

ADAPTIVE PROGRAMMING: HOW TO MANAGE DATA DURING CRISIS-RELATED SCHOOL CLOSURE



Girls' Education South Sudan (GESS) helped to improve the lives of a generation of South Sudanese children by ensuring the provision of equitable, accessible, and essential support to the education sector in South Sudan, with a particular emphasis on girls, and children with disabilities. The outcome of the programme was to be an improvement in girls' educational attainment, above what was achieved in the first phase of GESS — building further gains on school enrolment, reducing barriers to education and promoting equity in access for all children, with a focus on those with disabilities.

The innovative design of the programme included a range of integrated activities including behaviour change communication, cash transfers to girls and boys with disabilities,¹ capitation grants to schools and school improvement interventions — supported by technology and informed by research.

Crises disrupted the education and learning of many across the world, particularly in the global south. Globally, over 270 million children and young people missed out on learning due to school closures and teaching interruptions as a result of crises such as conflict, displacement, child labour, child marriage, gender-based violence, food insecurity, lack of access to adequate sanitation facilities, poor response to disease outbreaks, natural disasters and direct attacks on schools.² In South Sudan, similar crises to those mentioned above had a devastating impact on

the education system and interrupted the learning of many in the country for the last few decades, resulting in over 2.8 million children being out of school.³ These include the 2020 COVID-19 pandemic which resulted in the closure of schools for 14 months in South Sudan, and heatwaves in 2023, 2024 and 2025 which led to school closures for anything between two to eight weeks at a time. The impact of these closures remains to be fully assessed however indications are that extended school closures can lead to an increase in incidences of early and forced marriages, unplanned pregnancies among school-age learners, lower re-enrolment rates, and drop-out and learning attrition. Using the COVID-19-related school closures as an example, this best-practice brief outlines how GESS pivoted and adapted its radio programming approach to mitigate the impact of these closures.

¹ Boys with disabilities started receiving cash transfers in 2024

² The out-of-school population is higher than previously thought – and rising - World Education Blog

³ Global Initiative on Out-of-School Children: South Sudan country study: <https://unesdoc.unesco.org/ark:/48223/pf0000265399.iLocale=en>

Schools' Attendance Monitoring System

Based on the lessons learned from the first phase of GESS, the second phase of the programme had four primary goals concerning data management. The first goal was to **redesign and improve the Schools' Attendance Monitoring System (SAMS) functional modules**, making them more robust for the capture, storage, protection, and reporting of data, and to enhance the accuracy and integrity of data. The second goal was to **determine the feasibility of a biometric learner registration solution** through a pilot. Next was to **continuously improve the data management and associated processes** through an elaborate data management framework; and finally, the last goal was to **provide technical capacity building** to the State Anchor data teams and the Education Management Information System (EMIS) Unit at the Ministry of General Education and Instruction.

Main Data Management Activities During COVID-19

The school closures created opportunities to take stock and make improvements by undertaking several activities that would help achieve the goals that were set out as follows:

- Providing support to and maintenance of the SAMS system, including the SMS gateways by the data management team. This included also being responsible for the archiving of the SAMS application system and database.
- Providing first-line support to end-users of SAMS on system-related challenges.
- Developing digital tools to capture student enrolment and school budgets.
- Supporting the GESS data supervisors in ensuring that the personal information and enrolment of validated girls' details were correct before the generation of pay sheets for cash transfers.
- Maintaining the SMS gateways enabling attendance reports to be sent by the reporting teachers from each school to SAMS.

Challenges and Risks Faced Due to COVID-19 Regulations, Including School Closures and Physical Distancing

During COVID-19 lockdown, and with indefinite school closures, data management was challenging. Some examples of these challenges are listed below.

- To curb the spread of COVID-19 schools were closed, which led to the temporary suspension of most activities related to enrolment and attendance

reporting. Most schools had completed the enrolment of students, but the data had not been collected for data entry in SAMS.

- Due to insecurity and flooding in several regions, students migrated to locations far from their schools. Some of the migrated students might have joined new schools without conducting a proper transfer, which might have led to data duplication and made tracking enrolled students more difficult.
- Not all schools were trained on the Washington Group Questions (WGQ) for gathering information about disability and basic activity functioning before school closures. Training for teachers on how to complete the WGQ may not have been covered comprehensively, and this might have affected the quality of the responses.
- Schools were overloaded with forms and tools from different projects, making it difficult to comprehensively fill the Pupil Admission Register with all the required fields.
- There were insufficient data quality checks at the school level before the Pupil Admission Register, and the budgets were collected from schools.
- Some State Anchor data supervisors resigned when salaries were reduced due to the 2020/2021 programme year budget cuts. Data entry for enrolment was limited to the Pupil Admission Registers that had been received just before schools were closed. This affected the timeliness of enrolment data.
- Schools were not submitting Pupil Admission Registers, school development plans, budgets, or and did not show accountability due to school closures.
- The programme faced challenges in determining the ownership status of some schools, which had different ownership details in the prior years.
- New schools could not be created in SAMS during the COVID-19 school closures, as the state ministries of education had to verify the existence of schools before a request to generate school codes could be submitted to the GESS/MoGEI Data Management Teams.

Adaptive Programming

- We utilised online tools such as Teams and Zoom to carry out the required training to enable the State Anchor teams to carry out their duties remotely. These duties include data collection, verification and entry.
- Implementation of the 6 dimensions of data quality was initiated during this period, i.e. completeness, consistency, accuracy, validity, uniqueness and timeliness. The aim of this initiative was to ensure all learner records were captured accurately and consistently, using correct formats and values, ensuring uniqueness, and keeping data up to date for timely decision-making. Standardised tools, collaborative data quality checks in partnership with

various stakeholders, routine data cleaning, and training of data supervisors were employed. These measures were crucial for verifying learner identity and enrolment status, enabling the accurate and timely disbursement of cash transfers to eligible learners. Enhanced data quality checks also enabled effective tailoring of our support to schools.

- A SAMS user experience survey was completed remotely by the data team. The survey was targeted at GESS Secretariat, State Anchor and MoGEI staff to understand the experience of using SAMS and suggest ways to make the system more user-friendly. It identified the needs of SAMS users and proposed recommendations to enhance the system's performance and utilisation. The report identified eight main thematic areas for improvement: tailored reports, offline working capability, accessibility, support function, system performance, changing information, aesthetics, and training.
- During the COVID-19 school closures, the data team stabilised the system before migrating it to a safer and more effective cloud-based platform. As a result, the performance of SAMS has improved, and the system is more secure. Reports can also be generated faster compared to the process on the previous platform. The data team took advantage of the low traffic during the COVID-19 school closures to migrate the SAMS system to the new and faster platform.
- The data team innovated around the cash transfer process by using the verified list of girls who had been promoted to the next grade to receive cash transfers during the school closures. The team began by utilising a previously verified list of learners from 2019, who were enrolled and had been attending classes regularly. For example, among these learners was Mary, who had passed her grade 7 exams and had been promoted to the next level, grade 8. In collaboration with the State Anchor, Monitoring team, and in consultation with MoGEI and GESS donors, the team compiled a new verified list that included Mary and other learners who could be paid 2020 cash transfers as they all met the following prerequisite criteria: previous verification, exam results, and promotion status. Using this approach and new verified list, the data team ensured that the details for those who met the criteria, including Mary, were on the 2020 cash transfer payment list despite schools being closed.
- After the cash transfers were completed, the data collection on cash transfers was changed to meet COVID-19 regulations. These safety measures included:
 - The GESS Secretariat restricting the number of people who could be in the GESS offices in Juba where the data entry was taking place at any one time.
 - Physical distancing in the office was enforced for staff working there, and visitors were not given

access to the office during this time.

- The cash transfer documents delivered by the bank were received at the reception area.
- Data entry clerks were recruited after providing proof of full vaccination, and conducted the data entry after meeting the following conditions:
 - » Mandatory temperature checks for the data entry clerks before accessing the office.
 - » The clerks had to sanitise their hands when they entered the office.
 - » All colleagues wore masks during the data entry process.
- The Learner Unique ID is an initiative of the Ministry of General Education and Instruction to assign a code to students in schools. The ID is a 9-digit individual education number, unique to each student and which stays with the student for life. The number will allow the Ministry, education agencies, institutions, researchers, and other education data consumers to monitor, track, organise, and transfer learner records more efficiently and reliably. It will be used in place of a student's name or other personal information that may compromise the privacy of the learner's data or reveal the student's identity. In addition to protecting the student's privacy, it will be used to improve student data quality, accuracy, and reliability. By assigning this ID, a wide variety of educational records maintained by different educational agencies, schools, or programmes can be reliably associated with individual students enrolled in schools across South Sudan — from school-attendance data, enrolment and test scores to disciplinary records, disability assessments and special-education needs. It will enhance calculations on:
 - Retention and transition rates
 - Re-enrolment and dropout rates
 - Completion cycles
 - Enrolment projections
- The transition to the new Learner Unique ID went smoothly, as the GESS data team developing the initiative adapted well from face-to-face meetings at the ministry to online meetings.

Focus on Equity and Inclusion

The WGQs were first included in the 2020 Pupil Admission Register. However, the data entry tool for the Pupil Admission Register that year had not been fully optimised to capture and provide full disaggregated data on disability. Improvements were made in 2021 to the Pupil Admission Register and its associated digital data entry tool which yielded a better outcome.

Information on the number of people in learner households was incorporated into the Pupil Admission Register, including data on male adults; female

adults; males below 18; females below 18. It also included the number of people living with a disability within the household.

Safeguarding and disability inclusion training was done for internal GESS staff and State Anchors which helped to strengthen identification risks and development of mitigation specifically in the context of COVID-19.

Collaboration and Coordination

COVID-19 changed how we worked and collaborated using digital tools. There was consistent communication with the Ministry of General Education and Instruction, State Anchors, and data supervisors, and across the outputs.

There was extensive collaboration between the GESS data team in South Sudan and the Mott MacDonald Digital ventures team in the United Kingdom. Through this collaboration, the following was achieved:

- Stabilisation of the SAMS back-end code
- Development of a cloud-based infrastructure
- Migration of SAMS to the new cloud platform

The collaboration with the Ministry of General Education and Instruction, State Anchors and an external vendor led to the first biometric pilot. The pilot determined the feasibility of using biometric data for enrolment/onboarding, learner attendance verification, and cash transfer payments.

Conclusion — Lessons Learned and Recommendations for Future Crises-Resilient Programming

Lessons Learned:

- Avoid prejudice in our relationships with stakeholders. Before COVID-19, it seemed difficult to hold regular remote meetings with the Ministry of General Education and Instruction. COVID-19 gave us an opportunity to improve our remote contact with the Ministry, as well as working and meeting remotely with State Anchors.
- While there were some connectivity challenges

during the virtual training or meetings, the benefits of remote trainings and meetings outweighed the challenges as very few individuals/organisations were affected.

- Flexibility is essential for adaptive programming in data management. The use of verified data from 2019 to pay the first set of cash transfers was only possible because GESS donors and Ministry of General Education and Instruction were willing to relax the requirement of attendance reports to enable a quick response to the Pandemic.

Recommendations:

- Strengthen the process of acquiring quality data by co-opting data supervisors in the data quality assurance taskforce.
- Conduct a second biometric pilot whose results will be compared with the first pilot to determine the feasibility of fast-tracking enrolment and verify learner attendance using pre-loaded and non-pre-loaded biometric data on devices.
- Education sector actors need to agree on a single unified tool to collect the same data once from each school. This will minimise the overload of different tools used by different projects for schools.
- Develop a unified data integration platform that acts as a sole source of truth for quality data and eliminates silos.
- Establish a data governance programme that will strengthen the push for data quality and enforce consistent data definitions, rules, metrics, policies, and procedures.
- Develop an ICT policy for the Ministry of General Education and Instruction to act as a guide for all projects collecting education-related data. This policy will lead to the creation of an implementation strategy and the development of a framework for implementation and engagement.
- Strengthen the data quality assurance taskforce to deal with ghost schools and inflated enrolment targeting capitation grants and cash transfers.

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