities would have an impairment of some kind, with appropriate support in place they might not be experiencing any kind of functional difficulty. However, it is also likely that the functional difficulty assessments would identify children who may not have met the criteria for diagnosis of a disability.

In the four schools where WG-SS was used, the proportion of children with disabilities ranges from 3.3 to 6.1 per cent, while the proportion identified as having functional difficulties ranges from 0 to 4.2 per cent (see Table 19). In all instances, WG-SS generates figures for functional difficulty below what the programmatic data suggests, and there is only one school (1-RCJ) where figures approach those in the programmatic data.

In the four schools where CFM-TV was used, the proportion of children with disabilities ranges from 1.6 to 6.1 per cent, while the proportion of children identified as having functional difficulties ranges from 3.6 to 32.2 per cent. In all instances, CFM-TV generates figures that are above those suggested by the programmatic data, and in most cases substantially higher.

**Table 19. Functional difficulty by school, by tool.**

School	Enrolment	Number and percentage of children with disabilities	WG-SS: number and percentage with functional difficulty	CFM-TV: number and percentage with functional difficulty
1-BGP	242	14 (5.8%)	4 (1.7%)	
1-RCJ	400	21 (5.3%)	17 (4.2%)	
2-BKP	396	13 (3.3%)	4 (1.2%)	
2-MCJ	428	26 (6.1%)	0 (0.0%)	
1-CMP	315	5 (1.6%)		36 (11.5%)
1-KAJ	441	27 (6.1%)		139 (32.2%)
2-SPP	665	11 (1.7%)		23 (3.6%)
2-WMJ	425	24 (5.6%)		73 (17.8%)

This comparison suggests that WG-SS is likely to miss identification of children with additional support needs, while CFM-TV appears to be resulting in identification of a

broader group of children. Comparison with school-level disability data collected through the Annual School Census will further our understanding of whether children with confirmed disabilities are identified by WG-SS or CFM-TV. It will be pursued in future research.

## Teachers' experiences and reflections on the use of WG-SS and CFM-TV

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This section draws on IDIs and FGDs during the initial pilot of the tools, group work during the co-creation workshop, and discussions during the teacher training sessions, pulling together qualitative learnings and reflections on use of the tools.

### Understanding of functional difficulty and disability

Study participants had various understandings of functional difficulty and disability. Some referred to disability as a condition that limits an individual's ability to perform certain tasks and thus participate in activities, as two FGD participants described:

"[it is] a condition with the mind and the body that create difficulty for the person to perform certain activities." Co-creation workshop, FGD, 18/10/2022.

"...something that makes someone not to do what others can do." Co-creation workshop, FGD, 18/10/2022.

Study participants noted that the knowledge of most teachers was limited to easily identifiable forms of functional difficulties such as vision, hearing, speech and mobility. Some participants associated disabilities with specific parts of body:

"When we talk about disability, we mean somebody who has a problem with part of the body which can be the eye, hand, feet or even the head." Participant, group discussion during co-creation workshop, 18/10/2022.

### Teachers' roles and previous experiences in disability data collection

Teachers, especially inclusion champions, had collected disability data before. It was something many teachers were actively involved in on a regular basis.

Study participants also explained that, previously, teachers had mainly identified children with disabilities using observation, interviewing and simple functional tests, such as reading from the blackboard or walking from one point to another. These assessments were usually done only with children, who had known or visible impairments or health conditions. Teachers believed this was discriminatory and stigmatising; they supported functional assessment for all children in the class:

"It is good to do assessment for everybody because others will mock or laugh at those who will be picked out and assessed." Co-creation workshop, FGD, 19/10/2022.



During informal discussion with various MBSSE officials, I was informed that record management was a core function of teachers, and that managing disability data should not be considered as an additional task.

MBSSE officials participating in the co-creation workshop noted that data collection and record keeping were central to the roles and responsibilities of teachers in Sierra Leone, including records on admission, student performance, attendance, discipline, lessons notes and formats of classroom work. But maintaining and updating these records required considerable time and efforts.

It was further explained that school records were managed in several ways: day-to-day records (such as class register, attendance, lessons notes) were kept by teachers in drawers and cupboards. Management and more sensitive records (inventory of materials, financial records, disciplinary notes) were kept in locked secured locations in the headmaster's office.

## Disability data storage

Teachers reported that the disability data they had collected in the past was recorded in exercise books and kept by either the inclusion champion or head teacher. Despite the existing knowledge of disability issues, study participants acknowledged that, in the past, disability data had been collected without due consideration of confidentiality in some schools, for instance, disability status of the children was indicated on notice boards, accessible to anyone, including visitors. Please note, that the study was done in the inclusive schools previously supported by Sightsavers and the situation with disability records in other schools in Sierra Leone is likely to be different.

During the co-creation workshop and teacher training, it was proposed that, going forward, disability data should now be held in safe secure locations to protect confidentiality:

“Well, currently, we have a special book in which we record disability data for the school. We do enter all the data collected in there and take it to the headmaster's office where it is kept.” Teacher training, Bombali, 11/11/2022.

During teacher training, there was a disagreement between schools/teachers and district education officials about the ownership and management of individual data on children. There were strong arguments in favour of records being kept by schools, where they can be accessed when required.

Study participants further explained that disability data routinely collected by teachers was used in several ways:

- It was used to complete a section on disability of the Annual School Census form.
- It was shared, on request, with NGOs, mainly Sightsavers, to be used for planning of school support, resource mobilisation and reporting.

- Data were used by teachers to assist children in the classroom. For instance, some teachers moved children with vision and hearing difficulties in front of the classroom, where they had a better view of the blackboard or could hear the teacher more clearly.
- NGOs supporting these inclusive schools also used the data to organise more targeted support of children and their families.
- Schools used the data to develop a database of children with disabilities for the whole school and to increase awareness on disability issues among teachers.

## Teachers' reflections on the use of WG-SS and CFM-TV

It was clear that teachers felt generally able to assess the levels of difficulty experienced by children in their classes. However, teachers required in-depth knowledge of each child and, therefore, class teachers were thought to be more suitable to conduct the assessment than subject specialist teachers.

Assessments using WG-SS were reported to be easier and faster to perform. During the school-based data collection, teachers reported taking on average five minutes to assess each child using WG-SS and between five and ten minutes to complete CFM-TV.

Teachers found it easier to assess functional difficulties, which were more evident, for example vision, hearing and mobility:

“Questions referring to conditions that can be seen are fairly easy to answer.” Initial testing of tools, FGD, 25/8/2022.

It was important to emphasise during the training that functional difficulties could be experienced in various domains, including cognitive and psychosocial (anxiety, depression) domains, and may not be obvious to the assessor, who is not familiar with the child.

Teachers noted that functional difficulty in one domain could correlate with difficulties in another domain, resulting in multiple interrelated difficulties. For example, a child with severe mobility difficulty resulting from polio, could also have difficulty with self-care; and a child with difficulty in seeing often experienced difficulty with walking and climbing.

Most teachers had difficulty in understanding and interpreting the response options, especially drawing the line between ‘a lot of difficulty’ and ‘cannot do it all’. To address this issue during the training, we reverted to the local languages used by teachers and built a scale of continuum describing each level of difficulty, starting with ‘no difficulty’ and ending with ‘cannot do at all’.

Once the scale and description of the options was established, we worked with the teachers to place ‘some difficulty’ and ‘a lot of difficulty’ on the scale, clearly

demarcating their boundaries. The use of local languages helped with the understanding of response options, as one teacher described:

“My concerns were the response options like ‘some difficulty’, ‘a lot of difficulty’ and ‘cannot do at all’. These response options were difficult to differentiate but based on your explanation and the demonstrations made in local languages, I was able to understand and apply it during assessment.” Initial testing of tools, FGD, 26/8/2022).

## 6. Discussion

### Existing knowledge and skills of teachers

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Teachers had some knowledge of functional difficulties affecting children in their classes and, in addition, had experience in disability data collection. This level of existing knowledge and skill could be specific to study schools, due to the support, including training, provided by Sightsavers over the years. Though existing knowledge was limited, the capacity of teachers was strengthened through study-specific training, enhancing their ability in assessing the functional difficulties of children in their classes.

### Feasibility and acceptability of assessment tools

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Initial piloting of tools and data collection have established some facts about WG-SS and CFM-TV. With only six questions, teachers found WG-SS easier to apply for assessing many children in a short time compared to CFM-TV.

On the other hand, teachers who used CFM-TV to assess children found it longer and more complicated to apply. Teachers experienced challenges interpreting some questions (behaviour, accepting change, learning, anxiety, depression). Teachers also initially struggled with using the skip patterns in the first three questions (vision, hearing, and mobility). Although length of the assessment was a concern, teachers became quicker with completing the assessment over time.

Data completeness was good for both tools, although regular quality control by study team members during collection of completed forms from schools contributed to this. Teachers were also paid an incentive for their participation in the study, and feasibility of this model of data collection in the absence of these incentives will need to be explored.

## Usability of assessment tools

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Despite its length and application challenges, CFM-TV produced more data compared to WG-SS. Data generated by CFM-TV covers additional domains of functional difficulty, in line with global best practice as reflected in MICS.

The Sierra Leone MICS 2017 provides a national functional difficulty prevalence of 23.1 per cent, and for 21.2 per cent for Bombali (10). At the time of the MICS survey in 2017, Karene was a part of Bombali district. As many children with functional difficulties are not enrolled in school, the overall study prevalence figure of 14.7 per cent for a group of inclusive schools in this area seems plausible. By contrast, the 2022 ASC report identified 44,792 children with functional difficulty (out of 3,343,470 children enrolled in all schools in the country) giving a prevalence of less than 1.3 per cent (12). The prevalence rate produced by the 2022 annual school census report is lower than those produced by the tools used by the study.

## Key lessons learnt from the pilot

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Teachers generally understood the concept of functional difficulty well and could conduct the assessments.

CFM-TV collected more detailed disability data than WG-SS, but it had challenges. It was longer to apply and there were difficulties in the interpretation of some domain questions (cognitive, behaviour, psychosocial) and the response options for the anxiety and depression domains. Across both tools, teachers struggled with response options for other domains, particularly 'some difficulty' and 'a lot of difficulty'.

Application of either tool required good knowledge of the child, and therefore class teachers were considered to be more suitable for these assessments than subject teachers. Good knowledge of children emerged as a key requirement for accurate assessments. However, assessments were difficult for many teachers who had very large classes (often 50-70 children) and therefore had limited opportunities for lengthy interactions with each child.

English and Krio were primarily used for the assessments and interactions with the teachers. However, we found that for many teachers it was easier to communicate in local languages (Temne, Limba and Loko) and the team had to use these languages to discuss difficult concepts and facilitate better understanding of the tools. This was particularly important for the response options in the questionnaire, and especially differentiating between 'some difficulty' and 'a lot of difficulty'. We also used these local languages to discuss functional domains such as anxiety and depression.

It emerged from the initial testing and teacher training that some environmental and home factors had an impact on the child's functional status. Teachers provided information that some domains (cognitive, learning, concentration, remembering and depression) were affected by factors such as hunger and conflict in the child's home.

It means that the difficulties experienced by children in these domains could change over time with the improvements of their environment.

We found that close supervision of the assessment process and peer support in schools and via WhatsApp were effective ways to ensure complete data, and to support teachers collect accurate data.

We found that children under five were present in some of the study schools; WG-SS and CFM-TV are not applicable to assess children under five. If one of these tools was used for EMIS purposes, it would mean that either an additional CFM-TV module appropriate for children under five would need be developed (based on the CFM for the age group 2-4 years) or some younger children attending schools would not be assessed. Similarly, in some junior secondary schools, there were learners aged 18 and above. Although, WG-SS will be applicable for these students, the current version of CFM-TV will not. This issue could be particularly important, as children with functional difficulties often start school later, or are held back at various points in their schooling and are therefore more likely to be among the older learners in a particular school.

We found that most teachers were not comfortable using electronic devices to enter the data and preferred to use paper-based forms. This created challenges with the significant volume of paper, which had to be kept in private offices to keep confidentiality. The study team used school principals' offices and ensured that the completed forms were collected regularly. The availability of space in schools for safe storage, as well as technical support for data capture and aggregation, would need to be considered if a paper-based approach to tool rollout is considered. Alternatively, building capacity for electronic data collection and use, along with access to devices, power supplies and internet connectivity should be considered if an electronic roll-out is considered.

At present, schools in Sierra Leone do not hold individual student records except school registers. This limits opportunities to use individual data on functional difficulties at school or classroom level.

Considering the length and time it takes to complete the CFM-TV questionnaire and investment in training teachers to use it correctly, it is important to consider whether the benefits associated with CFM-TV significantly outweigh the time and resources required. This can only be fully understood with the evidence on:

- How the functional difficulties affect children's school participation and academic performance.
- How schools and teachers can adapt their teaching and learning environments and processes to facilitate learning of children with functional difficulties, and what resources, infrastructure and technical support this would require.

A key purpose for generating data on functional difficulties is to better understand the numbers of children requiring educational accommodations or adapted learning environments. From this perspective, it is important to understand how the

availability of data on functional difficulties of children enrolled in schools can improve educational policies, planning and resource allocation.

## Areas for future research

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There are a number of areas which will benefit from further investigation and research:

- Factors driving differences in teachers' assessments of the same child.
- Nature and duration of training for teachers necessary for optimal use of either tool.
- Whether and how functional difficulties in children change over time and how frequently such assessments should be performed.
- Whether and how functional difficulties impact on children's school participation and academic performance, and whether there are particular domains of difficulty with disproportionate impact.
- Understanding how the availability of data on children's functional difficulties can influence school environment and teaching and learning practices.
- Understanding how the availability of data on children's functional difficulties can influence educational policies, planning and resourcing, and identifying opportunities for integration of data into EMIS.

## 7. Appendices

### Appendix 1. Washington Group Short Set Question

Number	Questions	Response options	
1	<b>Vision</b> – Does this student have difficulty seeing, even if wearing glasses?	No, no difficulty	1
		Yes, some difficulty	2
		Yes, a lot of difficulty	3
		Cannot do it at all	4
2	<b>Hearing</b> – Does this student have difficulty hearing, even if using a hearing aid(s)?	No, no difficulty	1
		Yes, some difficulty	2
		Yes, a lot of difficulty	3
		Cannot do it at all	4
3	<b>Mobility</b> - Does this student have difficulty walking or climbing steps?	No, no difficulty	1
		Yes, some difficulty	2
		Yes, a lot of difficulty	3
		Cannot do it at all	4
4	<b>Cognitive</b> – Does this student have difficulty remembering or concentrating?	No, no difficulty	1
		Yes, some difficulty	2
		Yes, a lot of difficulty	3
		Cannot do it at all	4
5	<b>Self-care</b> – Does this student have difficulty with self-care, such as washing all over or dressing?	No, no difficulty	1
		Yes, some difficulty	2

Number	Questions	Response options	
		Yes, a lot of difficulty	3
		Cannot do it at all	4
6	<b>Communication</b> - Using your usual language, does this student have difficulty communicating, for example understanding or being understood?	No, no difficulty	1
		Yes, some difficulty	2
		Yes, a lot of difficulty	3
		Cannot do it at all	4



## Appendix 2. Child Functioning Teacher Version Tool

No	Question	Response options	
CF1	Does this student wear glasses or contact lenses?	Yes – <b>Go to CF2</b>	1
		No – <b>Go to CF3</b>	2
CF2	If yes: does this student have difficulty seeing even if he/she is wearing their glasses/lenses?	No difficulty	1
		Some difficulty	2
		A lot of difficulty	3
		Cannot do at all	4
CF3	If no: does this student have difficulty seeing?	No difficulty	1
		Some difficulty	2
		A lot of difficulty	3
		Cannot do at all	4
CF4	Does this student use a hearing aid?	Yes – <b>Go to CF5</b>	1
		No – <b>Go to CF6</b>	2
CF5	If yes: does this student have difficulty hearing sounds like peoples' voices or music even if he/she is using his/her hearing aid?	No difficulty	1
		Some difficulty	2
		A lot of difficulty	3
		Cannot do at all	4
CF6	If no: does this student have difficulty hearing sounds like peoples' voices or music?	No difficulty	1
		Some difficulty	2
		A lot of difficulty	3
		Cannot do at all	4
CF7	Does this student use any equipment or receive assistance for walking?	Yes – <b>Go to CF8</b>	1
		No – <b>Go to CF9</b>	2

<b>CF8</b>	If yes: Without the use of his/her equipment or assistance, does this student have difficulty walking?	No difficulty	1
		Some difficulty	2
		A lot of difficulty	3
		Cannot do at all	4
<b>CF9</b>	If no: Compared with children of the same age, does this student have difficulty walking?	No difficulty	1
		Some difficulty	2
		A lot of difficulty	3
		Cannot do at all	4
<b>CF10</b>	When this student speaks, does he/she have difficulty being understood by you, or others in this classroom?	No difficulty	1
		Some difficulty	2
		A lot of difficulty	3
		Cannot do at all	4
<b>CF11</b>	Compared with children of the same age, does this student have difficulty learning things?	No difficulty	1
		Some difficulty	2
		A lot of difficulty	3
		Cannot do at all	4
<b>CF12</b>	Compared with children of the same age, does this student have difficulty remembering things?	No difficulty	1
		Some difficulty	2
		A lot of difficulty	3
		Cannot do at all	4
<b>CF13</b>	Does this student have difficulty concentrating on an activity that he/she enjoys doing?	No difficulty	1
		Some difficulty	2
		A lot of difficulty	3
		Cannot do at all	4

<b>CF14</b>	Does this student have difficulty accepting changes in his/her routine?	No difficulty	1
		Some difficulty	2
		A lot of difficulty	3
		Cannot do at all	4
<b>CF15</b>	Compared with children of the same age, does this student have difficulty controlling his/her behaviour?	No difficulty	1
		Some difficulty	2
		A lot of difficulty	3
		Cannot do at all	4
<b>CF16</b>	Does this student have difficulty making friends?	No difficulty	1
		Some difficulty	2
		A lot of difficulty	3
		Cannot do at all	4
<b>CF17</b>	How often does this student seem very anxious, nervous or worried?	Daily	1
		Weekly	2
		Monthly	3
		A few times of the year	4
		Never	5
<b>CF18</b>	How often does this student seem very sad or depressed?	Daily	1
		Weekly	2
		Monthly	3
		A few times of the year	4
		Never	5

## Appendix 3. Demographics of the 18 teachers who participated in piloting tools

Characteristics	Number	Per cent
<b>Teacher representation by school</b>		
KDEC Primary School, Kamakwei (Karene district)	11	61%
Kagbere community JSS (Bombali district)	7	39%
<b>Gender</b>		
Male	14	78%
Female	4	22%
<b>Level of education</b>		
Senior secondary school certificate	2	11%
Teachers certificate	5	28%
Higher teachers certificate	7	39%
Bachelor's degree	3	17%
Postgraduate studies	1	6%
<b>Number of years teaching experience</b>		
2-5 years	1	6%
6-10 years	2	11%
11-15 years	12	67%
15+ years	3	17%
<b>Number of years served as class teacher<sup>1</sup></b>		
2-5 years	5	28%
6-10 years	8	44%
10+ years	5	28%
<b>Role of teachers</b>		
Class teachers	13	72%
Subject specialist teachers	5	28%

<sup>1</sup> The role as class teacher changes as the headteacher/principal allocates the role based on experience.

Characteristics	Number	Per cent
<b>Prior involvement with children with disability</b>		
Inclusive champions	11	61%
Others/non-inclusive champions	7	39%

## Appendix 4. Demographic section designed for tools

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Child ID code	Sex [ ] Age [ ] Class/form [ ]
Attendance status of child	Regular [ ] Not so regular [ ] Left school [ ]
Assessor ID code	Sex [ ]
School ID code	Date of assessment

## Appendix 5. Consistency of responses by teachers who used WG-SS

Domain	Pair 1	Pair 2	Pair 3	Total
<b>WG1 (seeing)</b>				
Agree	29	29	30	<b>88</b>
Any disagreement	1	1	0	<b>2</b>
Disagree on FD	0	1	0	<b>1</b>
Children with FD	0	<b>1</b>	<b>0</b>	<b>1</b>
<b>WG2 (hearing)</b>				
Agree	30	30	30	<b>90</b>
Any disagreement	0	0	0	<b>0</b>
Disagree on FD	0	0	0	<b>0</b>
Children with FD	0	0	0	<b>0</b>
<b>WG3 (mobility)</b>				
Agree	30	30	30	<b>90</b>
Any disagreement	0	0	0	<b>0</b>
Disagree on FD	0	0	0	<b>0</b>
Children with FD	0	0	0	<b>0</b>
<b>WG4 (cognitive)</b>				
Agree	25	30	28	<b>83</b>
Any disagreement	5	0	2	<b>7</b>
Disagree on FD	0	0	1	<b>1</b>
Children with FD	0	0	1	<b>1</b>
<b>WG5 (self-care)</b>				
Agree	30	30	29	<b>89</b>
Any disagreement	0	0	1	<b>1</b>
Disagree on FD	0	0	1	<b>1</b>
Children with FD	0	0	1	<b>1</b>

Domain	Pair 1	Pair 2	Pair 3	Total
<b>WG6 (communication)</b>				
<b>Agree</b>	22	30	27	<b>79</b>
<b>Any disagreement</b>	8	0	3	<b>11</b>
<b>Disagree on FD</b>	0	0	1	<b>1</b>
<b>Children with FD</b>	0	0	1	<b>1</b>



## Appendix 6. Consistency of responses by teachers who used CFM-TV

Domain	Pair 1	Pair 2	Pair 3	Pair 4	Pair 5	Pair 6	Total
<b>CFM1-3 (seeing)</b>							
Agree	29	29	28	30	30	29	<b>175</b>
Any disagreement	1	1	2	0	0	1	<b>5</b>
Disagree on FD	0	0	0	0	0	0	<b>0</b>
Children with FD	0	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>CFM 4-6 (hearing)</b>							
Agree	27	29	30	30	30	30	<b>176</b>
Any disagreement	3	1	0	0	0	0	<b>4</b>
Disagree on FD	0	0	0	0	0	0	<b>0</b>
Children with FD	0	0	0	0	0	0	<b>0</b>
<b>CFM 7-9 (walking)</b>							
Agree	28	29	30	30	30	30	<b>177</b>
Any disagreement	2	1	0	0	0	0	<b>3</b>
Disagree on FD	0	0	0	0	0	0	<b>0</b>
Children with FD	0	0	0	0	0	0	<b>0</b>
<b>CF10 (Speaking)</b>							
Agree	27	27	25	27	28	29	<b>163</b>
Any disagreement	3	3	5	3	2	1	<b>17</b>
Disagree on FD	0	0	0	0	0	0	<b>0</b>
Children with FD	0	0	0	0	0	0	<b>0</b>
<b>CF11 (learning)</b>							
Agree	27	27	17	25	30	29	<b>155</b>
Any disagreement	3	3	13	5	0	1	<b>25</b>
Disagree on FD	1	0	0	0	0	0	<b>1</b>
Children with FD	1	0	0	0	0	0	<b>1</b>

Domain	Pair 1	Pair 2	Pair 3	Pair 4	Pair 5	Pair 6	Total
<b>CF12 (Remembering)</b>							
<b>Agree</b>	25	25	14	23	27	27	<b>141</b>
<b>Any disagreement</b>	5	5	16	7	3	3	<b>39</b>
<b>Disagree on FD</b>	0	2	1	1	2	2	<b>8</b>
<b>Children with FD</b>	0	2	1	1	3	3	<b>10</b>
<b>CF13 (Concentrating)</b>							
<b>Agree</b>	24	27	26	26	27	28	<b>158</b>
<b>Any disagreement</b>	6	3	4	4	3	2	<b>22</b>
<b>Disagree on FD</b>	0	0	0	1	2	0	<b>3</b>
<b>Children with FD</b>	0	0	0	1	3	0	<b>4</b>
<b>CF14 (Accepting Change)</b>							
<b>Agree</b>	27	25	25	22	28	23	<b>150</b>
<b>Any disagreement</b>	3	5	5	8	2	7	<b>30</b>
<b>Disagree on FD</b>	1	1	1	2	1	1	<b>7</b>
<b>Children with FD</b>	1	1	1	2	1	1	<b>7</b>
<b>CF15 (Controlling behaviour)</b>							
<b>Agree</b>	22	27	20	24	28	25	<b>146</b>
<b>Any disagreement</b>	8	3	10	6	2	5	<b>34</b>
<b>Disagree on FD</b>	3	0	0	1	1	0	<b>5</b>
<b>Children with FD</b>	3	0	0	1	1	0	<b>5</b>
<b>CF16 (Difficulty making friends)</b>							
<b>Agree</b>	27	27	27	26	28	26	<b>161</b>
<b>Any disagreement</b>	3	3	3	4	2	4	<b>19</b>
<b>Disagree on FD</b>	1	0	0	0	2	0	<b>3</b>

Domain	Pair 1	Pair 2	Pair 3	Pair 4	Pair 5	Pair 6	Total
<b>Children with FD</b>	1	0	0	0	3	0	<b>4</b>
<b>CF17 (Anxious)</b>							
<b>Agree</b>	20	28	12	27	23	12	<b>122</b>
<b>Any disagreement</b>	10	2	18	3	7	18	<b>58</b>
<b>Disagree on FD</b>	3	0	0	2	1	4	<b>10</b>
<b>Children with FD</b>	3	0	0	2	1	4	<b>10</b>
<b>CF18 (Depressed)</b>							
<b>Agree</b>	20	25	11	27	21	16	<b>120</b>
<b>Any disagreement</b>	10	5	19	3	9	14	<b>60</b>
<b>Disagree on FD</b>	4	1	2	1	1	0	<b>9</b>
<b>Children with FD</b>	4	1	2	1	1	0	<b>9</b>

## Appendix 7. Demographics of teachers involved in school-based data collection

Characteristics	WG-SS (30 teachers)	CFM-TV (35 teachers)	Overall (65 teachers)
	n (%)	n (%)	n (%)
<b>Distribution by district</b>			
Bombali	16 (53.3%)	17 (48.6%)	33 (50.8%)
Karene	14 (46.7%)	18 (51.4%)	32 (49.2%)
<b>Gender</b>			
Male	25 (83.3%)	30 (85.7%)	55 (84.6%)
Female	5 (16.7%)	5 (14.3%)	10 (15.4%)
<b>Qualification</b>			
O-level/school-leaving certificate	8 (26.7%)	3 (8.6%)	11 (16.9%)
Teachers certificate	10 (33.3%)	12 (34.3%)	22 (33.8%)
Higher Teachers certificate	9 (30.0%)	11 (31.4%)	20 (30.8%)
Professional diploma	2 (6.7%)	2 (5.7%)	4 (6.2%)
Bachelor's degree	1 (3.3%)	4 (11.4%)	5 (7.7%)
Postgraduate	0 (0%)	3 (8.6%)	3 (4.6%)
<b>Years of teaching experience</b>			
1-4	10 (33.3%)	3 (8.6%)	13 (20.0%)
5-8	5 (16.7%)	9 (25.7%)	14 (21.5%)
9-12	7 (23.3%)	6 (17.1%)	13 (20.0%)
13-16	3 (10.0%)	5 (14.3%)	8 (12.3%)
17-20	4 (13.3%)	4 (11.4%)	8 (12.3%)
21+	1 (3.3%)	8 (22.6%)	9 (13.8%)

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