Representing gender equity through dynamic indicators

The participatory re-design of School Report Cards in the Gambia

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MASTER THESIS

Informatics: Programming and System Architecture

60 Credits

Department of Informatics

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University of Oslo

May 30, 2022

Abstract

To turn data into action it is important that the data is processed and presented in terms of indicators and targets. It is important that relevant information is presented to the proper stakeholders.

The School Report Card (SRC) of The Gambia is a data visualization tool used for social accountability and transparency. Its targeted audience is the community and shows the learners' performance against the resources of the school. It is standardized across the country and shows where a school stands compared to the district, region and the country. This research explores the idea of adding a dynamic indicator in the regional level with the goal to increase accountability and transparency towards the community that will lead to informed decisions in policy making, planning curriculums, actions etc. The dynamic indicator proposed to be included is a gender equity indicator.

Action research with participatory design techniques identified that a participatory School Report Card with a dynamic indicator will reflect more precisely on the causes of the learners' performance. Contextual factors matter and vary within the country therefore they should be taken into account for effectively acting on the challenges that they are exposed to. The gender disparities exist and they should reflect on the SRC. A participatory approach in the School Report Cards can prove to be challenging therefore a solution on how to mitigate those challenges is proposed.

Acknowledgment

I would like to thank my supervisor Terje Aksel Sanner for his guidance, help and support throughout this project. Additionally, I would like to thank the main team with which I worked in the field Seedy Jallow, Sophia A. Kousiakis, Kimberly S. Frost, Bjørnar Valbø, Jerry Aziawa and Alpha Bah. Lastly, I would like to thank my family, especially my parents, and friends for all the support they gave me to be part of the University of Oslo and throughout the studies.

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Acronyms

AR – Action Research

ASC – Annual School Census

CM – Cluster Monitor

CR – Completion Rate

DHIS2 – District Health Information Software 2

EMIS – Educational Management Information System

ECD – Early Childhood Development

GABECE – Gambia Basic Education Certificate Examination

GER – Gross Enrolment Rate

GESI – Gender Equity and Social Inclusion

HISP – Health Information Systems Programme

IS – Information Systems

LBE – Lower Basic Education

LBS – Lower Basic School

MoBSE – Ministry of Basic and Secondary Education

MWA – Ministry of Women's Affairs

NAT – National Assessment Test

PPARBD – Planning, Policy Analysis, Research and Budgeting Directorate

PPM – Participatory Performance Monitoring

PTA – Parent Teacher Association

RED – Regional Educational Directorates

SDG – Sustainable Development Goal

SMC – School Management Committee

SMT – Senior Management Team

SPMM – School Performance Monitoring Meeting

SQAD – Standards and Quality Assurance Directorate

SRC – School Report Card

SSE – Senior Secondary Education

SSS – Senior Secondary School

UiO – University of Oslo

WAEC – West African Examinations Council

UBS – Upper Basic School

UBE – Upper Basic Education

TA – Thematic Analysis

Chapter 1

Introduction

The Sustainable Development Goal 4 (SDG 4) established by the United Nations in 2015, aims to ensure inclusive and equitable quality education and promote lifelong learning opportunities for all. This goal emphasizes eliminating the gender disparities in education and providing equal access for all learners to quality education. (United Nations, 2015, p. 21). SDG 4 calls for the use of data to guide improvement in learning outcomes and equitable access to education (DHIS2, 2020b). Education Management Information Systems reports typically present education information to national or regional level education authorities. These reports help education decision makers to monitor educational progress and outcomes, plan budgets and make informed policies. In contrast, there are School Report Cards (SRCs) that provide education information at a much more decentralized level. SRCs are typically used to inform the community about school performance. The SRCs enable stakeholders to more effectively hold schools and districts accountable for education quality. Therefore, SRCs increase accountability and transparency of education quality (Joy Cheng et al., 2016, p. 20).

This research project aims to utilize participatory design techniques to identify areas for improvement for the School Report Card (SRC) of The Gambia and to explore the potential for inclusion of gender equity indicators in it, as this is an education policy priority. The first version of the SRC of the Gambia was created in 2008 using Microsoft Excel and Microsoft Access. Now the SRC tool has been redesigned as an extension application of the District Health Information System (DHIS2) platform. DHIS2 is an open-source web-based platform, used as a Health Management Information System. Since 2019, it has been taken up by low and middle income countries also in the education sector (DHIS2, 2020b). DHIS2 is a flexible platform, which makes it easier to introduce changes and new features to the SRC. DHIS2

platform also increases the accessibility of the tool in different education levels, which was primarily accessible in the digital Microsoft Excel format only in the central level in EMIS.

This project's improvement of the SRC is by contextualizing it with a dynamic indicator set on the regional level. A dynamic indicator is an indicator that is contextualized and periodical that is optional, can be modified, replaced, or omitted based on the local regional priorities and needs. As a priority of a dynamic indicator included in the SRC is an indicator about gender equity. A dynamic indicator is supposed to give a better understanding of the learning outcomes within a school, it is supposed to be contextualized to the regional level education obstacles. The SRC's goal is to give accountability and transparency of the school's performance to the different levels of the education system and the community. The dynamic indicator is supposed to increase accountability and transparency of the school's performance. Different education administrative regions in the Gambia have differences in their performance and these regions have different contexts. Accountability of the students' performance can be better allocated if regions have an indicator represented in their SRC that they know affects the performance of the school.

1.1 Research context

This thesis is written as part of my two-year program in Master of Informatics (MSc) at the University of Oslo (UiO). The project topic is from the Information Systems (IS) research group of Department of Informatics at UiO. I was interested in the Health Information System Programme (HISP) and their platform District Health Information System (DHIS2) platform which was introduced to me through my courses in the first semester. The DHIS2 platform is a leading example of a global public good that is used in 73 low and middle-income countries. Including NGO-based programs DHIS2 is used in over 100 countries (DHIS2, 2020a). It has ensured capturing the right data, analysing it, sharing, and using it to make informed decisions that have had an impact on many countries' health system and people's lives. This platform helps with tracking immunization, responding to disease outbreaks, and many other use cases which makes decision making evidence based. I researched about the opportunities to have a project in the IS research group and found out about DHIS2 for Education project. DHIS2 for education is a new initiative which takes advantage of the

existing DHIS2 platform capacity and expertise in the health sector. There are six countries piloting DHIS2 for Education and one of them is The Gambia (DHIS2, 2020b).

The Gambia is a is a small country in West Africa. It is a low-income country with a population of 2.4 million (World Bank, 2017). The Gambia Education Policy is aligned with the Sustainable Development Goal 4, focusing on accessible, equitable, and inclusive quality education for all. The Gambia has two entities responsible for managing the education system in the country Ministry of Basic and Secondary Education (MoBSE) and Ministry of Higher Education, Research, Science and Technology (MoHERST) (MoBSE & MoHERST, 2017, pp. 6-87). The scope of this thesis covers the basic education and gender equity in it, therefore the MoBSE is the key stakeholder in the Gambia regarding this research.

The DHIS2 for Education is a flexible platform and is used for helping the EMIS data collection, processing, and visualization. Additionally, DHIS2 in The Gambia is going to be used for the School Report Card (SRC). The SRC has not been changed in structure or content ever since it was introduced in The Gambia in 2008. The system around the SRC in use as of now is not flexible to be configured, generated, and distributed. Alixhp Halilaj, Lars-August Udnesseter Johnson and Øystein Knudsen during their master thesis projects at UiO have managed to analyse and add the SRC as an extension application in the DHIS2 platform. Since now the SRC is heading towards being a more flexible tool in the DHIS2 platform, it opens the opportunity for changes and customization. This master thesis explores the possibility of adding an optional dynamic indicator in the region level in the SRC that represents gender equity in education. Gender equity is a concern that does not only mean equity during the enrolment phase but throughout the education too. The dynamic indicator feature can be further taken advantage of to identify and later on address other issues that schools in certain regions are concerned with.

The process on introducing changes to the SRC started with remote meetings with the Ministry of Basic and Secondary Education (MoBSE) of the Gambia, the Standards and Quality Assurance Directorate (SQAD) which is the owner or the SRC, Gender Directorate. After establishing a connection with them and finding out they are open to integrate changes in the SRC, I researched about the SRC, the Gambia education and the gender equity in the Gambia. In February 2022, I went for a fieldwork visit with other members of HISP-UiO team. The HISP team was helpful and the stakeholders in The Gambia were very

collaborative. During the fieldwork I understood the context much better, and was part of some meetings, interviews and observed some processes and participants. The fieldwork led to new findings, feedback, selection of research participants and shaped the new suggested versions of the SRC with some changes and inclusion of a dynamic indicator.

1.2 Personal motivation

This project is a motivation from my previous education related work and my courses about information systems and platforms at UiO. Through my studies I got to know about DHIS2 and the impact that it has in improving health services in developing countries through collecting, managing, visualizing, and analysing data in one place. I chose to make a contribution through the Information Systems research group of UiO, and I found HISP's project "DHIS2 for Education" intriguing. The opportunity to make a real contribution in the education sector through my studies, especially in a developing country, was the main motivation. The focus is on improving the School Report Card of the Gambia more specifically gender equity focused indicator inclusion in it which was also an encouragement to pursue this research project. During my work on my thesis, I was happy I chose this topic and I stuck to it. Hopefully, the contribution through HISP is going to serve the Gambia now and other countries later improving the education quality and gender equity in education.

1.3 Research question

The research question that this thesis addresses is:

How can a dynamic indicator, with a focus on gender equity, be integrated in the digitized Gambian School Report Card and in what ways will it be informative?

1.4 Thesis layout

Chapter 2 presents literature review on previous research, publications and contents regarding the School Report Cards, contextualized indicators, and gender equity. The chapter further reviews these matters in the Gambia.

Chapter 3 presents the context in which the research is done. It describes the HISP network and the DHIS2 platform. Further the chapter describes the Gambia's characteristics, its education system, the stakeholders, the key data sources of the School Report Card and the key processes around it.

Chapter 4 gives an overview of the research methodology, methods used for data collection and data analysis throughout the project.

Chapter 5 presents the interviewing processes on the field and remotely as well as the main results regarding re-designing the Gambian School Report Card, including the dynamic indicator and gender equity issues.

Chapter 6 presents a discussion about the research project and the findings including relation to the reviewed literature.

Chapter 7 draws in conclusions, main contributions from the research and possible direction of further research.

Chapter 2

Literature Review

The goals were to understand the SRCs purpose in general, to understand the education system in the Gambia, and the gender equity in its education system. This understanding would be the starting point on approaching changes in the SRC, and inclusion of the dynamic indicator.

The term dynamic indicator is not used in this context, therefore the definition of it is given from what this research wants to interpret with it. Sections below discuss the participatory approach of the SRC and Nepal's Equity index as some of the main sources of inspiration to introduce the dynamic indicator in the Gambian SRC

2.1 Local context and standardized across context

IS research has identified local global tensions in the design of performance monitoring systems. In the article "Balancing the Local and the Global in Infrastructural Information Systems" (Rolland & Monteiro, 2002, p. 89) states that "*for a given information system to work … it has to be tailored to the requirements of the local context of use. As such, a local context will necessarily be unique, constituted by locally produced and institutionalized practices and the existing infrastructural resources*.". It is necessary to balance between the local contexts and need to standardize across context. It is suggested that in order to balance the costs between the local context and the need to standardize across countries, one should design the information system gradually through iterative processes. The process should

ensure flexibility technically and politically on different organizational level (Rolland & Monteiro, 2002, p. 99).

2.2 School Report Cards

Decentralization and an increased emphasis on community and parent participation represent significant education reform trends. These reforms tend to improve education quality and outcomes and on strengthening accountability results. The reforms require that information is available in all education system stakeholders, local, regional, school officials, and communities to increase transparency, accountability and provide tools for effective management at the local level. Some countries use 'school report cards' as a system-level information to increase accountability and transparency of information at the school level. These systems have different purposes and formats, some are used for measuring students' performance, some are used for supporting school managers. Therefore, reporting tools are each intended for a different audience. The school report cards may become an effective tool for allocating funds and delegating management authority to accountability requirement. Report cards increase the basic information sharing and transparency between and across schools within a school district, region, and country, leading to improved management (Cameron et al., 2006).

The SRCs typically refer to aggregated education information at the school level. The SRCs are important tools providing school-level information to schools, parents, and communities. The tool increases accountability and transparency in the education system. The design of SRCs varies in different countries. Based on what information the SRC presents they can be categorized in multiple types.

2.2.1 SRC formats

School Report Cards are usually in one of the following formats:

Scorecards that show school scores on a numerical or letter scale based on a list of pre-determined criteria that represent performance or progress.

School profiles that usually present a combination of quantitative and qualitative information that forms an overall picture of school operation and quality in a report format.

School-education index, which presents a composite score based on indicators for each school, enabling users to compare schools and assess how a school changes over time.

League tables/school rankings that rank schools from best to worst at the national or regional level, based on a set of indicators such as school performance on standardized learning assessments.

2.2.2 SRC content

The standardized SRCs present school-level information on a set of indicators that are the same across schools in the whole country. Participatory SRCs allow community members to decide and assess a set of performance indicators tailored to community, parents, and learners' needs. The data sources of SRCs vary and can be from EMIS, standardized assessments, community monitoring reports, observations from school inspectors and peers.

The content of the SRC can include different type of information like school funding levels, condition of school facilities, teacher qualifications, teacher behaviours, school management overviews, student learning outcomes. Typically, the content can include input, processes, outputs of schools or a combination of two or three of them, or more. Figure 2.1 shows the content of different SRC in different countries.

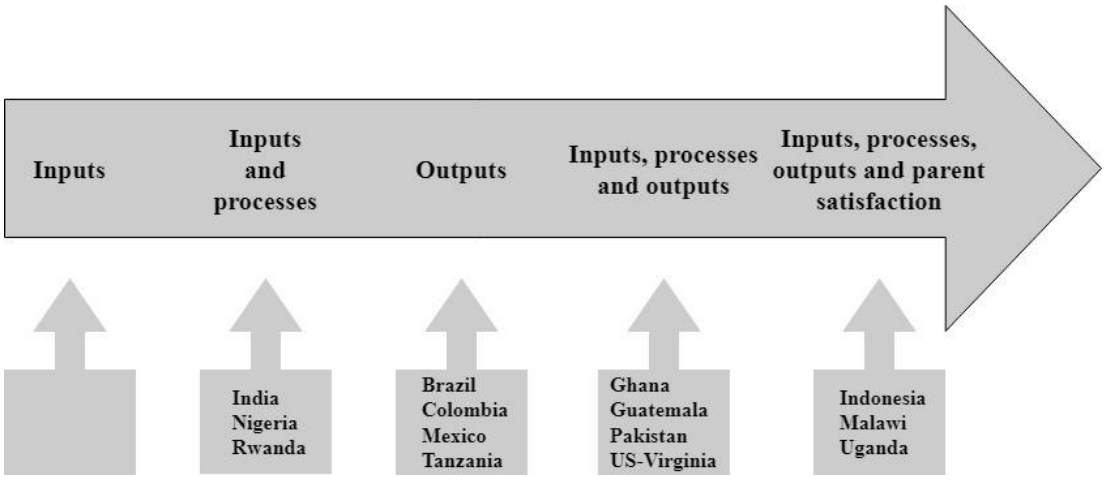


Figure 2.1. Mapping SRCs of different countries by content, (Joy Cheng et al., 2016, p. 69)

Most of the SRCs have consistent indicators that allow users to compare school performance. This increases competition and social pressure for schools to improve. Some of the comparisons presented in the SRCs are between schools, standards, school with itself or a combination of some of these criteria (Joy Cheng et al., 2016, pp. 20-69).

From 14 countries featured in the report, some of the countries with promising models for transparency and accountability are Indonesia, Malawi, and Uganda. As seen in Figure 2.1 they incorporate all aspects of education inputs, processes, and education outcomes, thereby expand the available school-level information. In terms of transparency, the Uganda SRC provides a participatory model that allows indicators to be widely understood by the community since they are involved in choosing the indicators. The report states that Indonesia's SRC uses innovative technology to report teacher attendance, combined with established monitoring systems in communities shows potential for promoting positive behavioural changes from the service providers.

Another important element for transparency and accountability is inclusive and participatory approaches in the SRC production and distribution process. Uganda's approach of the SRC creates a sense of ownership among community members of the school performance review process and possess decision making power regarding which indicators will be used to gauge school quality. In a yearlong evaluation of Uganda's **participatory SRC** Barr *et al.* (2012) (cited in Joy Cheng et al., 2016, p. 27) compared to the standardized report cards it was found out that the participatory SRCs had an impact on reducing student and teacher absenteeism. Additionally, the participatory approach increased the learners' test scores. A laboratory game conducted during this evaluation in 2012 shows that the participatory approach in SRC design changes the group psychology as members showed higher tendency to contribute to the public good.

In the participatory approach the data sources and content of community score cards are decided by community members. Then in the community-wide meetings stakeholders including school representatives, parents, and learners open discussions on education issues important to them. Communities develop indicators with visual representation for illiterate parents, vote on their level of satisfaction with smiling or sad faces, and create an action plan to address key issues hindering education quality in the community. As a result, the content of the SRC is decided through participatory approach and it varies according to the specific

community. Common themes introduced by different communities include teacher attendance, provision of school lunch and student absenteeism. The community members from Uganda are the ones choosing the symbols to represent school indicators as well as "smiling faces" scales to measure the school performance (Joy Cheng et al., 2016, pp. 62-63).

The participatory approach requires capacity-building on defining the indicators as it can be challenging in measuring those indicators (Joy Cheng et al., 2016, p. 99).

2.2.3 SRC design

Designing of the SRC should be carefully done and aligned to the understanding of the audience. As (Florez, 2012, p. 8) states that information is relevant if data are understood and used. Information should be presented in a format that is understandable to its audience. The most useful information presented in a simple way (i.e., using graphs, maps, colors, and pictures) generates in-depth discussions. Audience is interested in information that offers the opportunity to take action. In many developing countries, where parents and caregivers are illiterate, school report card efforts should centre on helping and empower them to understand what their children need to improve their levels of learning, whether their children are meeting standards, and what they can do to help their children. The SRC should use simple indicators that focus on education quality so that parents, teachers, and students can discuss educational opportunities and obstacles together.

2.3 The Nepal's Equity Index

As an example of a lower education system level indicator is the Equity Index in Nepal. I draw inspiration from this index to introduce a gender equity indicator in the Gambia. The Nepal Equity Index is a tool used to assess disparities across the education sector in Nepal. The index allows them to reduce the disparities through evidence-based planning and resource allocation. This ensures that action is taken to respond to the needs of children facing the challenges to access or stay in school and ensures that resources get to where they are most needed (Price & Oostrum, 2018). Nepal introduced the Equity Index in 2016 in 15 targeted districts. The Nepal's Equity Index is integrated in their EMIS and collects data on

inequities children are vulnerable to due to their context (Grimes & dela Cruz, 2021, p. 93). This index draws on Nepal's EMIS data as well as household survey data on gender, geography, socio-economic status, ethnicity, caste, and disability. The Equity index in Nepal has generated impressive progress in a few years. In 2019, independent verification confirmed a 60% reduction in out of school children in the 15 targeted districts since it was introduced in 2016 (GPE, 2020). Based on the Global Partnership for Education prospective evaluation report in the one-year period July 2018 to July 2019 the equity index in these targeted districts helped to reduce the out of school children number by 30% (Magrath & Torrano, 2020, p. 51). Based on the Equity Index in Nepal, if only outcomes are considered when comparing districts or schools then they key information is missed. The same outcome from schools or districts within different context cannot be expected. Schools with more challenging context with an equity perspective will require more support to give better outcomes. The context will help to understand the drivers behind the learning outcomes (UNICEF, 2018).

2.4 Equity in education

The concept of equity in education is based on two principles: quality education for all citizens seeking to develop to the maximum the individual, social, intellectual, cultural, and emotional capacities, always within a framework of effective equality of opportunity; and the shared effort of the entire education community in caring for the diversity of students (de los Santos et al., 2020, p. 1). Involvement of all education system levels, and the community is essential to improve education and to provide equity in education. The 2030 Agenda for Sustainable Development the goal 4 (SDG 4) aims to ensure inclusive and equitable quality education and promote lifelong learning opportunities for all (United Nations, 2015, p. 21).

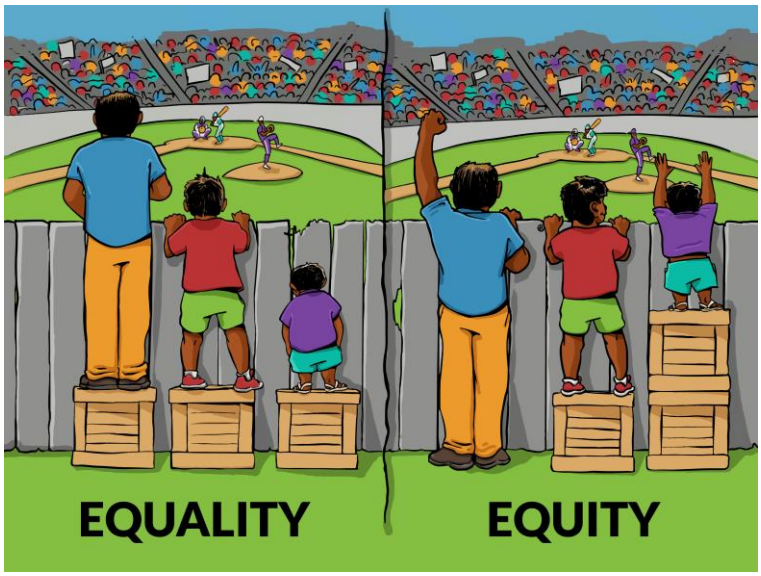


Figure 2.2. Illustration of Equality and Equity, (Maguire, 2016)

Equity does not mean that all students obtain equal education outcomes, but all students are given the same opportunity in education and the differences in their outcomes are unrelated to their background or other social circumstances (OECD, 2018, p. 22).

2.4.1 Gender equity

As defined by the United Nations, gender equality means that women and men and girls and boys enjoy the same rights, resources, opportunities, and protections (UNICEF, 2021). One of the focus areas of the goal 4 of 2030 Agenda for Sustainable Development (SDG 4) is aiming to eliminate gender disparities in education and ensure equal access to all levels of education and vocational training for the vulnerable, including persons with disabilities, indigenous peoples and children in vulnerable situations. Another target of the SDG 4 is building and upgrading education facilities that are child, disability, and gender sensitive and provide safe, non-violent, inclusive, and effective learning environments for all (United Nations, 2015, p. 19).

2.4.2 Equity in education in the Gambia

The Gambia Education Policy is aligned with the Sustainable Development goal 4. The Constitution of the Gambia states that basic education is a right, and should be free,

compulsory, and available to all. The education sector has significant bottlenecks that slow down equitable quality service-delivery. Due to social norms and structural limitations, children with disabilities have limited access to education. Gender related issues are also present which are mentioned in more details in the next section (UNICEF). There is gender, rural/urban, income, and regional disparities in Gross Enrolment Rate (GER), Net Enrolment Rate (NER) and completion rates at all levels of education. The reports show females have higher GER than males at the ECD, LBE and UBE levels but in the SSE and tertiary education males have a higher GER (MoBSE & MoHERST, 2017, p. 20). Children in the rural areas are disadvantaged regarding access and completion of their education at all levels. The factors that lead to the children not attending or staying in school are the rural families' bad tend to be poorer, religiously conservative, lack of education among parents etc. These issues are being addressed and there is high prospect that rural and urban disparities will reduce over time (MoBSE & MoHERST, 2017, p. 21). Despite the challenges the Government has demonstrated its commitment to working with in-country and external partners to tackle issues of quality, access, and equity in education (MoBSE & UNESCO, 2014, p. 39). The National Education Policy 2016-2030 of The Gambia promotes equity. Among other priorities, the policy aims to provide equitable access to high quality education to all Gambians. It mentions the goal to increase equitable access to basic, senior secondary, tertiary, and higher education. One of the targets to achieve this goal in the policy is making more gender sensitive curriculum, promoting awareness of the benefits of boys' and girls' education, promoting performance and completion importance. Another target is inclusion of special education by training teachers and extending the special facilities into rural areas (MoBSE & MoHERST, 2016, p. 6). In this policy is mentioned the goal to address the issue of unequal distribution of qualified teachers, which is one factor that can affect the students' performance (MoBSE & MoHERST, 2016, p. 41).

There are regional disparities in access to education as illustrated in Figure 2.3 by variations in Gross Enrolment Rate (GER) across regions. Regionally, as of 2021, Region 4 records highest GER for ECD, Region 4 the highest GER for LBE, and Region 1 has the highest GER for UBE and SSE. From the GER in 2021, Region 5 to has the lowest GER in each level except from UBE, in which it does not a have high GER either. Additionally, in Figure 2.4 the Completion rate (CR) of 2021 shows that Region 5 and Region 6 have the lowest CR in each education level. Comparing data from 2017 to 2021, nationally there is an increase in GER and CRs in each level (MoBSE & PPARBD, 2021, pp. 14-15). These data call for

attention to local needs and taking action where it is needed, as regions have disparities. There are different contexts in each region, and their context should be taken into account when making decisions. One of the objectives of the "Education Policy 2016-2030" of the Gambia is to increase the education GER to 118% and CRs in basic education to 100% by 2030 (MoBSE & MoHERST, 2016, p. 8). The disparities should be open for discussion with regional level and the community. Standardized indicators and reports enable comparison across the country but contextualized indicators per region will increase the accountability, transparency, and the ability to resolve issues in the region level.

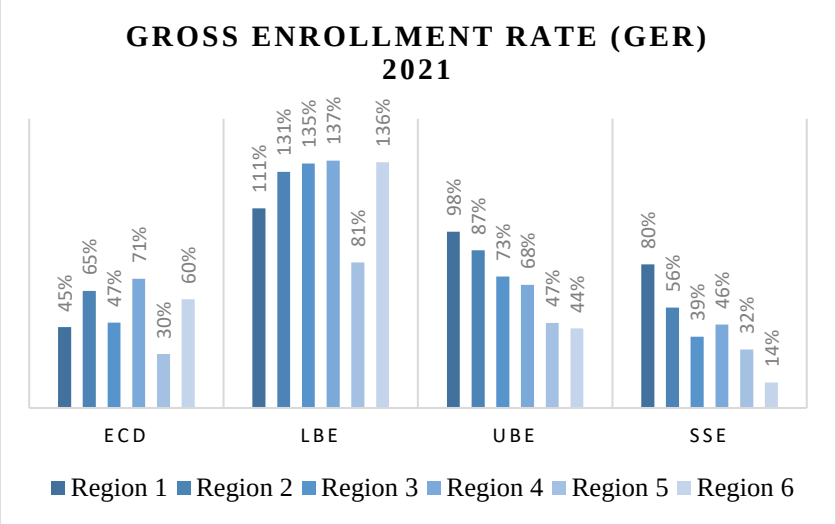


Figure 2.3. Gross Enrolment Rate (GER) by Education Level and Region

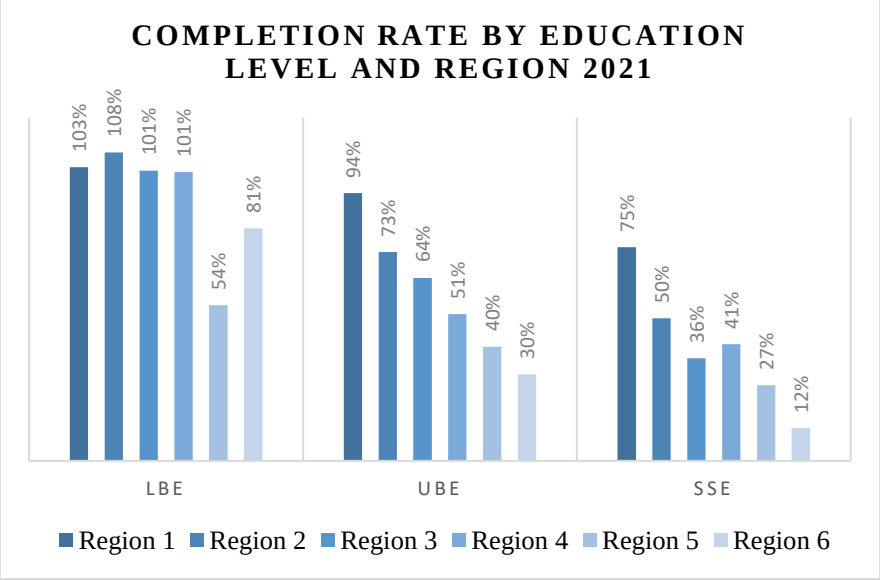


Figure 2.4. Completion Rate (CR) by Education Level and Region, 2021

2.4.3 Gender equity in The Gambia

As mentioned before one of the focus areas of the goal 4 of 2030 Agenda for Sustainable Development (SDG 4) is aiming to eliminate gender disparities in education and ensure equal access to all levels of education and vocational training for the vulnerable, including persons with disabilities, Indigenous peoples, and children in vulnerable situations (United Nations, 2015). UNICEF states that at community and family levels, social norms and values limit the education of both boys and girls. Secondary education for girls is compromised mostly due to the pressure and value placed on marriage over education and career development. On the other hand, the role of the boys as future family breadwinners also results in some families pushing their teenage boys to migrate to Europe in search of wealth to provide for their families (UNICEF). At the LBE level, girls who show slow progress or attend schools in unsafe environments are withdrawn from their schools especially among poor families for which direct, and opportunity costs make even free education unaffordable. Considerable progress has been made in enrolment and completion rates at UBE level, the girls' completion rates in poor rural communities are not high at the secondary education largely because of poverty, early marriage and perceived job opportunities in the current male dominated labour market in the modern sector. These factors favour male students to complete their education and continue their higher levels of education and acquire better position for employment and adult life. Therefore, greater efforts need to be made to prepare females for higher education and for professional careers (MoBSE & MoHERST, 2017, p. 20). So, both genders deal with challenges that prevent them from going or staying in school. Over the years many programs that promote equity in education among other goals, have implemented projects to decrease the gender disparities. The National Education Policy of the Gambia (2016-2030) aims to promote gender equity initiatives, to reduce the gender based violence in and around the schools. The policy states that it has achieved gender parity at Basic and Secondary education and will continue to pursue initiatives to attain the parity at tertiary and higher education. Other concerns presented in the policy are the gender disparities in enrolments in mathematics and other core sciences in higher education. The policy states that it will create a gender equity committee to monitor the situation of gender and education matters (MoBSE & MoHERST, 2016, p. 13). While the country faces gender inequity in the education sector, it is committed to work on the issues towards gender equity and equity in general in education.

Chapter 3

Research context

This chapter presents the research context of this thesis. The research for the thesis started remotely in 2021 with COVID-19 pandemic ongoing and a possibility to do fieldwork research in The Gambia later. I was never in an African country and did not previously work on projects where I had directly to work with them. Remotely I was part of some interviews, meetings, and focus groups with The Gambia's parties. Additionally, read previous literature and articles about The Gambia and their education system in general which served as an initial understanding of the context. This thesis is part of the Education Data Use (EDU) (UiO, 2020) project and two master theses from UiO had already been in progress about the School Report Card which formed a good understanding of the SRC in The Gambia. In February 2022, I accompanied with my supervisor Terje Aksel Sanner, and members of HISP UiO group did field research in The Gambia for about three weeks. The fieldwork was very productive, and I got a much better understanding of the context than with the remote research. Differently from The Gambia and their education system, I was familiarized with the HISP network and the DHIS2 platform throughout my studies and already had a good understanding on how they work.

3.1 Collecting context information

Collecting context information is an essential part of the research to identify the problems and to address them. The context information is retrieved through documents, interviews, and observations in the field.

3.2 Health Information Systems Programme

HISP is an implementation research network established in 1994. HISP was initiated in the post-apartheid South-Africa as a part of the decentralization of the health system to give more local control at the district level (UiO, 2021a). HISP is a global movement supporting DHIS2 implementation, local customization, and configuration. There are over 14 HISP groups in Asia, Africa, the Latin America, and the Caribbean region. Additionally, HISP offers in-country and regional training for the DHIS2 platform (DHIS2, 2022). A group of scholars with HISP at the University of Oslo mainly coordinates DHIS2 development and implementation (Roland et al., 2017, p. 11).

3.2.1 DHIS2

History

The DHIS software started in 1994, as an MS Access-based desktop application to support tasks of public health care management in three pilot districts in Cape Town, South Africa. Continuously DHIS was developed and implemented in South Africa and then India in 2006 (UiO, 2021b). In 2004, work started on DHIS version 2, a flexible and generic web-based tool developed entirely as free and open-source software (FOSS). In 2006, DHIS2 was launched, and since then many countries have implemented it in their Health Information System in different domains such as logistics, patient follow-up and disease surveillance (Roland et al., 2017, p. 12). DHIS2 later from a generic software became a software platform that has a generic core and complementary applications enabled through stable boundary resources APIs, SDKs documentation, licenses, etc. The DHIS2 platform is now leading example of a global public good that is used in 73 low and middle-income countries. Including NGO-based programs DHIS2 is used in over 100 countries (DHIS2, 2020a). In 2019, DHIS2 is introduced in the education sector (DHIS2 for Education) as part of the Education Data Use (EDU) research project (DHIS2, 2020b).

DHIS2 in the health sector

DHIS2 is the world's largest HMIS platform, deployed in over 70 countries covering approximately 2.4 billion people. DHIS2 is a global public good that is transforming health

information management around the world. It is mainly a software that supports data collection, data analysis and visualization to help make informed decisions in health care organizations in different levels, and now because of its flexible design in the education sector as well. DHIS2 is an open-source software platform that has a generic core with generic requirements relevant across geographical regions. The flexibility of the platform allows complementary apps development and implementation locally. DHIS2 has a strong and open application programming interface (API) supporting integration and interoperability. The platform serves as a data warehouse with more than 60 native applications that pull or push data stored in it to execute functions such as data quality checks or making scorecards. This platform since the beginning ensured that the solution would work in low-resource countries (DHIS2, 2020a).

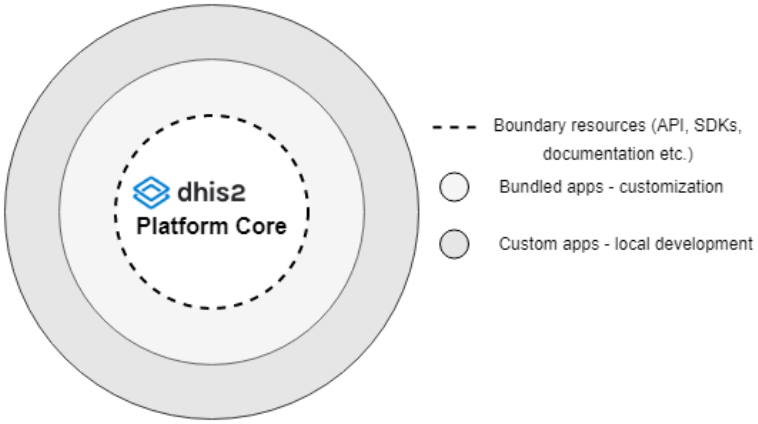


Figure 3.1. DHIS2 platform structure

DHIS2 for education

DHIS2 for education is relatively a new project, which exploits the DHIS2 platform and its built-in tools and regional capacity to facilitate data collection, data analysis and visualization for improvement in learning outcomes and equitable access to education. As of now March 2022, six countries, Eswatini, Mozambique, Sri Lanka, The Gambia, Togo, and Uganda are piloting DHIS2 for education (DHIS2, 2020b). In these countries DHIS2 is deployed as an EMIS. It will make possible communication between health and education programs, such as vaccination data. Additionally, it will support student enrolment and attendance, resource allocation for schools, and infrastructure management. DHIS2 for Education is a flexible and open-source designed to be used in a wide range of use cases. The focus of this master thesis is part of the DHIS2 for education, specifically about the School Report Card of the Gambia.

Figure 3.2. Demo of DHIS2 for Education, (DHIS2, 2021) Figure 3.2 shows a demo of the DHIS2 for Education in the Gambia populated with EMIS data. The data visualization can be through bar charts, pie charts, tables, maps etc., with a lot of filtering features. The possibility to draw better conclusions using DHIS2 will increase and new possible combined indicators relevant for education can emerge. The system around School Report Card is paper based and it is being digitized through DHIS2. The SRC is in this case a complementary application in DHIS2.

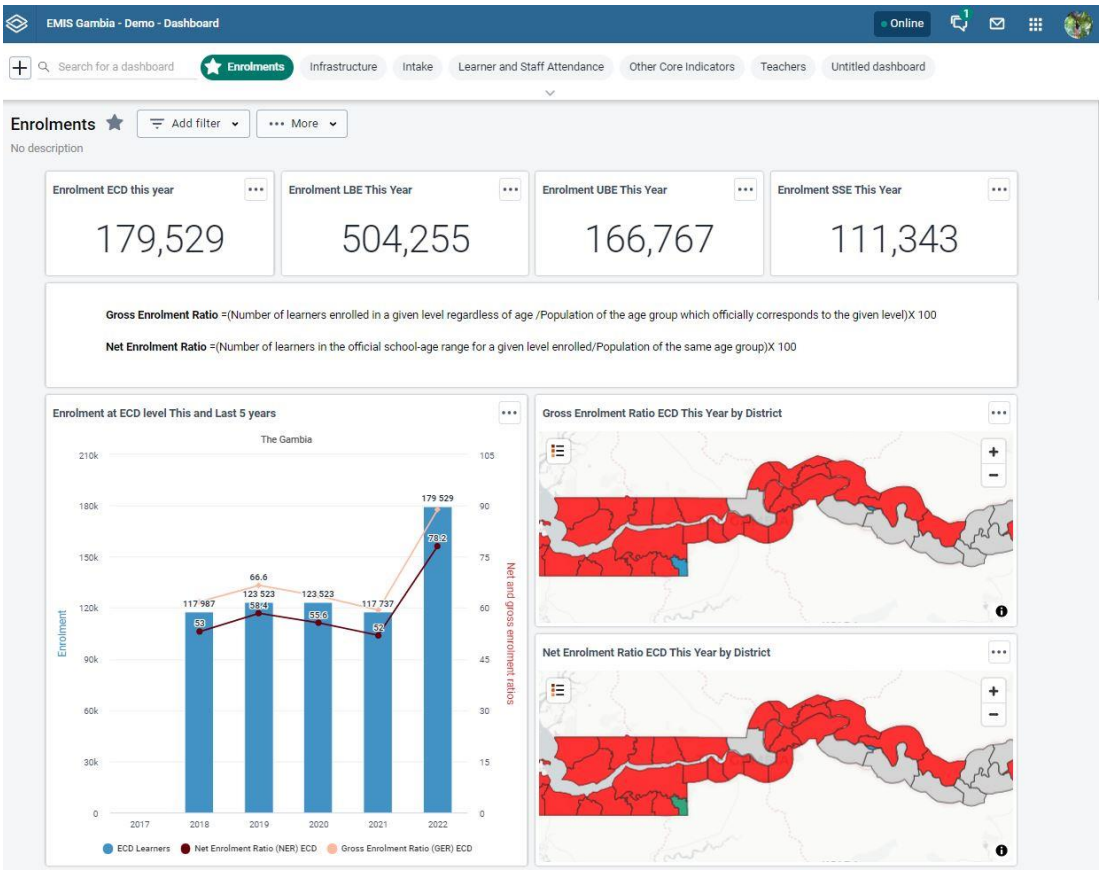


Figure 3.2. Demo of DHIS2 for Education, (DHIS2, 2021)

3.3 Overview of The Gambia

3.3.1 Geography

The Gambia is a small country in West Africa. The Gambia stretches 450 kilometres along the Gambia River, the country is 10,689 square kilometres. The Gambia is surrounded by Senegal, expect for a 60 kilometres Atlantic Ocean front. The country has a population of 2.4

million. The density of the country is 176 people per square kilometre, it makes the Gambia one of the most densely populated countries in Africa. 57 % of the population is concentrated in the urban and peri-urban centre (World Bank, 2017). The country's peculiar shape and size are a result of territorial compromises made during the 19th century by Great Britain, which controlled the lower Gambia River, and France which ruled the neighbouring colony of Senegal (Forde et al., 2018).

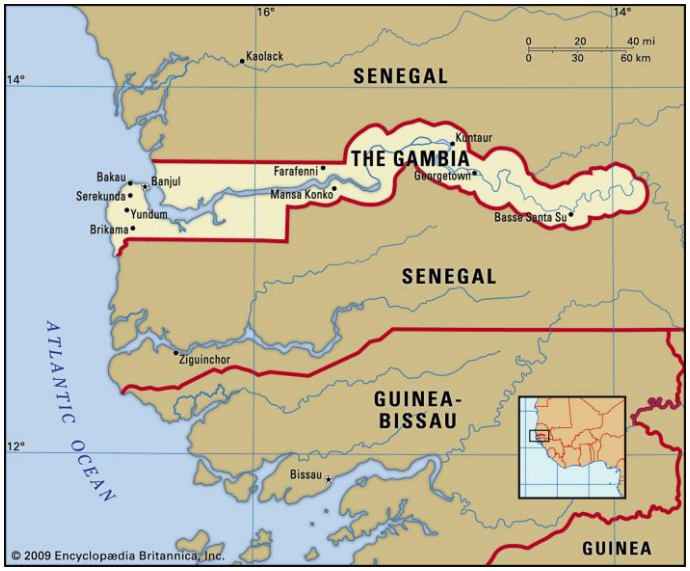


Figure 3.3. Map of The Gambia, (Britannica, 2009)

3.3.2 Demographics

The Gambia has a population of over 2.4 million (World Bank, 2020) and has a positive annual population growth (UIS). The population of the Gambia is young, with about two-thirds under the age of 30. Infant mortality is comparatively high among other western Africa countries (Forde et al., 2019).

3.3.3 Languages

In The Gambia, the official language is English. The population also speaks several local languages. Some of these languages include Mandinka, Wolof, Pulaar, Serer, Diola, and Soninke. Additionally, some Muslim clerics are literate in Arabic (Forde et al., 2018). During the field research, it was mentioned that the local languages are widely spoken but a substantial portion of the population does not read or write them.

3.3.4 Economy

The Gambia is a low-income country with wide income differentials. Multidimensional poverty rate index (measured by capturing indicators from three dimensions of poverty health, education and living standards that a person faces simultaneously) in the Gambia is high 0.204, although it has a decreasing trend (UNDP & OPHI, 2021, pp. 6-29). Referring to data from 2018, 41.6 % of the population are multidimensional poor and 22.9 % are classified as vulnerable to multidimensional poverty (UNDP, 2020, p. 4). The Gambia produces only 50% of the food it needs, and it depends on food imports. Agriculture employs 46% of the population, and up to 80% in rural areas (WFP). The majority of the population lives from land and sea. Another sector of the Gambia, important to their economy is tourism. In 2019 The Gambia's growth was robust at 6 percent, with record tourist arrivals. The Gambia economy was positive prior to recent complications from the COVID-19 outbreak. The COVID-19 crisis has resulted in a sharp economic downturn in 2020, with a reduction in tourists and trade disruptions (World Bank, 2017).

3.3.5 Education

The Gambia Education Policy is aligned with the Sustainable Development Goal 4, focusing on accessible, equitable, and inclusive quality education for all. Based on the Constitution of The Gambia basic education is a right, and should be free, compulsory, and available to all. The quality of education based on the learning outcomes in various national assessment and external examinations create the challenge of performance related dropout (UNICEF). The Gambia has government, grant-aided, private, and Madrassa schools (Universalia Management Group, 2018, p. 6).

The education system structure

There are two entities responsible for managing the education system in the country Ministry of Basic and Secondary Education (MoBSE) and Ministry of Higher Education, Research, Science and Technology (MoHERST) (MoBSE & MoHERST, 2017, p. 6). The scope of this thesis is in the basic and secondary education therefore, the focus will be MoBSE.

MoBSE operations are managed centrally especially the financial management, but partially it is decentralized to its six Regional Educational Directorates (RED) (MoBSE & MoHERST, 2017, p. 6).

The education system in the Gambia begins with a four-year cycle of Early Childhood Development, it continues with nine years of basic education that includes the lower basic (six years of primary education - LBE) and upper basic (three years of secondary education - UBE) levels, and three years of senior secondary education (SSE). Technical and Vocational Education Training (TVET) and other non-higher postsecondary education consist of two or three years courses, depending on the specialization. The education then continues with the higher and tertiary education. Figure 3.4 shows the structure of the Gambian Education System. The thesis is focused on the phase from early childhood development (ECD) up to the senior secondary education where the School Report Card is relevant (World Bank, 2011, p. 73).

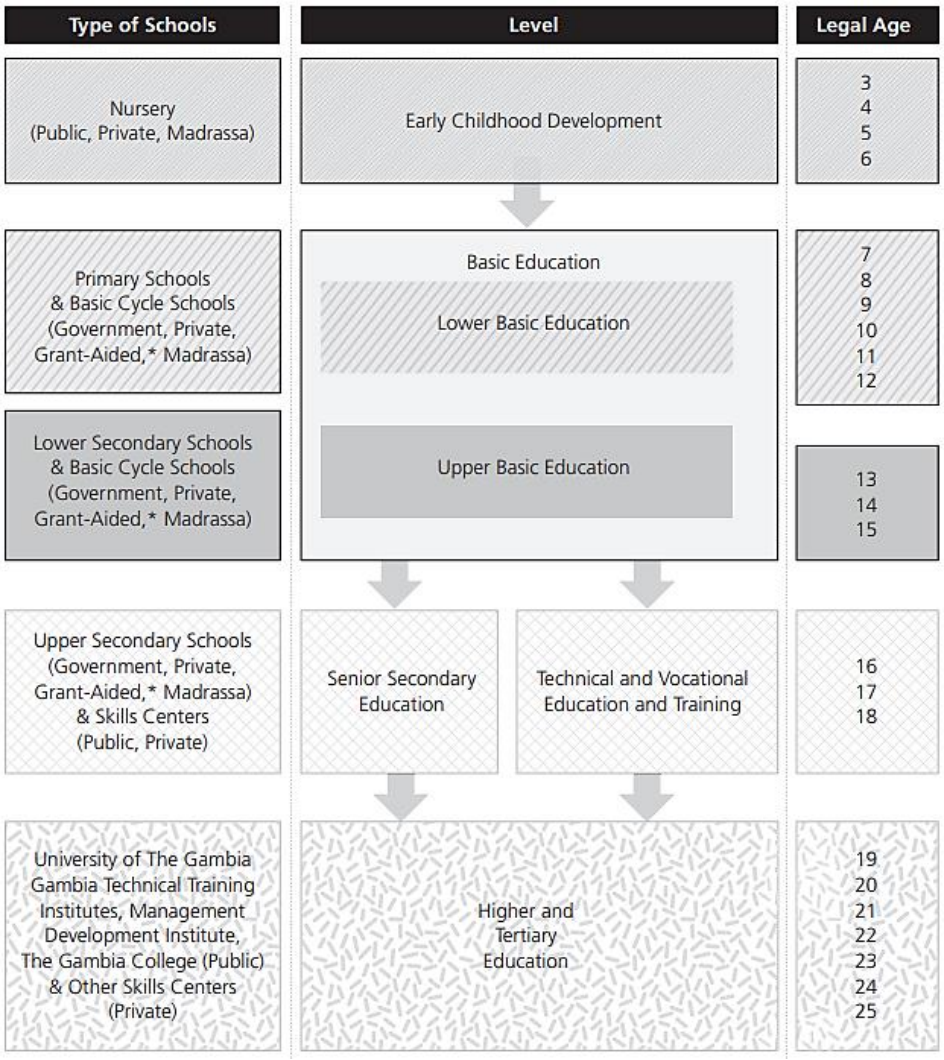


Figure 3.4. Structure of the Gambian Education System (World Bank, 2011)

3.3.6 Organizational structure

The Gambia's central point in the basic and secondary education is the Ministry of Basic and Secondary Education (MoBSE). The Gambia is known to have six administrative regions Banjul, West Coast, North Bank, Lower River, Central River, and Upper River. These regions in the education sector are known under the Regional Educational Directorates (RED) as Region 1, Region 2, Region 3, Region 4, Region 5, and Region 6 (MoBSE & MoHERST, 2017, p. 6). They are geographically located as shown in Figure 3.5. These directorates are important in the education sector and throughout this project as they can be the first step towards decentralization of some processes and decision making in the education system.

More importantly, the regional directorates will be the main collaborators to achieve dynamic indicator integration in the SRC, which is the main goal of this thesis.

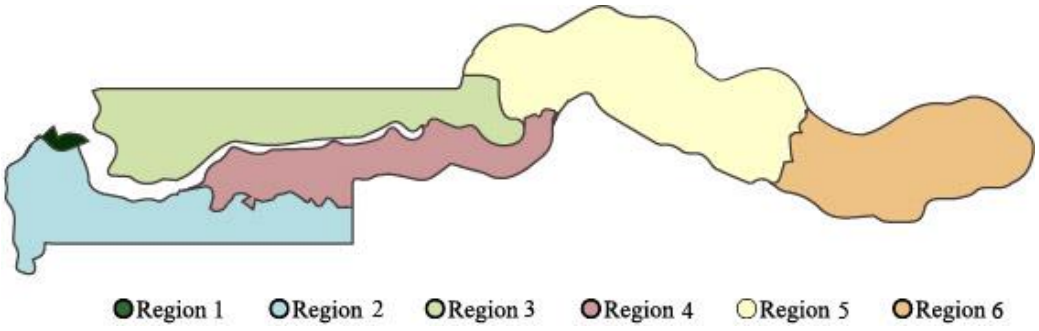


Figure 3.5. Regional Educational Directorates of The Gambia (adapted from Fig. 1, Sanneh & Hu, 2009, p. 100)

3.3.7 Resources in the education system

As mentioned in section 3.3.4, Gambia is a low-income country this reflects on the resources of the schools. Based on the EMIS data some of the schools have safe drinking water, adequate separate toilets, electricity, library, and computer labs. On the other hand, there are a lot of schools without the mentioned facilities (MoBSE & PPARBD, 2021). Some of the basic school indicators by region are shown in Figure 3.6.

Based on the SRCs of 2020/21 the disparities of resources between regions are present in the student teacher ratio, percentage of qualified teachers, number of students per English textbook and number of students per Mathematics textbook. These resources are reflected in the SRC per school, district, regional and country level as they are some of the main indicators on the performance of the learners. Region 1 has the highest resources each indicator. Region 2 and Region 5 have the lowest resources in the number of English textbooks per student. Region 5 also has the lowest resources in the number of Mathematics textbooks per student. Region 6 has the lowest resources in student teacher ratio and the percentage of qualified teachers.

Some of the schools have multi-grade classes. Multi-grade refers to a class that has two or more grade level of children in one classroom (MoBSE & MoHERST, 2016, p. v). The multi-grade is encouraged by the Education Policy 2016-2030 for efficiency use of resources in schools. These efficiency measures are encouraged in order to ensure access, retention, and

completion of schooling for all children in less densely populated communities (MoBSE & MoHERST, 2016, p. 42).

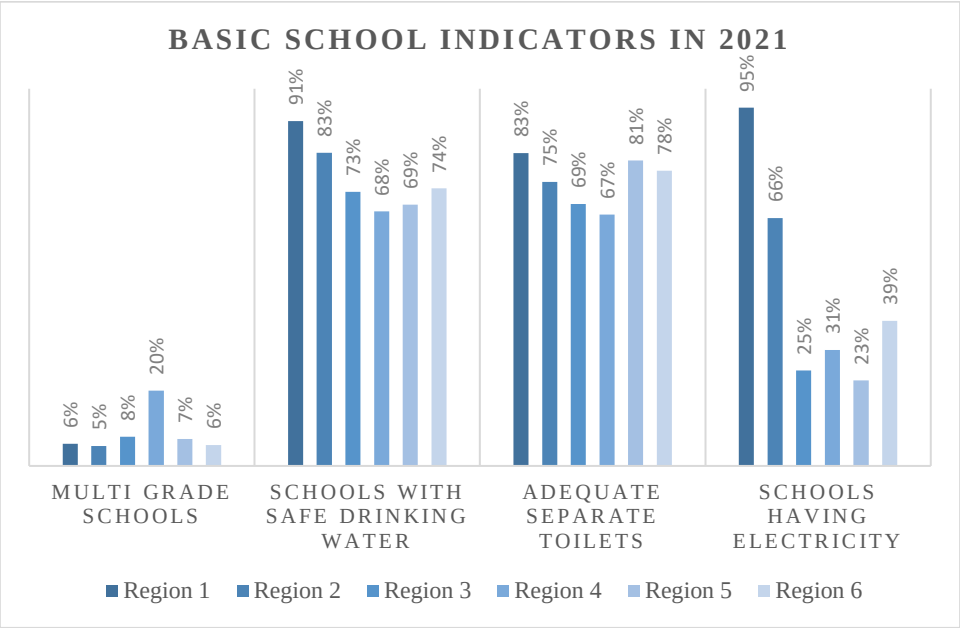


Figure 3.6. Basic School Indicators by Region in 2021

3.3.8 Gender Equity in Gambia

The Gambia Government presented the National Policy for the Advancement of Gambian Women (NPAGW) in 1999. The policy provides a legitimate point of reference for addressing gender inequalities at all levels of government and by all stakeholders. The policy achievements include increasing awareness on gender as a development concern, increase enrolment and retention of girls in schools, improved health care delivery, increase women participating in decision making, and reduction in gender stereotyping and discrimination. One of the priority areas that the policy focuses on is education. During the implementation of the NPAGW gender parity has been attained at lower basic level education and significant improvements have been made in tertiary level. This policy's successes are a result of actions and interventions such as Education for All (EFA) and Special Scholarship Trust Fund for Girls. The policy states that the concerns of boys should be equally addressed, and the scholarship scheme should be extended to all, in order to not negatively impact the enrolment and retention of boys in the education system. The policy states that key ministries including the Ministries of Education should establish functional Gender Units. The national gender

policy defines gender equity and gender equality and states that equality shall be promoted in education among other areas (MWA, 2010).

The schools in the Gambia are instructed to establish a group called Mother's Clubs. Many schools have established them. The Community Participation Sub-committee Figure 3.9, is responsible to establish these clubs in communities that do not have them. The overall aim of Mothers' clubs is to raise awareness in the community about the importance of girls' education. They promote girls' access to school, prevent them from dropping out, and promote good performance in education of girls. In occasions when a family wants their daughter to drop out of school to get married, or they are pregnant then the mother's club members should talk to the families concerned. They should encourage to keep girls at school at least until they finish the upper basic and preferably secondary education too. Where the Mother's Club are active their representatives are included as School Management Committee (SMC) members, and in some cases in the SMC sub-committees too.

Partly due to the Mothers' Clubs the enrolment of girls in basic education has increased. However, there is need to pay attention to the boys' enrolment and retention in school as they are sometimes kept away from school for farming and other duties. Schools are instructed by the School Management Manual to plan on how fathers can be involved in school life to support their sons to enrol and achieve at school (MoBSE, 2020, pp. 61-62). An intervention that targets increasing enrolment in schools, maintain regular attendance, and completion rates of both genders is the "Food for Education Programme" previously called "School Feeding Program" (MoBSE, 2020, p. 161).

During the fieldwork, the Gender Unit was established at the MoBSE as well as Gender focal points in each region were mentioned to be in place and active to try to solve gender related issues in education. In addition, there are Mothers' Clubs established and active. On the matter on how to reach out to the community and parents who are absent as well as how to tackle gender related issues in school the gender unit representative from MoBSE stated:

"There are these "Mother Clubs" that are from the ministry of Education that reach out to people, SMC to reach out to communities. Mothers' Clubs are operational, in some regions more than others. They are doing a lot, they also advice children, talk about immigration of boys, they try to keep them from moving abroad depending on the issues and areas. We try

to influence the curriculum so that we incorporate it to children, and they grow up with the mind-set of equal opportunities."

– Gender Equity Unit at MoBSE representative

3.4 Stakeholders

Health Information Systems Program network

As mentioned in section 3.2 HISP is a global movement to strengthen and decentralize health information system. At the core of HISP is the development of the open source and free software DHIS2. The HISP centre is at UiO, and it collaborates with several HISP network groups. These groups are led by DHIS2 experts that have completed PhD and master's programs related to HISP and DHIS2 projects at UiO or partner universities (DHIS2, 2022).

Ministry of Basic and Secondary Education (MoBSE)

Ministry of Basic and Secondary Education is responsible for policy development, management, and co-ordination in The Gambia. The MoBSE maintains the following professional directorates, each of which is headed by a director who is responsible for advising the Permanent Secretary on technical and professional matters related to their areas of expertise:

- Planning, Policy Analysis, Research, and budgeting
- Human resources
- Basic and secondary education programmers
- Standards and Quality Assurance
- Science and Technology Education
- Curriculum research, evaluation, and development (MoBSE & MoHERST, 2017, p. 121)

During the fieldwork I observed a well-coordinated network at MoBSE. The EMIS team was helpful and a great resource on the field, Alpha Bah head of EMIS and Seedy Jallow system analyst were the representatives that coordinated most of the field visits.

Education Management and Information System (EMIS) team

The EMIS main objective is to generate quality data management for evidence-based decision making in a timely and reliably manner. The EMIS team in the MoBSE is staffed with key relevant personnel that are qualified with the required technical skills. The EMIS team strictly follows acceptable statistical criteria of data collecting, capture, processing, and reporting. The EMIS team annually publishes the statistical yearbook. The data collected for this statistical yearbook starts in November and by May the final report is published (ADEA, 2018).

Standards and Quality Assurance Directorate (SQAD)

SQAD is one of MoBSE directorates and it is a key stakeholder in the School Report Card (SRC). SQAD is responsible for monitoring compliance of the education plan and its associated acts and regulations in all schools operating in the Gambia. The SQAD's primary focus is on monitoring and supervising the standards at all levels of the school system, learning achievement targets, teacher quality and performance, PTA, and SMC involvement (MoBSE & MoHERST, 2017, p. 122). The SQAD is the home of the School Report Card that visualizes data of the main resource indicators and student performance. In the current process, SQAD is also responsible for distributing the School Report Card to the Schools through its agents in the field (Cluster Monitors). Cluster Monitors are agents that monitor schools and write reports on areas they monitor in the schools, their role is described in more details later in this section. SQAD Officers analyse Cluster Monitors' reports and prepare summaries to present to Senior Management Team (SMT). There is one SQAD Officer assigned to each region that is responsible to maintain a dialogue with that region and check their progress and issues reminders based on the Action Points reports from that region (MoBSE - SQAD, 2011, p. 27). The SQAD team presents and discusses ideas of possible improvements in the SRC, also welcomes the ideas from external parties, in this case this thesis project for SRC improvement.

Regional Officers

Regional Educational Directorates have regional director and regional Officers should have an overview of the strengths and the areas for development of schools in that region. One of the recommendations based on the Quality Assurance Framework of the Gambia is that a regional officer becomes the Focal Point for Cluster Monitors in that region. The Focal Point guides and supports Cluster Monitors to fulfil their role. Regional Officers using CM reports

identify the areas for improvement, they visit schools and take appropriate action (MoBSE - SQAD, 2011, pp. 17-27). During the field work, the regional Focal Point participated in a meeting with the CMs. The meeting was about distribution of the Annual School Census Questionnaire (form). This shows that Region 1 follows the recommendations from the Quality Assurance Framework on selecting one Regional Officer as a Focal Point.

"Cluster Monitors are very important to the improvement of schools. Distribution of forms is facilitated by the Cluster Monitors also guide the schools on how to fill the forms correctly. Data is very important. The MoBSE is committed to ensure the planned activities are well implemented. That is why funding is provided."

– Regional Focal Point, Region 1

Cluster monitors

Cluster Monitors (CM) play a significant role in the education system. The key role of a CM is to assist schools in their journey of improvement. CM facilitate the school development process by questioning, challenging, and supporting school management committees (SMCs) to manage their role in developing schools. Cluster Monitors help head teachers to analyse school performance data, which is presented with the School Report Card (World Bank, 2011, p. 260). CMs are expected to conduct a minimum of two visits per month in a school with a duration of each monitoring or support visit of not less than two and a half hours. Regional Office staff is responsible for informing schools for national school-based policies. CMs ensure that this information is passed on and guide or advice schools on how to implement the policies (MoBSE, 2020, pp. 27-49). Some of the challenges faced by CMs are the huge demand from every stakeholder. They are also faced with capacity problems in the area of effective data analysis and report generation. Cluster Monitors report on their work in each school and send reports to the Regional Office (World Bank, 2011, pp. 260-261). During the fieldwork, the CMs were present and collaborative with school's representatives as well as the higher levels of the education system. Even though the report referenced above for the high demand of work from the Cluster Monitors is from 2011, this problem has not been solved and one of the main complaints by the Cluster Monitors. The problem is also recognized by the higher management levels in the education system and decreasing the amount of work a CMs have is one of their goals.

Head teachers

The role of headteacher/principal at the school level is leading and managing the school. The headteacher is assisted in larger schools by deputies and senior teachers, referred to as the Senior Management Team (SMT) and the School Management Committee (SMC). The headteacher is the overall manager of the school and provides professional advice on educational aspects of management to the SMC. The headteacher facilitates election of an effective SMC from the PTA. The headteachers should keep copies of all policies in place and display them in a prominent place in the school. The most important policies should be displayed in the headteacher's office, relevant classrooms, and notice boards to ensure accessibility (MoBSE, 2020). Figure 3.7 shows some of the school policies in the headteacher's office at "Bakau L.B.S.". In addition to the policies the office also displays the respect authority at the school with an organizational chart (organogram) Figure 3.8.

Figure 3.7. The school policies displayed in the headteacher's office at "Bakau L.B.S"

Figure 3.8. School organizational chart at "Bakau L.B.S"

Parent-Teacher Association (PTA)

The PTA is an organ composed of parents, guardians, teachers, and pupils of the school. The PTA is responsible to support the headteacher for the management of the school. PTA members are responsible to co-operate with headteachers of the schools for all aspects of school development and management (MoBSE, 2020, p. 55). During the fieldwork meeting with one of the school's headteacher and the PTA members the PTA was described as a general parent body of a school. Out of hundreds or thousands of students in a school, there is an executive committee selected made of approximately 16 people. The PTA seemed to be a valuable resource to spread awareness about the children's education importance.

School Management Committee (SMC)

The SMC is elected amongst the PTA. One of the criteria of members of SMC is to have at least one third of executives of female gender, with the goal to reach gender representation to 50 percent. One of the main responsibilities of the SMC is to work in partnership with the headteacher and the School Management Team (SMT) for development of the school. Other

responsibilities of the SMC are to facilitate the communication process and strengthens the relationship between the school and the community, be involved in the decision-making regarding school management, participate in the formulation of school policies and rules. The SMC members are expected to keep PTA informed of all school matters, maintain oversight of all school funds, mobilize, and help manage school resources. SMCs keep oversight on the work of the various sub-committees. Reporting to the PTA and other interested community members and stakeholders on the work of the sub-committees, ensuring the information sharing etc. Some of SMC sub-committees are shown in Figure 3.9, and each of these sub-committees are responsible to ensure the workflow of the school is aligned with the School Management Manual (MoBSE, 2020, pp. 116-123).

Figure 3.9 SMC sub-committees.

West African Examination Council

The West African Examinations Council (WAEC) was established in 1951. The member states of WAEC are The Gambia, Nigeria, Ghana, Sierra Leone, and Liberia. Over the years the council have developed a team of well-trained and highly motivated staff that administrates examinations. These examinations are valid and relevant to the educational goals of member countries. The certifications of these examinations are recognized internationally. The mission of WAEC is providing qualitative and reliable educational assessment, promoting sustainable human resource development and international co-operation. WAEC is responsible for administrating the GABECE and NAT assessments (WAEC) described in the sections 3.5.2 and 3.7.8.

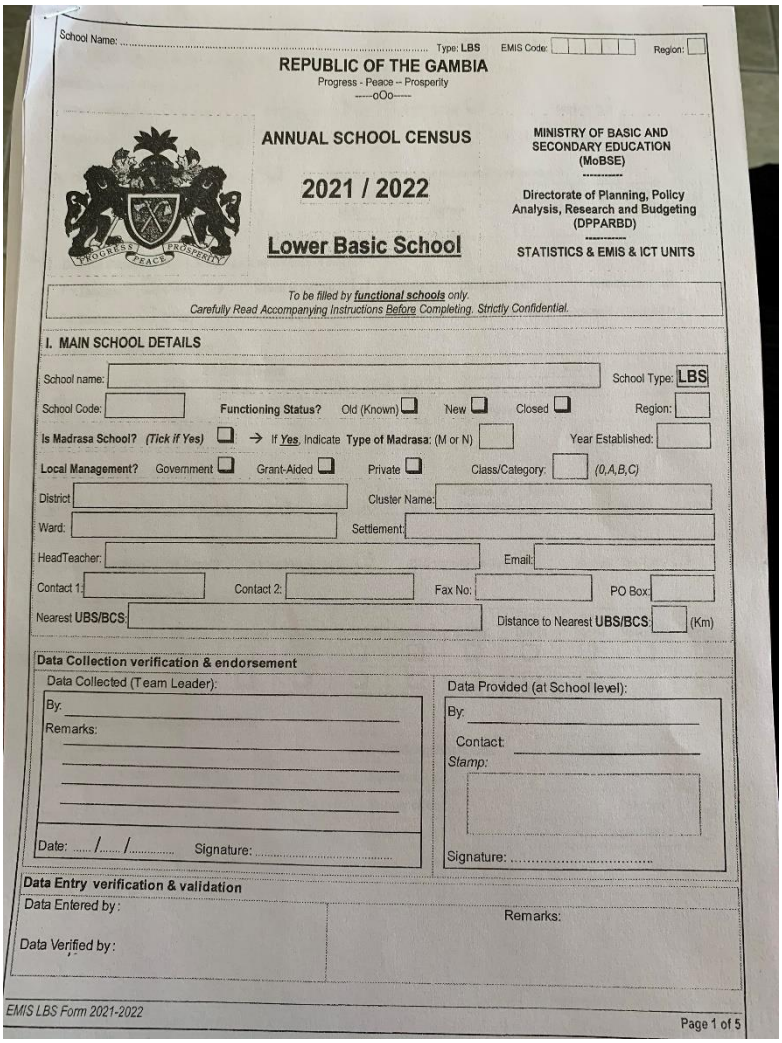
3.5 Data sources for the School Report Card

3.5.1 The annual school census questionnaire

The annual school census questionnaire's purpose is collecting data about:

- Main School Details
- School General Information
- Classes
- Enrolment
- Pupils' textbooks
- Teaching staff description
- Additional information (general, inclusive education, and national languages)

Some of these collected data are then used in the generation of the School Report Card. These data are about the resources, drop-out rate, and school infrastructure. Further, these data will be referenced as **EMIS data**. An example of one page of the ASC questionnaire is shown in Figure 3.10.



School Name: ..... Type: LBS EMIS Code: Region:

REPUBLIC OF THE GAMBIA
Progress - Peace – Prosperity
-----oOo-----

ANNUAL SCHOOL CENSUS

2021 / 2022

Lower Basic School

MINISTRY OF BASIC AND SECONDARY EDUCATION (MoBSE)

Directorate of Planning, Policy Analysis, Research and Budgeting (DPPARBD)

STATISTICS & EMIS & ICT UNITS

*To be filled by **functional schools** only.*
Carefully Read Accompanying Instructions Before Completing. Strictly Confidential.

I. MAIN SCHOOL DETAILS

School name: School Type: LBS

School Code: Functioning Status? Old (Known) ❑ New ❑ Closed ❑ Region:

Is Madrasa School? *(Tick if Yes)* ❑ → If Yes, Indicate Type of Madrasa: (M or N) Year Established:

Local Management? Government ❑ Grant-Aided ❑ Private ❑ Class/Category: *(0,A,B,C)*

District Cluster Name:

Ward: Settlement:

HeadTeacher: Email:

Contact 1: Contact 2: Fax No: PO Box:

Nearest UBS/BCS: Distance to Nearest UBS/BCS: (Km)

Data Collection verification & endorsement

Data Collected (Team Leader):
By:
Remarks:
Date: ..../..../..... Signature: .....

Data Provided (at School level):
By:
Contact:
Stamp:
Signature: .....

Data Entry verification & validation

Data Entered by:
Data Verified by:
Remarks:

EMIS LBS Form 2021-2022 Page 1 of 5

Figure 3.10. One page of Annual School Census Questionnaire

3.5.2 Examinations

National Assessment Test (NAT)

The NAT is a comprehensive test covering all students in Grades 3, 5 and 8 in all schools (private, Government and grant aided schools). The NAT is used to evaluate the knowledge and skills acquired by students and to discover learning difficulties. NAT for grades 3 and 5 reflect on how children perform in the Lower Basic Education (LBE) while for grade 8 evaluates learning achievement in Upper Basic Education (UBE). The NAT grade 8 data are not used in the SRC. NAT is only used to assess student learning, and not determination if the student should proceed to the next grade (MoBSE & MoHERST, 2017, pp. 48-51). The SMT and SMC uses results of the examinations to select the priorities on their school

improvement plan (MoBSE & MoHERST, 2020, p. 19). During a meeting with representatives of the EMIS team, they stated that the NATs used to be conducted every year for each of the mentioned grades, but now it alternates between Grade 3 and 5 each year due to using resources efficiently. Therefore, the data later generated in the school report card is not entirely from the current year, it depends on which of the grades took the NAT in that year, and the other grade's data are one year old. The NAT evaluates the knowledge in English and Mathematics. The Gambia's performance is lower than regional and international comparators and there are regional disparities in achievement within the country (MoBSE & MoHERST, 2017, p. 41). Based on the NAT results comparison between 2012 and 2015 there are disparities of achieving the minimum NAT requirements from one region to another that have persisted over the years, Figure 3.11 (MoBSE & MoHERST, 2017, p. 49).

Table 13: Share of grade 3 students achieving NAT result minimum requirement by subject and region, 2012 and 2015

	English		Maths		Integrated studies	
Region	2012	2015	2012	2015	2012	2015
1	57	69	48	58	48	56
2	52	67	40	55	35	57
3	41	62	32	50	28	51
4	37	66	25	55	24	56
5	26	47	20	37	20	39
6	37	54	28	42	26	43

Source: WAEC

Figure 3.11. Disparities in 2012 and 2015 of NAT results between regions in The Gambia, (MoBSE & MoHERST, 2017, p. 49)

The Gambia Basic Education Certificate Examination (GABECE)

The GABECE, was introduced in 2003, it examines the students in four core subjects (Mathematics, English, Science and social environmental studies) and 3 to 5 elective subjects, with final grades awarded for the core subject and two best elective subjects. The end of the basic education cycle (grade 9) is marked by the GABECE. Differently from NAT, this assessment determines whether the student proceeds to the next level of education or not. The MoBSE every year sets a cut-off mark based on available places in Senior Secondary Schools (SSSs), so the students who achieve the cut-off mark qualify for admission to grade 10 in SSSs (MoBSE & MoHERST, 2017, pp. 51-52).

3.6 School Report Card

The School Report Card (SRC) is a data visualization tool used for social accountability and transparency (Joy Cheng et al., 2016, p. 16). MoBSE manages the SRC in the Gambia with funding from the World Bank. It is MoBSE's goal to make informed decisions, through data. Therefore, the SRC data are an important part of the education system. SRC presentation to the community in School Performance Monitoring Meeting (SPMM), has increased the involvement of the community in monitoring the education system (MoBSE). During the fieldwork, students' parents mainly attended the SPMMs, and they were able to express their concerns and comments on the school's performance as well as share ideas on what could be done to improve the students' performance, more explained in section 3.7.11.

3.6.1 SRC composition

The SRC in The Gambia as seen in Figure 3.12 taken from SRC tool at MoBSE, includes information about the resources, performance, drop-out rate, and the efficiency index of the school compared to other education system levels, district, region, and the whole country. Some of the values in this SRC example are modified for testing purposes. The efficiency index is a result of the performance of the students against the school resources. The fist column in the SRC as seen in the figure below shows the information from a particular school. The second column shows information about the average of all schools in a district, in resources, performance, and efficiency index. The third column shows the same information about schools' average in the region level. The fourth column shows information about schools' average in the country level, which calculates the average for all schools in the country.

The **resource indicators** in the SRC:

- Student teacher ratio
- Percentage of qualified teachers
- Number of students per Math textbook
- Number of students per English textbook

The **performance indicators** in the SRC:

- NAT Grade 3 average in English
- NAT Grade 3 average in Mathematics
- NAT Grade 5 average in English
- NAT Grade 5 average in Mathematics
- GABECE Aggregated (Sum of English, Maths, Science and SES)
- GABECE English
- GABECE Maths
- GABECE Sciences
- GABECE SES

The drop-out rate is an indicator in the performance category in the SRC, but it is not the most suitable category, as it does not show the students' performance. The drop-out rate indicator is calculated using survival rate

The **efficiency index** table:

- Resources index – represents the average of the resource indicators that weigh different. Besides the resource indicators mentioned above, this index takes into account other indicators like seats, desks, power equipment etc., which weigh less than the main resources towards the resource index calculation.
- Performance index – is computed using the set of performance indicators mentioned above including the drop-out rate which weigh different towards the performance index calculation.
- Efficiency index – calculated as dedication of performance index and resources index, plus one and all divided by two.

Other information on the left side of the SRC include name of the region, name of the district, school, the number of students, classrooms, permanent classrooms, number of teachers, number of qualified teachers, number of Mathematics and English textbooks.

SRC composition

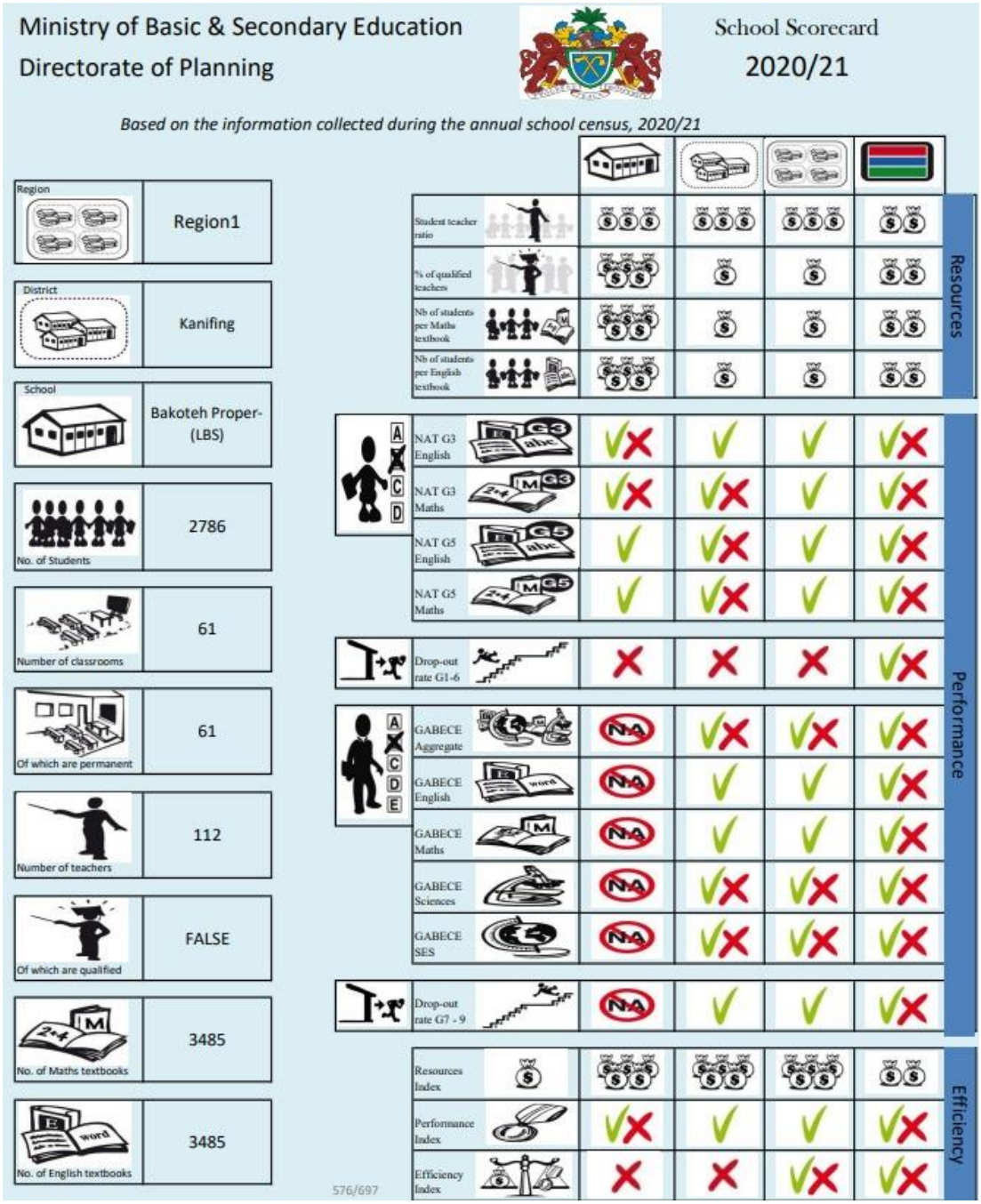


Figure 3.12. The School Report Card of The Gambia

3.6.2 Icons

As seen in the Figure 3.12 the SRC information is represented with icons, quintiles. This is a result of the purpose of the SRC, to share information to the community, which to some extent are illiterate, although the literacy rate of population aged 15 years and older has an

increasing trend (UIS, 2015). Icons are also an important part to think of when developing the SRC further. Any dynamic indicator will have to be represented by an icon that would convey the community its meaning. Its value should also be represented through a set of quintiles which should also be icons.

The resource indicators' values are represented with coins and bags of money, but not all the possible icons (values) are in one SRC usually. As seen in the above Figure 3.12 there are four different icons representing the resource indicators, but in total, there are five quintiles. The performance indicators' results are also represented with five quintiles of checkmarks and X symbols. The Figure 3.13 shows all the possible results represented with quintile from very low performance to very good performance in the first row and from very low resources to very good resource in the second row.

Figure 3.13. Icons used to represent performance and resource values

3.6.3 Improvement possibilities

Currently in use is the MS Excel format of the School Report Card, while as of now during their master thesis in 2021 Alxhip, Lars-August and Øystein (Halilaj & Johnson, 2021; Knudsen, 2021) have developed the web application format of the SRC, as an extension application within the DHIS2 platform. The current format does not present the whole situation in the school, it is generalized, standardized across the country, and it needs to be updated. The data suggests that performance of the students in different regions is different, also there is difference between the gross enrolment and the completion rate in different regions. Therefore, there is need for more contextualized data, this problem will be approached with the attempt to introduce an optional dynamic indicator representing the region level obstacles.

Reading of the SRC is not intuitive, the first impression many people get is that the resource, performance, and efficiency tables are read separately, while they are related.

The SRC does not contain process indicators to show whether the planned activities in schools were executed. The process indicators will be informative as the resources can be in place but if the planned activities, policies etc., in schools are not implemented then it will reflect on the learners' performance. There is no legend for reading the icons (values), this makes it hard to know what is the best and worst option possible, and where does this school, district or region stand in terms of resources or performance.

3.7 Key processes

The key processes related to the School Report Card described in this section happen annually. In 2022, some of these processes were delayed and happened in February while we were in the field. I observed the processes and could interact with key stakeholders. Most of the processes described below are from field observations and interactions, as well as an interview with the EMIS team representatives.

3.7.1 Printing of the Annual School Census questionnaire

As mentioned before one of the key data sources of the SRC is the data from Annual School Census (ASC) questionnaire. These questionnaires are printed at MoBSE by the EMIS team, and it is a time consuming process as it is a several page questionnaire. The staff prints and packs up the questionnaire for every CM, in each region. This is a process that needs to be decentralized, the workload of the MoBSE will be lightened up and they can focus more on their goals on delivering quality education.

Figure 3.14. Printing of the ASC Questionnaire at EMIS

3.7.2 Distribution and training in the regions to the CMs

The EMIS team distributes the printed and packed questionnaires to the CMs at the regional offices. We attended one of these meetings. At the same time of the distribution of the questionnaire, there is training of the new and experienced CMs, on how to fill the questionnaire. One of the representatives from EMIS goes through each filed on the questionnaire and explains on how to fill it, to avoid common mistakes the representative also emphasizes on how not to fill some of the fields. The CMs in the meeting seemed focused on the training and participated with questions and sharing their experiences during their work with schools.

Figure 3.15. Distributing the ASC questionnaire and training the CMs in Region 1

3.7.3 Distribution and guidance of the headteachers at the schools

The CMs after the meeting, start the distribution of the questionnaire to the schools they are assigned to. This process lasts about one week. They deliver the questionnaire at the schools and guide the headteachers on how to fill the questionnaire.

3.7.4 Completion of the questionnaire

The headteachers of the schools complete the questionnaire in approximately one week. It is also time consuming for the headteachers as the data requested in the questionnaire are not all collected in one place, but they are collected in different documents, reports of the school.

3.7.5 Validating the questionnaire with the headteacher

The CM goes through the filled-out questionnaire with the headteacher of the school and validates the data, this is the first validation of the data before it is processed. The CM then collects the filled-out questionnaire. This process as well lasts about a week, since the CMs validate and collect the questionnaire from each of the schools they monitor.

3.7.6 Delivering the questionnaire and validation of the data with EMIS team

The CMs after collecting their schools' questionnaires, they deliver them to EMIS in the MoBSE offices. There happens the second validation of the data in the questionnaire, with EMIS team. If something is wrong in the questionnaire, the CM has to go back to the school and address the issue with the headteacher. The issue is addressed in less than a week, and the CM goes back to validate it with the EMIS team.

3.7.7 Adding the data to the EMIS database and verifying it

All questionnaires are well verified and at the national central level at EMIS unit they have the data entry process in the main EMIS database which can take two or three weeks. A time consuming centralized process for questionnaires of each school. Additionally, it takes approximately one week to verify the data entry.

3.7.8 Conducting the NAT, GABECE

The NAT and GABECE examinations are administrated and conducted by WAEC. These examinations usually happen in June-July. The results of the assessments are delivered to EMIS usually in July in an excel format document which is further used to generate the SRC. The assessment data will be further referenced as **WAEC data.**

3.7.9 Generating the SRC

The EMIS team generates the SRC:

- Extracts the data from EMIS database to excel format
- Combines the EMIS data (excel format) and the WAEC data (excel format)
- Generates the SRC for each school
- Prints the SRC and delivers it to SQAD

In the figure below is a generated SRC of a school, in the bottom bar of the excel there are the sheets that have different data, that are then used to generate the final SRC of the school.

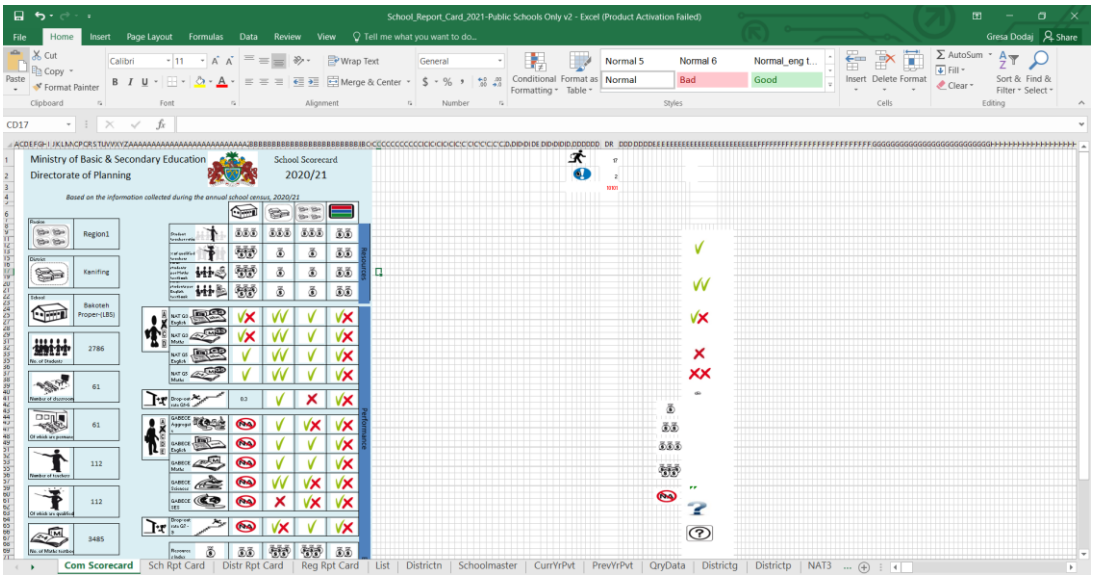


Figure 3.16. The current in use SRC MS Excel-based system

Now there is a digital solution as an application in the DHIS2 which needs further development in order to be used in the lower levels of the education system. This is a big step towards decentralization of processes included in the data collection, distribution, and accessibility of the SRC. Alxhip, Lars-August and Øystein during their master theses developed the application of the SRC in DHIS2 within Education Data Use (EDU) project, DHIS2 for education (UiO, 2020).

3.7.10 Distributing the SRC

SQAD team through the Cluster Monitors distributes the SRC to schools.

3.7.11 School Performance Monitoring Meeting (SPMM)

Participatory Performance Monitoring (PPM) is an initiative which empowers community participation in school monitoring. The PPM intends to involve parents, guardians, and community members in improving the performance of the schools, especially in NAT and GABECE examinations. This initiative also aims to promote community ownership and participation in schools with the hope of making schools more accountable to their local communities. The community is involved and informed about the performance of their schools through the community report card also known as School Report Card (SRC). School

Performance Monitoring Meeting (SPMM) is a component of the PPM. SPMMs must be conducted in all government and grant-aided lower and upper basic schools annually for the community. The SPM Meetings stakeholders are headteacher, deputy head teachers, SMC chairperson, Community Participation sub-committee chairperson, parents, guardians, and community members. Communities and schools come together to discuss the performances of their children/learners. It is during this meeting that the SRC with the children's performance is presented to community members, and it forms the basis for the meeting. The meeting also looks into other issues like the resources available to the school as well as the reasons for a school's high or low performance. The parents, guardians and community members are encouraged to attend and participate in discussions. They are suggested to make contributions and provide support in the development efforts of the school. Recommendations from the community and the school representatives are made during the meeting for schools to include in their School Development Plans (MoBSE, 2020, pp. 54-55).

The school prepares for the presentation of the SRC and usually there is a meeting before the SPMM of CM and SMC, so that everyone is coherent with the SRC interpretation.

"Before the SPMM, we have some meetings to discuss the interpretation of the SRC, so we all have a coherent understanding of it. If you listen to the parents' feedback, you can tell that they understand it. Three days earlier I was called to explain the interpretation of the SRC to a school that had a new management committee (SMC) and had not seen the SRC before. So, I help the principal and others to understand the SRC. SRC is not familiar for the new management unless they were teachers before."

– Cluster Monitor

Some of the schools draw a larger version of the SRC, to help them when presenting it to the large group of the community. In the Figure 3.17 is the chairperson of the SMC drawing the SRC before the SPMM in "Bakau Lower Basic School".

Figure 3.17. SMC chairperson drawing a larger version of The SRC

During the observation of the SPMM the presentation starts with the SMC distributing the printed SRC to the participants (teachers, parents, other community members), and the SMC chairperson refers to the larger version while interpreting it. The SMC chairperson explains the meaning of each detail on the SRC. In several SPMMs that we attended, I observed that the SRC is interpreted usually in the most used local languages in their area, since not all population (participants) understands English. One of the schools had a high number of attendees while in one of the schools it was very low number of parents attending the SPMM. Mostly it was a meeting attended by mothers, which was also a statement from one of the SQAD officers during a focus group.

Figure 3.18. SPM Meeting in Bakau LBS

The parents usually participate in the discussion of the SPMM. They express different concerns about students' performance. On some occasions the parents were also taking accountability for the poor performance of the students. Some of the parents' comments during the SPMM in "Bakoteh Proper Lower Basic School":

"Parents should be more involved in their children's school life. Parents should check with their children if they have gone to school. Parents should make sure that there is a connection between the child and the teacher and then a connection between parents and teachers."

– Parent 1

"Parents should follow up with their children at school. I usually start working early so I cannot follow up with my kid at school, but if the meeting is after work, I make sure to come, like today since it was after 16:00. I blame myself that I cannot follow up with my children at school."

– Parent 2

In another SPM Meeting in "Bakau Lower Basic School" parents were involved in discussion and some of the concerns they expressed were about offering of extra classes in different grades. The SMC chairperson states that there are only specific grades that are covered with extra studies (grade 5 and 6). Another parent complains about the children's discipline in class and at home:

"Less discipline in the class affects the performance, and the hands of teachers are tied. It affects the children in class."

– Parent 3

SMC members make sure to make suggestions to parents on registering their children in kindergarten (ECD), be more attentive towards their children, help them with homework, not let them take care of their younger siblings etc.

"The law says that you can't force the children to do anything, especially without the parent's permission so he encourages the parents to tell their kids to study."

– SMC member

I asked parent 3 on what she thinks could improve the children's performance that is not covered in the SRC, and she stated:

"I come regularly to follow up with my children. I talk to the teacher about my children, and I think this is a good way to tackle the problem of discipline and it makes the children study more."

– Parent 3

While one of the main goals of the SPM Meeting is to include the community suggestions in school development plan, the amount of time spent on interpreting the SRC is more than the time spent on discussions with the community. This was an impression from attending two SPMMs.

Chapter 4

Research methods

The research process went through some steps, and each of them consist of decisions and different recommendations followed based on the nature of this research.

4.1 Epistemology

An epistemology is a way of understanding knowledge and how it can be obtained (Crotty, 1998, p. 3). There are three epistemological paradigms (sets of beliefs on how you see in the research world) proposed by (Orlikowski & Baroudi, 1991) positivist, interpretive and critical. “Interpretive studies assume that people create and associate their own subjective and intersubjective meanings as they interact with the world around them. Interpretive researchers thus attempt to understand phenomena through accessing the meanings that participants assign to them.” (Orlikowski & Baroudi, 1991, p. 5). This is an interpretive research, and according to (Walsham, 2006, p. 322), interpretive researchers need to gain and maintain access to the appropriate organizations for field work. As mentioned in Chapter 3 this master thesis is part of the Education Data Use (EDU) project and contact to the MoBSE was set through previous master theses of students from UiO. Seedy Jallow a PhD student from UiO supervised by Terje A. Sanner, as well as a system analyst of EMIS at MoBSE was the main contact point. Seedy arranged the meetings with informants, regional offices, different directorates of the education sector remotely and on the field. All informants and institutions in the field were accessible, welcoming, and collaborative.

4.2 Research methodology

This thesis is a qualitative research using action research methodology. Qualitative data can preserve chronological flow, give explanations of processes in identifiable local context (Miles & Huberman, 1994, p. 1) which fits this thesis' goal. The research methodology is action research. "Action research combines theory and practice (and researchers and practitioners) through change and reflection in an immediate problematic situation within a mutually acceptable ethical framework. Action research is an iterative process involving researchers and practitioners acting together on a particular cycle of activities, including problem diagnosis, action intervention, and reflective learning". There are several types of action research and one of them is participatory action research which emphasizes participant collaboration. (Avison et al., 1999, p. 94). Action research operates through the process of taking action on a certain object and doing research on it. In this thesis project the research and action with a participatory design approach is done in the School Report Card in The Gambia.

4.3 Sampling: Bounding the Collection of Data

Based on "Qualitative Data Analysis" (Miles & Huberman, 1994, p. 27) sampling is crucial for later analysis. The choices on informants, whom to look at or talk to, where, when, about what, and why place limits on the conclusions you can draw, and on how confident you and others may feel about it. Qualitative researchers usually work with small samples of people within their context and studied in depth. In this thesis research the sampling is non-random as the key stakeholders around the SRC are selected, observed, met, and interviewed. It was a conceptually-driven sequential sampling as all the informants were not pre-specified but evolved once the field work began. The initial choices of informants were SQAD team and gender unit from MoBSE. After observing the process and interviewing stakeholders in the field, I understood that parents, cluster monitors, SMC members, headteachers and Regional Education Directorate representatives are also essential informants.

When choosing the informants, this research follows advice from (Miles & Huberman, 1994, p. 33) considering questions like "Why is this kind of informant important?", "Who else should be interviewed and observed?".

The involvement of community is essential since the SRC is an accountability and transparency tool about the schools' performance towards the community. The parents are represented also in the Parent-Teacher Association (PTA) and in the School Management Committee (SMC), as seen in Figure 4.1. The interviews conducted on field from these groups involved three parents and the remote interviews involved 1 parent and 3 SMC members.

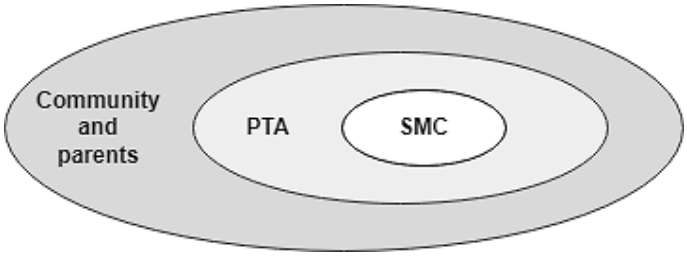


Figure 4.1. Community inclusion in the data collection process

4.4 Data collection

Data collection process in dealing with the research started remotely in November 2020 with document collection, literature review and familiarization with the topic and context. The process continued remotely in September to November 2021 by meeting MoBSE representatives, the SQAD team and Gender Unit representatives. In February 2022, I accompanied with HISP network members including my supervisor did 18 days fieldwork in The Gambia. Some of the methods used in the field were participant and process observation, interviews, meetings and focus groups. The last part of the data collection process continued remotely with interviews in May 2022.

Method	Frequency	Location
Focus groups	4	Remotely and Banjul
Interviews	18	Remotely, Region 1 and Region 2
Meetings	6	Remotely, Region 1 and Region 2
Observations	3	Region 1 and Region 2

Table 4.1. Main data collection methods

Role and data collection method	Number of participants
MoBSE, EMIS team meeting and focus group	8-10
MoBSE, EMIS representative interview	2
Gender Unit representative meeting + focus group	1
SQAD focus group	5-10
Headteacher interview + meetings	1 + 4
Parent interview	3
UNICEF representative focus group	1
Cluster Monitor	1

Table 4.2. Informants in the field interviews, meetings and focus groups

Role	Number of participants
Regional Officer	4
Cluster Monitor	2
Headteachers	1
SMC Chairperson/Member	3
Parent	1

Table 4.3. Informants of remote interviews in the last session

4.4.1 Data collection methods

Fieldwork in The Gambia

The fieldwork was a great method of collecting data by conducting interviews, observing the stakeholders, observing key processes, for understanding the context and getting feedback from participants. I took notes of every meeting, interview and observation in the field and summarized the notes each day so that the meaning is not altered later. Raw field notes were summarized, corrected, edited, and typed up in a google document. My field notes as well as the HISP members' notes, were a meaningful source to clarify my perspective on the SRC generation process and education system in the Gambia. I used my notes to understand the context, understand the obstacles of schools, understand the process flaws and the SRC tool content flaws. Fortunately, I was part of a group in the field, and I repeatedly validated my notes with the other members. The field work was fortunate to happen during the core time of the SRC distribution process and annual census questionnaire distribution. Therefore, we could attend regional meeting to distribute the Annual School Census questionnaire, the SPMM presenting the SRC, meet with SQAD, Cluster Monitors, parents, and other relevant stakeholders.

Reflections on the fieldwork

The informants were collaborative, welcoming whenever the research team from UiO and HISP network group was on site. Some of the insights from observations, meetings, and interviews in the fieldwork shaped the questions of later interviews done remotely as well as the new proposed versions of the SRC.

Interviews

The most common used methods in qualitative research are interviews and focus groups. The purpose of the research interviews is to explore the views, experiences, beliefs, or motivations of individuals in a specific matter. This qualitative method is believed to obtain a deeper understanding of a social phenomenon than what would be obtained from a quantitative method such as questionnaires (Gill et al., 2008, p. 292). Interviews are one of the primary data collection methods used in this master thesis. All the remote and in field interviews were semi-structured and open-ended. There was a theme of the interviews with some pre-specified questions depending on the informant. From the main questions then some discussions and questions derived throughout the interview. During the interviews, I tried to question the participants in a non-influencing approach, by asking for their ideas first and then asking about their opinion on some of the ideas coming from this research around the SRC and gender equity issues in education.

The interviews started during the field work and continued remotely after the fieldwork. I took notes during these interviews, in addition the other HISP members and I shared the field notes with whom I could compare, confirm, or discuss. We did not record the interviews in the field, so this was a drawback as I had to take my time to write down notes. I made sure that after each day during the fieldwork, I summarize the notes I took that day, in order to make sense out of my notes, and not diverge the comments and responses when later reviewed. Some of the collected data is also from an interview with a Gender Equity Unit representative in MoBSE. During this interview the common challenges when it comes to gender equity in education, gender-based violence and reporting mechanisms in place were discussed. Additionally, we discussed future improvements that could help solving issues of gender equity in education in the Gambia. During the fieldwork I encountered collaborative people and representatives who are open to change and improve the SRC and education in general. Interviews were conducted with MoBSE representatives, the SQAD team,

headteachers, cluster monitors, gender unit department representative, UNICEF GESI representative, and parents.

The interviews continued remotely on May 2022 for testing the new versions of the SRC and understanding better the regional dynamic in education that could be represented in the SRC through a dynamic indicator. The participants were selected purposefully as mentioned in section 4.3. The semi-structured interviews started by informing the interviewees about the study purpose and the interview purpose and assuring them on ethical principles that will be followed. The interviews were recorded therefore the consent form stating the usage of the recording, the interviewees rights during and after the interview which they signed. Recording the interview allowed me to focus on the interview and take the notes later. The interview proceeded with questions about the SRC, the dynamic indicator, general obstacles in the education process and then questions about gender equity in education. The gender equity questions were left for the end in order to not influence the thoughts of the informants on what are the areas that they would like to have an overview of in the SRC. These interviews were a source of valuable data from which most of the conclusions are drawn.

During the field work's interview with the UNICEF representative with the topic of Gender Equity and Social Inclusion (GESI). The gender equity in the Gambia, based on the meeting seems to be good in the enrolment phase but equity throughout education is an area to improve.

"People of different specialities should be involved in the process of decision making, not only the gender ones but also the other departments that specialize in different fields."

– Gender Unit department representative

Focus groups

"A focus group is a group of individuals selected and assembled by researchers to discuss and comment on, from personal experience, the topic that is subject of the research" (Powell & Single, 1996, p. 499). The focus groups were conducted remotely as well as in the field. In each focus group as well, I took notes and then summarized them. The topic of the focus groups was pre-specified and then new ideas emerged.

During focus groups with the EMIS unit, the SQAD team and gender unit representative I got to understand in a deeper level the current processes of the SRC production and presentation. Further, these focus groups were a source of new findings and new ideas on how to improve the SRC.

Observations

During the fieldwork in the Gambia, it was convenient for us to be there at the same time as the annual school census questionnaire was distributed and the SPM meetings were taking place. In this case, I observed the processes and communication between different stakeholders. The right actors (stakeholders) and some of the key processes around the SRC were observed, as mentioned in section 3.7. In the SPM Meetings, the SRC presentation was in local languages, so the notes of these meetings when the community was addressed are translation of summaries by MoBSE representatives. The notes from observations in the field were summarized and served as a key point of understanding the process in the local context.

Document collection

"Interviews should be supplemented by other forms data in an interpretive study, and these may include press, media and other publications on the sectoral context of the organizations being studied. Internal documents, if made available, may include strategies, plans and evaluations" (Walsham, 2006, p. 323). I collected and used documents relevant to this research, these documents gave a basic understanding of the context, organizational structures etc. Some of the relevant documents used were "School Management Manual" (MoBSE, 2020) describing the roles, responsibilities, policies in lower and basic education in the Gambia. Another informative document was the "Education Sector Strategic Plan 2016 – 2030" (MoBSE & MoHERST, 2017) to understand what the education system in The Gambia tries to achieve in this period of time. The tool used for the current in use SRC Figure 3.16, which is a MS Excel based tool, was another document used to understand how the SRC works and how the information in the SRC is generated. There were a couple of documents called the Year Book which I used to look at the data of the education sector and understand what data is collected (MoBSE - PPARBD, 2018-2021). The yearbook has aggregated data of the Annual School Census questionnaire data, EMIS data. These yearbooks were hard to understand as it is multiple pages of information in tables, which is not always the right type of data presentation.

Meetings

Meetings were mainly a method used to establish contact with participants and to get orientation on the understanding of the education system, stakeholders, and activities.

4.4.2 Ethical Challenges

In this qualitative research there are some ethical challenges that were considered and tried to be addressed in the best way possible. As stated in (Patton, 1990, pp. 277-278) interviews can affect people and their responses. The same way I feel about the observation process, while in The Gambia my interpretation was that the process was not affected by the UiO and HISP presence, I cannot be sure about it. In the conducted interviews, focus groups and meetings we tried to approach and formulate questions for the informants in a way that does not influence their thoughts and answers. When observing the processes, we did not intervene throughout the regular procedures that were conducted but we approached the participants once they finished.

Confidentiality is another ethical consideration. I did not collect data that tracks back to a specific person, however I considered their role in the education system and the SRC system relevant and assigned their statements to their roles. The participants collaborated voluntary and in the last round of data collection through Zoom, the interviews were recorded so the participants signed a consent form. The consent form informed participants of the motive of the interview and the study allowed participants to end the interview any time they wanted; allows participants to request deletion of the recording at any time by contacting me, and they were assured that after the recordings are transcribed, they will be deleted and not used for other purposes.

Time is also valuable, and we tried to be considerate and not take too much time of people from their regular activities. The participants in the field were not compensated to participate, but the remote interviews on the new versions of the SRC in the last data collection step were compensated for their travel expenses and time.

4.4.3 Participants

During this research a total of 35 participants were involved, in this number the observed stakeholders are not included but they reach a number are over 20 participants. Some of the participants were part of the HISP network who helped during the data collection and data processing, and the other participants were informants from the Gambia education system representatives or parents (caretakers) of the learners.

UiO research team and HISP network

As mentioned in section 3.2, HISP network has many groups who are involved in the development and implementation of the DHIS2. During the field work, part of the meetings, interviews and observations were my supervisor Terje A. Sanner also part of the HISP UiO, Sophia A. Kousiakis as a project manager, Kimberly S. Frost as a senior executive officer in HISP UiO, Bjørnar Valbø as a PhD candidate, and Jerry Aziawa director of implementations for HISP West Central Africa. The mentioned participants in the fieldwork by asking questions and opening discussions contributed to the data collection, as well as during the data processing on filtering the field notes and validating them.

MoBSE representatives

The MoBSE representatives were the main contact point that participated in arranging meetings, access to the informants, access to internal documents, part of focus groups, interview for the key processes, and every school visit. They also helped in arranging the remote meetings and interviews. Some of the MoBSE representatives that were part of the above mentioned activities are Alpha Bah the Head of EMIS and ICT units in MoBSE in the Gambia, Seedy Jallow a system analyst of EMIS at MoBSE.

Standard and Quality Assurance Directorate (SQAD)

SQAD representatives were a key point for allowing possible improvements and changes to the SRC. They were part of two focus groups, the first one remotely where we established contact and discussed what could be improved in the SRC. The second focus group was in the field, where the new possible features were presented to SQAD representatives. Their feedback and discussion were informative and affected the further improvement of the SRC to version 1.1 and 2.1 mentioned in section 5.2.2. In both focus groups they were collaborative, open to changes and improvements and shared their concerns and ideas for future work with SRC.

Regional Officers

Regional Officers from four different Regional Education Directorates were part of the remote interviews, sharing their challenges in their regions and their experience with the SRC. The regional officers' interviews were exceptionally informative about their regions obstacles.

Cluster Monitors

Cluster monitors were part some of the meetings, either during observations or part of the training when the ASC questionnaire was distributed. They were also part of the interviews, one in the field and two in the remote interviews. As they have a central role in the education system, their input was informative.

Headteachers

Headteacers had the managing role in the schools. While there were 5 school visits in the field that I was part of, on each occasion we met the headteacher who informed about some of the school projects, what kind of data they collect and for what purposes. The headteachers in each meeting were welcoming and did not hesitate to show their achievements as well as the areas they need to improve. One headteacher was part of the interview on the field and one during the remote interviews.

Parents

Parents as the targeted audience of the SRC were part of the observation process during the SPM Meetings, listening to the SRC presentation and contributing to the meeting. They expressed their concerns about their children and the performance. Three parents were interviewed in the field after the SPM Meetings and three during the last session of interviews. The parents. The SRC tool's goal in the Gambia is to increase the transparency and accountability of the school performance to the community, as parents are the majority of the community concerned about their children's performance their input was necessary and of great value in this research.

Gender Equity Unit representative

The gender equity unit representative from MoBSE was part of a remote meeting to establish contact, delivered a document stating their directorate main goals. This representative was also part of a focus group on the field where main challenges of both genders throughout education were discussed.

UNICEF representative

There was one meeting with one UNICEF representative with the topic of Gender Equity and Social Inclusion (GESI). During this meeting in the Gambia, there were important insights on the gender equity issues, vulnerabilities of boys, guys, policies in place and bullying in schools.

4.4.4 Technologies used for data collection

Throughout the data collection process, I used different technologies to conduct the interviews, analyse, validate and share data.

Zoom and Google Meets

Zoom and Google meets are video communication platforms that helped with remote meetings, focus groups and interviews. Starting the research remotely these were essential platforms. Zoom's record feature was used in the remote interviews which were reviewed after and deleted after transcribing the interviews.

WhatsApp

WhatsApp was used mainly to arrange schedules of meetings, interviews in the field work and remotely. This is a widespread tool in the Gambia for communication and using made the fieldwork arrangements easier and quicker.

Google Docs

Google Docs was the tool used to keep the field notes, share notes with the other HISP members part of the field work and cross-check the notes through comments. This tool was used to keep track of notes from literature review and notes from my courses that I found relevant to use in my master thesis research.

Diagrams.net

Diagrams.net is a free and open-source cross-platform graph drawing software that was used to visualize the progress, the goals, and other graphs for this master thesis.

4.5 Data processing

The collected data based on observation, interviews, meetings, and documents are data that require processing before analysing (Miles & Huberman, 1994, p. 9). During the data processing there was relevant and irrelevant data for the scope of this thesis, so I filtered out the data that was not within the scope that this thesis focuses on.

4.6 Data Analysis

The fieldwork in the Gambia had an impact on data analysis as I considered the context in the ground, specifically the resource capacities and the basic and lower education sector main concerns. The resource capacities in terms of human resources, technology resources, internet connectivity, access to electricity, etc. The field notes were a reference point when I analyse the data. The data analysis and data collection process took place iteratively.

During each data collection I took notes which later on the same day were summarized, "cleaned" and I expressed my interpretation of the informants' answers and collected data through observation.

The data analysis involved six main steps explained more in the paragraphs below.

The analysis process began with identifying the key data collection tools and processes and building a chronology of these processes.

The second step, I analysed the key informants and institutions/directorates involved in these processes around the SRC production and presentation. In regard of the key informants at first that I wanted to interview and collect data from were SQAD members and gender equity unit from MoBSE. In the field work, I observed the processes and the context therefore I identified new relationships between the key processes and other actors. The key informants

after the analysis expanded to involve parents, Cluster Monitors (CMs), Regional Education Directorate (RED) representatives and headteachers.

In third step of the data analysis, I identified the concerns discussed in the meetings with the headteachers, in the SPM Meetings and in discussion with the CMs. In this step I also identified that the SRC is not as intuitive as it should be and the SPM Meetings took a bigger portion of the time explaining the meaning of each icon without having one point of reference, a legend.

The fourth step of the data analysis was designing two optional new versions of the SRC. Version 1.0 (V1) including a dynamic indicator, a legend, and a colour shade on the columns representing the different administrative levels. Version 2.0 (V2) included everything V1 had but with changed icons representing the performance, drop-out rate and efficiency index values.

The fifth step I analysed the feedback from the small portion of the testing of the new possible versions of the SRC and the discussion with SQAD. In this stage during the analysis of the feedback I found out that the changes are welcomed from SQAD if they are needed and seem reasonable from the targeted audience. One of the suggestions was dropped and not further pursued due to the discussion about adding the local languages in the SRC being unnecessary. In The Gambia as mentioned during the context section 3.3.3 there are multiple local languages, and the school interprets the SRC in the locally most spoken languages. The idea on generating the SRC in the languages it is interpreted was dismissed after this data analysis step it as it was stated that most people only speak the local languages but not necessarily know how to read or write them. New feature ideas that could be informative and increase the accountability and transparency level of the SRC emerged during the feedback analysis. This step's data analysis led to the version 1.1 and version 2.1 of the SRC. In these versions the dynamic indicator is classified as process indicator and historical data feature is added to the SRC.

The sixth step is the final step on analysing data after the last remote interviews and testing of the version 1.1 and version 2.1 of the SRC. The interviews resulted in 5 hours of recordings with very valuable data that were transcribed using Word 365 transcribe feature. This transcribe feature speeded up the process and then the data was coded using NVivo by grouping the answers of all informants to each question.

4.6.1 Data Analysis methods

The data collected were written notes, documents, and 5 hours of video interview recordings. Working with all these data and making sense out of them required a lot of work and a method to approach the data analysis. This research aims to understand the informants' interpretation of the SRC, view on adding a dynamic indicator and view on the gender equity in education. To achieve this aim, the data is analysed using Thematic Analysis (TA) method.

Thematic Analysis

(Braun & Clarke, 2006, pp. 79-86) define thematic analysis (TA) as a method used to identify, analyse, and interpret patterns of meaning ("themes") within a qualitative data. TA provides accessible and systematic procedures for generating codes and themes from qualitative data. A theme expresses something important about the collected data and represents some level of patterned response or meaning within those data. This paper gives a step-by-step guide on doing thematic analysis. Guidelines in qualitative data analysis are not rules and the analytical processes and procedures can be different depending on the purpose of the study (Patton, 1990, p. 276). The guide (Braun & Clarke, 2006, p. 87) includes six phases, starting with familiarization with the data, generating initial codes of the data, searching for themes, reviewing themes, defining and naming themes and producing a report of analysis. Since this thesis project had the data collection and data analysis happening iteratively, the data analysis in itself was also a recursive process, going back and forth on re-reading, gathering all data relevant to potential themes etc.

As mentioned above NVivo was used to generate the most used words were in some of the questions and then further analysed by reading the answers again so the right conclusion can be derived. These words are used to code themes, some examples are rainy seasons and farming are grouped in one theme, household work and domestic chores are grouped in one theme and so on. In order to mitigate the bias, I used frequency of answers with the same key words to draw conclusions for regional differences and gender equity issues. The answers on the interpretation of the SRC were just grouped in one place but analysed manually as the interpretation was different and their understanding level was hard to be understood by NVivo coding themes.

4.6.2 Technologies used for data analysis

Microsoft 365 Word

Microsoft Word is a word processing software developed by Microsoft. The recorded interviews were transcribed using MS 365 Word transcribe feature. The transcribe feature converts speech to a text transcript with each speaker individually separated.

NVivo

NVivo is a software program used for qualitative and mixed-methods research. It is used for the analysis interviews, focus groups, surveys, social media, journal articles etc. NVivo can be a good help throughout the research process, from the thesis statement, organizing data, coding, and working with other researchers to systematic analysis like organizing information. NVivo was used in the last data analysis cycle.

4.7 Data conclusion and limitations

Braun and Clarke (2013) state qualitative research is generally influenced by the subjective view of the researchers (as cited in Rickmann et al., 2014, p. 11). To mitigate this bias, I carefully chose interview questions to not influence the answers towards what I thought were the issues. Additionally, I used TA method (Braun & Clarke, 2006) to analyse the data and find the themes that were more common in the collected data, therefore minimize bias.

This master thesis had a short timeline, therefore there are practical constrains in the data that could be collected and analysed within the limits of time. The time constraint also limited the scope of the thesis to focus on only one area that could be explored on being added in the SRC, although there were other concerns that the community brought up during the fieldwork.

The methods I used during this research had some shortcomings. The observation process during SPM Meetings was informative, but like mentioned in sections 3.7.11 and 4.4.1, the process was in local languages. We always had a representative from MoBSE, usually Seedy J., who helped throughout the process by translating and summarizing the main parts of the meetings.

During the fieldwork we were supposed to visit more schools but due to teachers' strikes in some of the schools. The strike was about administrative issues that is why it is not mentioned throughout this master thesis. There were changes on the SPM Meeting schedules by schools, therefore we were limited with a low number of school visits. The meetings and interviews in the field resulted in many notes, some of the statements from the participants were ambiguous. I tried to reconfirm my interpretation of the field notes with the notes of the other UiO and HISP representatives. The fieldwork provided a context understanding and assured access to the appropriate type of informants which later were interviewed remotely.

The remote testing interviews were delayed due to the schedules of the informants but everything went well, despite minor internet connectivity issues that did not affect the process.

In conclusion, even though there were limitations and challenges in the research process, they were mitigated by using appropriate research methods and approaches.

Chapter 5

Results

5.1 General findings

The structure and the indicators of the Gambian SRC, have not changed ever since it was first introduced. Although the SRC, represents key information about the schools, many feel that there is need for more information in the SRC in order to get a clearer picture of the situation in the school and the factors accountable for the learners' performance.

Since the SRC data comes from the Annual School Census Questionnaire and the WAEC examinations, the process of adding a dynamic indicator should utilize the tools that are already in place and not increase the data collection burden on the Cluster Monitors.

During this research's scope the focus was on finding out about regional dynamics in terms of education and gender related issues in the education system that can be included in the SRC. In the process, there were several other SRC features added to enhance the accountability, transparency, and user friendliness of the SRC. The research results on the regional dynamic indicator, the gender related issues and the additional features in the SRC are presented in the next sections.

5.1.1 Dynamic indicator

To turn data into action it is important that the data is processed and presented in terms of indicators and targets. It is important that relevant information is presented to different

stakeholders. Presentation of information is important to be aligned with the understanding of the targeted audience. It is also important that the relevant information reaches stakeholders who can use it to intervene and take action and make informed decisions.

Many stakeholders of the SRC, the EMIS team, the SQAD, the Cluster Monitors, gender unit representative, headteachers and parents, see the need for more contextualized information. The dynamic indicator is supposed to be optional and can be modified, replaced, or omitted based on the local regional priorities. The indicator should be informative and a decision of the regional offices in collaboration with different directorates and regional units. As the focus of this project is gender equity in education, a dynamic indicator in collaboration with the gender unit in the education is suggested. The dynamic indicator is suggested to be under the process category. As the process indicator will represent indicators to measure whether planned activities were implemented.

The informants during interviews and meetings expressed their concern on the teacher and student absence in school among other indicators that affect the learners' performance and are not captured in the SRC.

"... we have to go around to find out where the teachers were present or not and the attendance of the children ... in some schools you have 100% teacher attendance, but in other schools you have only 50% or 25% present. You cannot compare a school that has 100% teacher and children attendance to a school where you have 25% attendance of teachers and maybe 25% children attendance. You cannot compare these two. The one with more attendance will perform more because it's the same curriculum, the same syllabus that we are dealing with under the same exam that they are going to sit through. If there is no curriculum coverage with the low attendance and there are schools with high attendance who covered the curriculum, we expect that school to do better than the school that has low attendance."

– Regional Officer (Region 4)

This research' results on the regional dynamic indicator feature necessity come from remote testing. All the participants are aware of the regional dynamics and differences and 82% of 11 participants agree on adding a regional dynamic indicator in the SRC. The participants

that disagree on adding a regional dynamic indicator in the SRC argue that it will make comparison difficult between regions, but they are not totally against adding one.

"I am not totally against having the dynamic indicators, but it might affect comparison, comparing your school to another school, comparing your region to another region. The dynamic indicators may have an effect in the analysis in my opinion."

– Regional Officer (Region 3)

The informants were from five different regions and only representatives from Region 6 were not involved due to time limitation. The results from the interviews show that there are regional dynamics in the education system. Some of the most mentioned differences pointed out that Region 1 and 2 children are advantaged by better financial situation, more parents being aware of the education importance and less farm work. The informants additionally mentioned the school resource factors that to some extent the SRC already covers.

The informants answered during the interviews about their thoughts on what would be an informative dynamic indicator and mostly the answers were about teacher and learners' absence.

As the research tries to find out about the gender equity issues in the education system, and the differences between regions in this area, the questions on this matter were only discussed after the answers about the regional differences in general. As I tried to not influence the answers of the informants.

The majority 82% of 11 informants answered with several issues that they encounter for girls and for boys. The informants that answered in general about the gender equity not being an issue were followed with questions about the most common reasons of low performance at studies or drop-out from school for both genders.

In the enrolment phase most of the answers suggest that the education system is doing well and on most occasions there are more girls enrolled then boys. On the other hand, this is not the case with the completion rate of the education. Both genders face issues throughout the education that make it difficult for them to retain in school.

For girls, the main problems are early marriage which leads to dropping out of school and household chores which lead to poor performance. Some informants mentioned other issues

like teenage pregnancy which leads to girls dropping out of school, parents' attitude towards education etc.

Boys also face issues on retaining in school. Informants mentioned some of the most encountered issues for boys and they include financial problems in the family which leads to dropping out of school and looking for a skilled job. Rainy seasons in some regions is farming time and boys are kept from school, which leads to missing school and therefore poor performance. Other issues mentioned by informants include the so called "luma markets" in some regions which are weekly markets in the district happening during the school days, and they affect the attendance of the students which leads to low performance.

Since the SRC is an accountability and transparency tool, the dynamic indicator will be an added value and will help school plan the action points. The SPMM is a key event where the SRC is presented. The community including parents with the school representatives discuss the indicators presented to them that impact the performance of the children and their dropout rate. The informants stated that there are improvements in the enrolment rate due to some structural organizations and their activities in the community and at the schools. The SPMM can be the event where the issues mentioned above for girls and boys can be addressed if represented with an indicator in the SRC. Moreover, the dynamic indicator can be set up for a certain number of years and then changed when the regions make progress and later try to tackle other issues in the education system in their regions. Other obstacles not related to gender equity issues can also be addressed depending on the local priorities.

Figure 5.1. The dynamic indicator in the process category of the SRC

5.1.2 Legend

The current form of the SRC, does not contain a legend explaining the icons and their meanings. It is a necessity and it clears out the information that the SRC conveys. The SRC, as seen is a report that uses many icons, the most important ones are the quintiles that express the performance of the students and the quintiles that express the resources of the school,

district, region and country. As there are five values that a resource or a performance indicator can have, not all schools have all five of them in the SRC, so that may not give a clear picture on where the school stands in terms of performance or resources.

As an example, in some of the interviews if there were no double checkmarks, the parents or the headteacher of a school, thought that one checkmark meant that it is as good as it can be. The responses from the field testing were positive on adding the legend in the SRC. This way the SMCs that have no experience with the SRC can understand it quicker and better. In the figure below is the legend that is part of the new versions of the SRC.

During the last set of interviews, the informants were asked questions about the lowest and highest possible values in the SRC for resources or performance.

Out of 11 informants 64% had excellent understanding of the SRC and knew about the all the values that can be in the SRC. The 36% of informant had a low or average understanding of the SRC by knowing the values that were present in the SRC but not the values like coins or double X and misunderstanding the present values. Only one participant did not improve the interpretation of the SRC resource and performance values when asked again after showing the SRC version 1.1, Figure 5.7, with the legend included and explained. All participants agreed that adding the legend will enhance the understanding of the SRC if its purpose is explained.

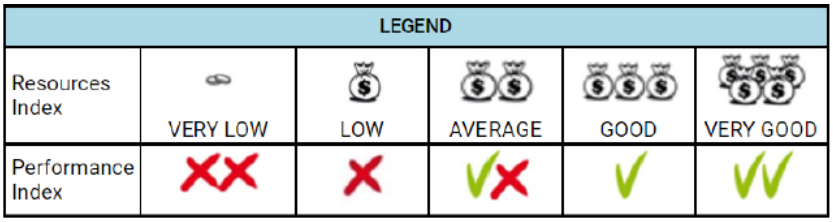


Figure 5.2. The legend added on the SRC

5.1.3 Language

As mentioned, The Gambia is a country with the official language English, but with many other local languages. The SRC is presented to the community in the SPMMs using the local languages, therefore the idea of making the SRC in different language arose. Even though the local languages are used, we found out that most population speaks these languages but

cannot write or read them. After this finding, the idea of adding the language feature in the SRC is not pursued further.

5.1.4 Icons

Icons are a fundamental part of the SRC. Therefore, any addition in the SRC, like a dynamic indicator, should have in its process of establishment the decision of the icon that will represent the indicator. Additionally, a dynamic indicator's values will have to be represented by quintiles icons that convey to the community their meaning. For the quintiles utilizing the ones used for resources and performance is better as it will not lead to more explanation of icons during the SPMM but will focus more on the information of the SRC.

This project also presented the idea of changing the current icons, as I observed confusion on their meaning by the informants. This was tested in the field as well as remotely with the SRC version 1.1 and version 2.1 explained more in sections 5.2.1 and 5.2.2.

5.1.5 Background color in the different administrative levels

Another observation while asking different stakeholders to interpret the SRC, especially people that have no prior experience on it, is that of reading the resources indicators category, the performance category and the efficiency index as separate tables. In order to make it clearer and more intuitive I added shade behind each column, as seen in the Figure 5.3, sample C. This detail was a good change based on the testing in the field, and remotely. It gives the table of the SRC the direction flow of the information and the one presenting the SRC can reference to the color. Although one of the participants said *"…it is not very vital as people already understand that one building represents school and then three buildings represent district and so on"* - Headteacher. Out of 15 informants from different levels and different regions 93% think that this change will make the interpretation easier.

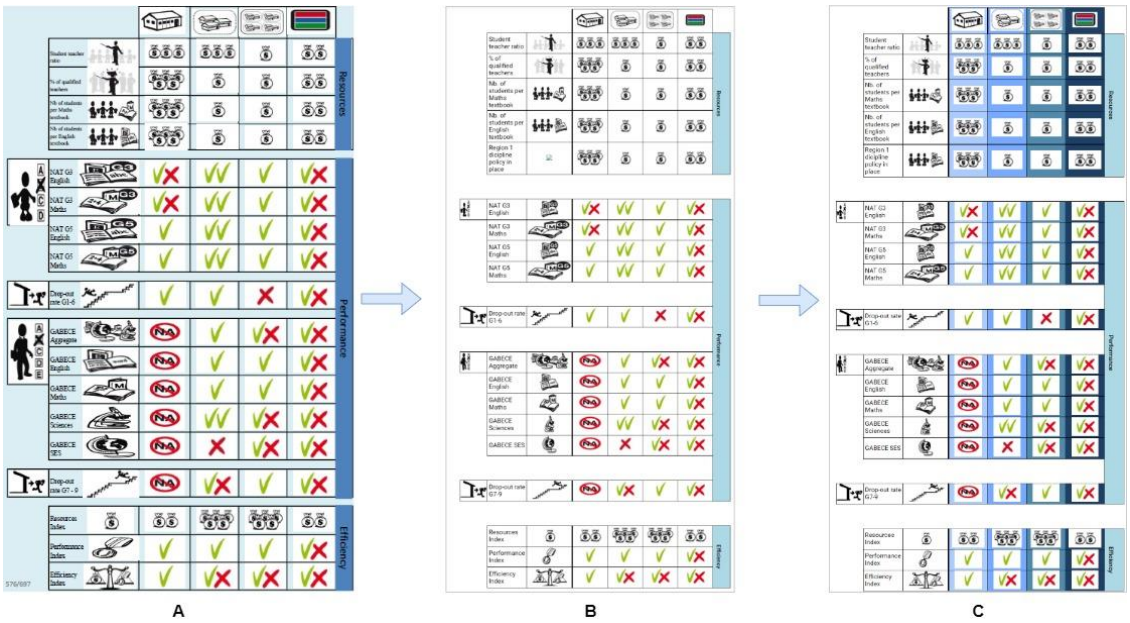


Figure 5.3. Adding background color in the columns representing different administrative levels in the education system

5.1.6 Historical data

To increase the accountability and transparency of the SRC and the information that it conveys a new feature is presented called historical data. Adding historical data in the SRC is a result of the idea that current resources do not necessarily show the results in the performance in the exact same year. As an example, if the resources are increased in 2021, the school needs to utilize those resources maybe for a year until they reflect improvement on the learners' performance, Figure 5.4. In addition, the school management and the community will be able to see the trend on which the school is improving or not improving. This additional element in the SRC can be a good reference point for the community and the school itself on how are resource indicators and possibly the dynamic indicator affecting the performance of the learners over the years. This feature was presented to the informants after a focus group with SQAD in the field where they agreed on it being a possible valuable feature. All 11 participants agreed that the historical data information in the SRC will help them understand their current situation better and in strategic planning of the school.

"It's relevant to have it. It will serve as a benchmark. You know, for this school to know actually compare their results for this year against that of the previous years... It will support them in the implementation of their future programs."

– Cluster Monitor (Region 3)

"It's very important it is indicating the trends of performance so it is informative, and it will help in the strategic planning as well."

– Regional Officer (Region 3)

"It is good to compare over the years. Sometimes in fact even now I am comparing the performance of my school. I went to that school in 2010 and I compare from 2011 up to present performance. …If my performance last year was better than this year, I do ask myself what the reason is…then if I gathered my own analysis, I contact my teachers to also get information from them. I contact my students, then I try to analyse all these three perspectives and see what my problem is and work on that. I would like to see it in these data SRC."

– Headteacher (Region 5, south)

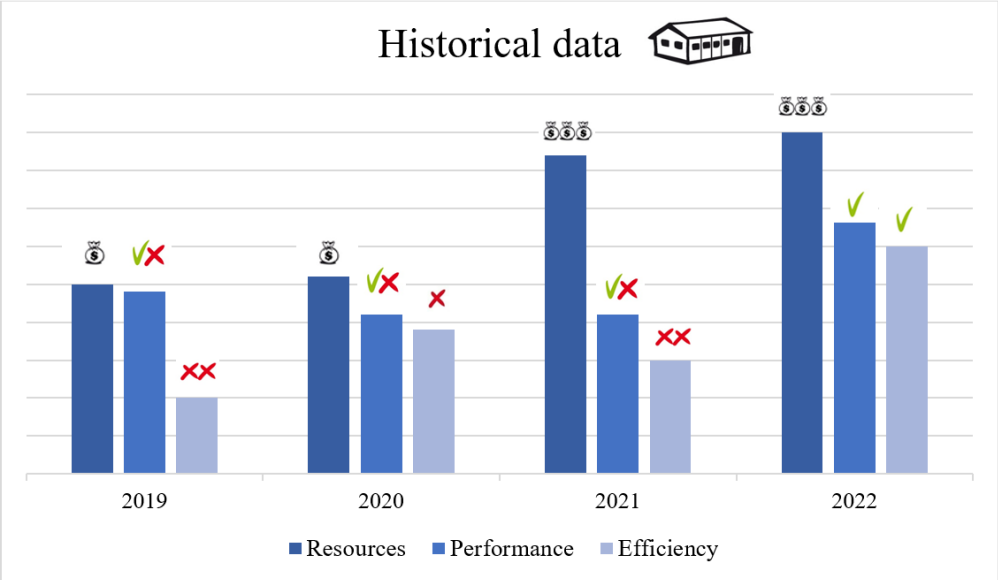


Figure 5.4. Recommended Historical Data feature

5.2 Testing, prototyping and findings

Based on the ideas of improving the SRC, and the inclusion of gender equity indicators in the SRC, I designed some versions of the SRC with some changes and some additional indicators. During the fieldwork in The Gambia, I had the opportunity to test version 1.0 and version 2.0 in the ground as well as present the ideas to SQAD. The testing continued remotely as well. The on field testing resulted in new ideas which affected the remote testing and the versions of the SRC presented to the informants.

Adding a dynamic indicator in the regional level that represents more local obstacles and focusing on gender equity issues that could be probably represented in the SRC was tested on the field and remotely. Additionally, the other features mentioned earlier were also tested.

5.2.1 Field testing

The on field testing in February 2022, was time limited therefore the number of informants were limited. The informants in this case were two parents, one Cluster Monitor and one Headteacher. The interviews were informative since the ideas were presented and then later on changed during preparation for the remote testing which happened in May 2022. The testing started with questions on their understanding of the SRC and obstacles that they think are not presented in the SRC but affect the learners' performance. The first version of the SRC presented to them was the original one Figure 3.12. The second version of the SRC presented to informants was the version 1.0, and on the field testing the last was version 2.0. The testing happened in the field after SPM Meetings with parents or school visits.

SRC version 1.0

The dynamic indicator is added in this version, and it is included in the resources category, in the last row. A random example of Discipline Policy in place indicator is represented as a dynamic indicator. This dynamic indicator came up as on the field during meetings the parents and school representatives from Region 1 and 2 expressed their concerns on the discipline of the children during lessons.

The legend at the bottom of the page is added to explain the possible values from very low to very good. The icons are not changed from the original version of the SRC but only presented in the legend.

The background of each level in the SRC is represented with a different shade of blue.

The language feature that was supposed to be integrated in the SRC application in the DHIS2 is in the top right.

They were asked to interpret the SRC's specific resource and performance values after explaining to them the legend. Informants' interpretation improved with the SRC version 1.0, Figure 5.5, as they could understand the legend and referring to it read the SRC correctly.

The dynamic indicator feature was also discussed, and the participants expressed the need for more information from the SRC.

"Further develop the SRC, add more information so that we can have a clearer picture on why that performance is caused."

– Cluster Monitor (Region 1)

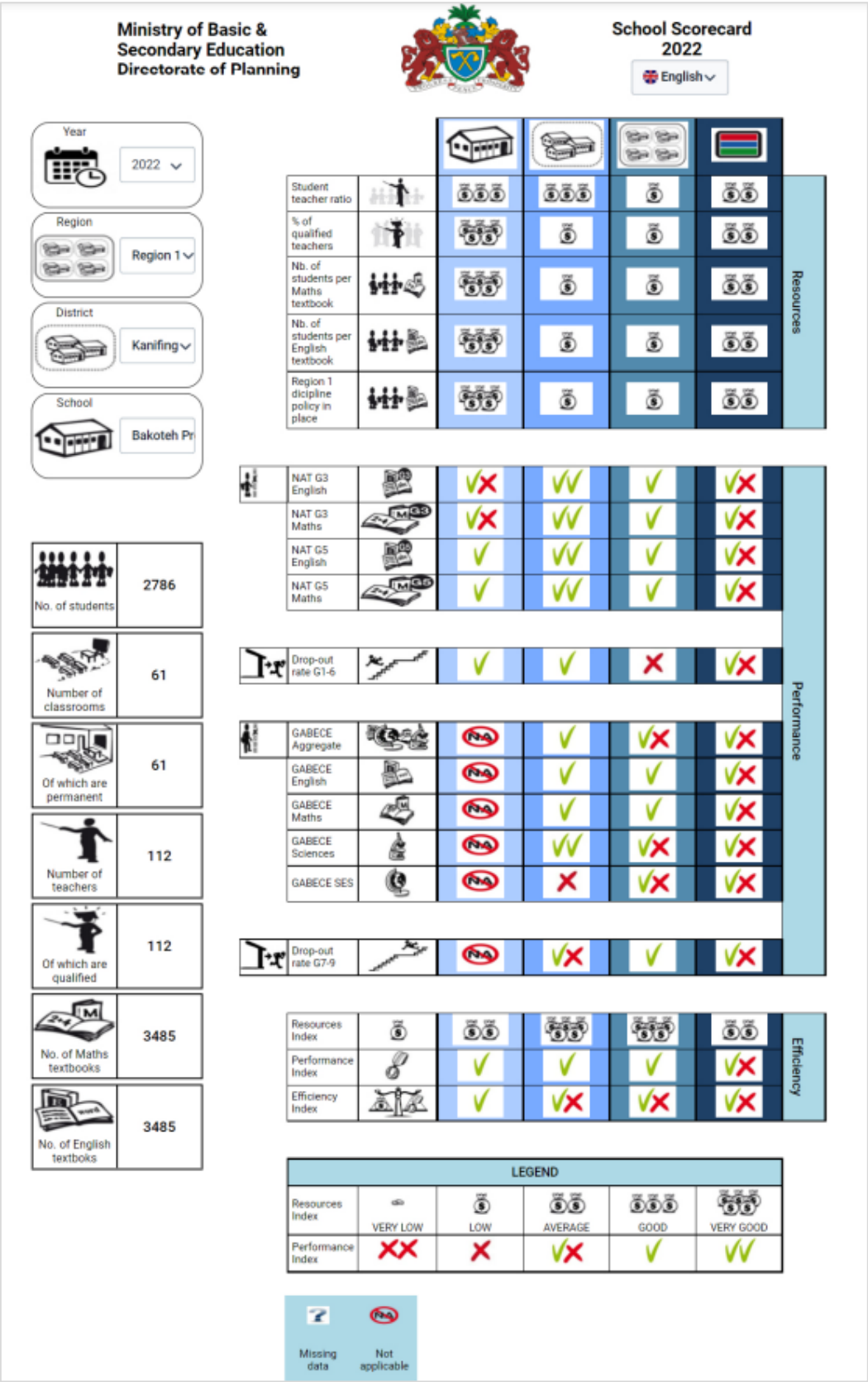


Figure 5.5. SRC version 1.0

SRC version 2.0

This version introduces new icons in the SRC, the idea of changing icons came the SRC not being as intuitive to people as it should be. The other features are same as in the version 1.0 as seen in Figure 5.6.

The informants were again asked to interpret the SRC's specific resource and performance values after explaining to them the legend.

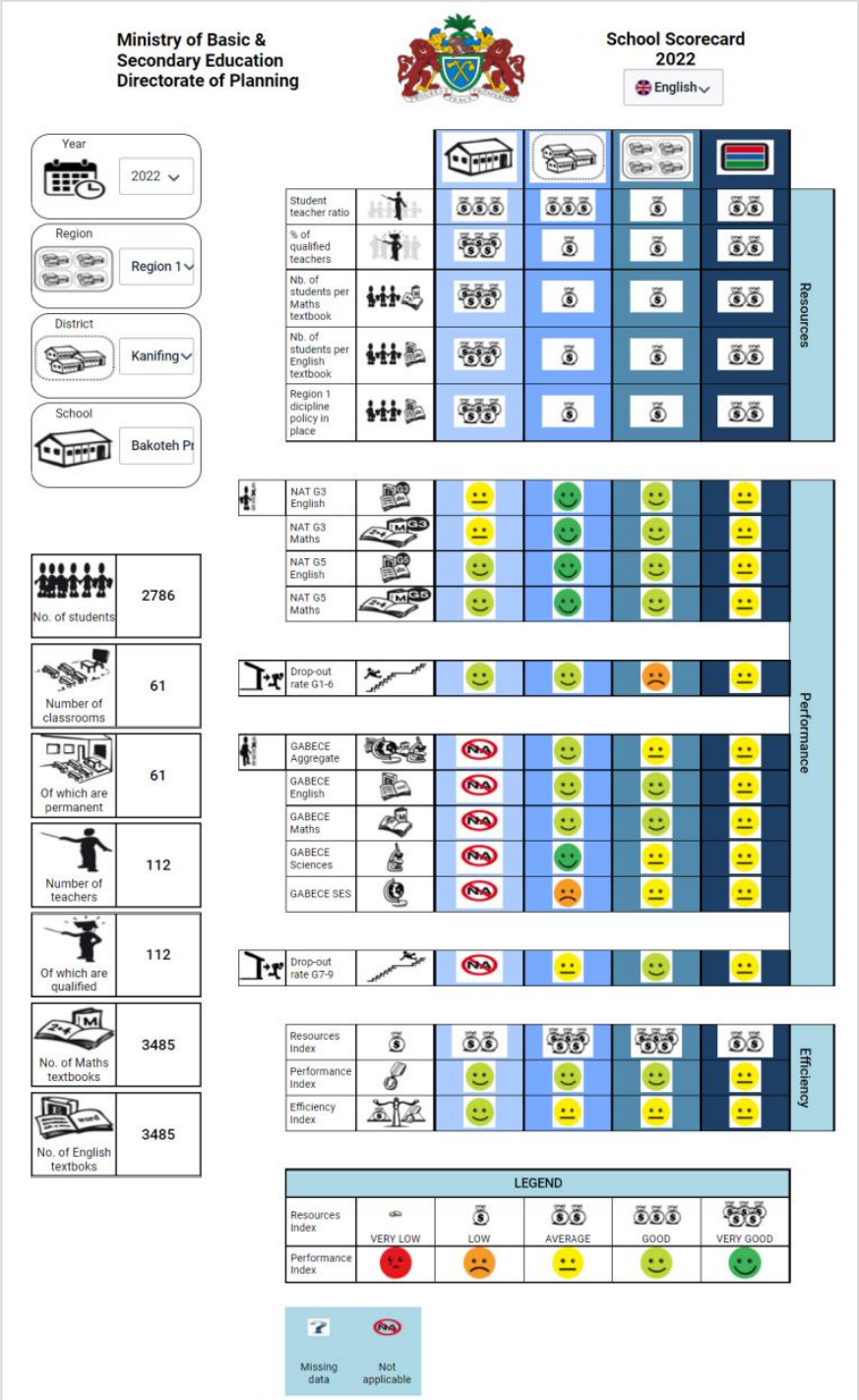


Figure 5.6. SRC version 2.0

Results

The on field testing resulted in all participants agreeing that the legend makes the interpretation easier. The background color makes it easier to understand the level that you are looking. On the other hand, 3 out of 4 informants disagree on changing the icons and

prefer version 1.0. The most mentioned factor that affects the learners' performance is parents' involvement in their children's education. As a dynamic indicator the agree on adding one and suggest the parents' following up on their children.

5.2.2 Remote interviews

The remote interviews continued in May 2022, with some delays. The informants' roles are selected purposefully after a better contextual understanding of the education system, stakeholders and processes involved with the SRC and SPMMs in the field in Gambia.

The versions changed from those on field as a result of on field feedback and comments.

The language feature is removed and not pursued in these versions as a result of understanding that local languages are mostly just spoken and not written or read by the population.

The dynamic indicator is moved from the resources category on a process category. This is a result of on field discussions that the resources (input) and performance (output) indicators are in the SRC, but the process indicators are not covered. Some of the informants mentioned factors in the interviews that could be included in the SRC, and fall under the process category. The learners' absence affects their performance and the reasons that lead to absence in school are different for boys and girls as mentioned in section 5. This could be an easily integrated dynamic indicator that is used until the issue is mitigated through school representatives, parents, and wider community discussions in the SPMMs. The regions that are concerned with farming and rainy seasons or regions where girls are occupied with household work and miss their lessons can address the issues by bringing them up for discussion when data about learners' absence is presented to the public in the SPMM.

Another indicator non-gender equity related that informants mentioned during interviews was the teachers' absence which leads to them not completing the curriculum and therefore impacting the learners' performance.

These indicators would increase the accountability and transparency of the SRC tool and lead to better and clearer overview of the situations in schools and what actually should be addressed to improve the performance.

During this research some of the informants mentioned indicators that are not process indicators but resource indicators, as now in the digitized SRC tool, the dynamic indicator can be adapted to address the obstacles that they find relevant at a certain period of time. Some of those indicators are school facilities like water, electricity, internet connection, computer laboratories etc.

The completion rate for girls is an example of a dynamic indicator represented in version 1.1 and version 1.2 shown in the sections below.

The historical data feature after the field discussions with SQAD is presented and we agreed on testing it, the version 1.2 and 2.1 of the SRCs shown in the next sections have this feature.

Test plan

The remote testing plan started during the fieldwork. The basic ideas were to select different stakeholders of the SRC and these stakeholders to be from different regions of the Gambia, so we have diversity on the opinions.

I selected the informants' roles and delivered to the MoBSE contact points who further recruited the informants and arranged their travel to the interviewing location. The informants were compensated for their travel expenses and time.

The plan consisted of recording the interviews as I wanted to focus more on the informants' answers and not spend time taking notes while they answer.

I wrote remote testing interview guidelines and prepared the necessary documents used during the interviews, sent them for review to the supervisor and then to the contact points at MoBSE.

The interviews were semi-structured therefore some basic questions were prepared and in some cases based on the informant's responses were followed with other questions. The questions were open-ended and answers required reasoning or examples from the informant's experience.

Recruiting informants

As mentioned in section 4.3 choosing informants was a conceptually-driven sequential. After literature review and field work, I selected the roles relevant to interview that would give relevant information and contribution to the study. The selected roles and possible number of informants with some requirements about diversity in region representations was given to MoBSE representatives. MoBSE contacted SQAD team and as throughout the whole research process they also helped in recruiting adequate informants based on the requirements.

The interviewing location and interview supervisor

The interview location was in SQAD offices in Banjul, Gambia where the informants were given access to a laptop with internet and the SRC physical copies (the original version, version 1.1, and version 2.1). I was located in Lillestrøm, Norway and the interviews were conducted and recorded through Zoom. The interview supervisor was Halifa Faye a MoBSE representative. The interviews supervisor set up the interviewing device and provided the required documents, he intervened in cases of internet connection problems, helped translating to one participant that did not understand English well, scanned all the consent forms, and sent them to me.

The interviewer

I conducted the interviews, coordinated the process and conversation, asked the pre-prepared questions as well as followed with more questions if necessary. I tried to no push my thoughts on the informants therefore carefully ask questions to mitigate the possibility of influencing the informants' answers.

The interviewing process

The interviewing started by informing the participants of their rights, the purpose of the research and about the recording of the interview and signing the consent form. The recording started only after the informant signed the consent formed.

The interview continued by getting informants' details about their role, their region, their experience with the SRC and their attendance in the SPMMs. Some of the informants gave extra details about their years of experience and background, most of the Regional Officers that participated were previous teachers or Cluster Monitors that had worked before with the

SRC and participated in SPMMs. If relevant they gave information about whether they represent a rural or urban area school.

The interview continued with three sets of questions starting with questions about the SRC original version, then with questions about SRC version 1.1 and questions about SRC version 2.1 explained more in below sections. Lastly, the informants were asked to choose the SRC version they find the easiest to interpret including the original SRC version.

Firstly, the informants were asked about interpretation specific values of the resources and performance in the original version of the SRC Figure 3.12. Additionally, they were asked about factors affecting the learners' performance not captured in the SRC, regional differences on the obstacles encountered in the education and gender related issues. If answers to gender related issues were summarized as to being addressed due to the enrolment data showing that the number of girls' enrolment is higher than boys enrolment, then they were asked more specific questions. The questions were about reasons of girls or boys dropping out of school, performing lower in school etc.

SRC version 1.1

The interview questions continued about the SRC version 1.1 shown in Figure 5.7 and its new features. The questions were related to dynamic indicator in the process category, what they think about adding such indicator in the SRC and an example of what their region could add as a dynamic indicator. They were asked to interpret the SRC's specific resource and performance values after explaining to them the legend and later were asked if they found the historical data feature relevant to be in the SRC. Additionally, the informants were asked about the background color in the different education levels columns if they find it as an added value to the SRC, improving their understanding of the SRC.

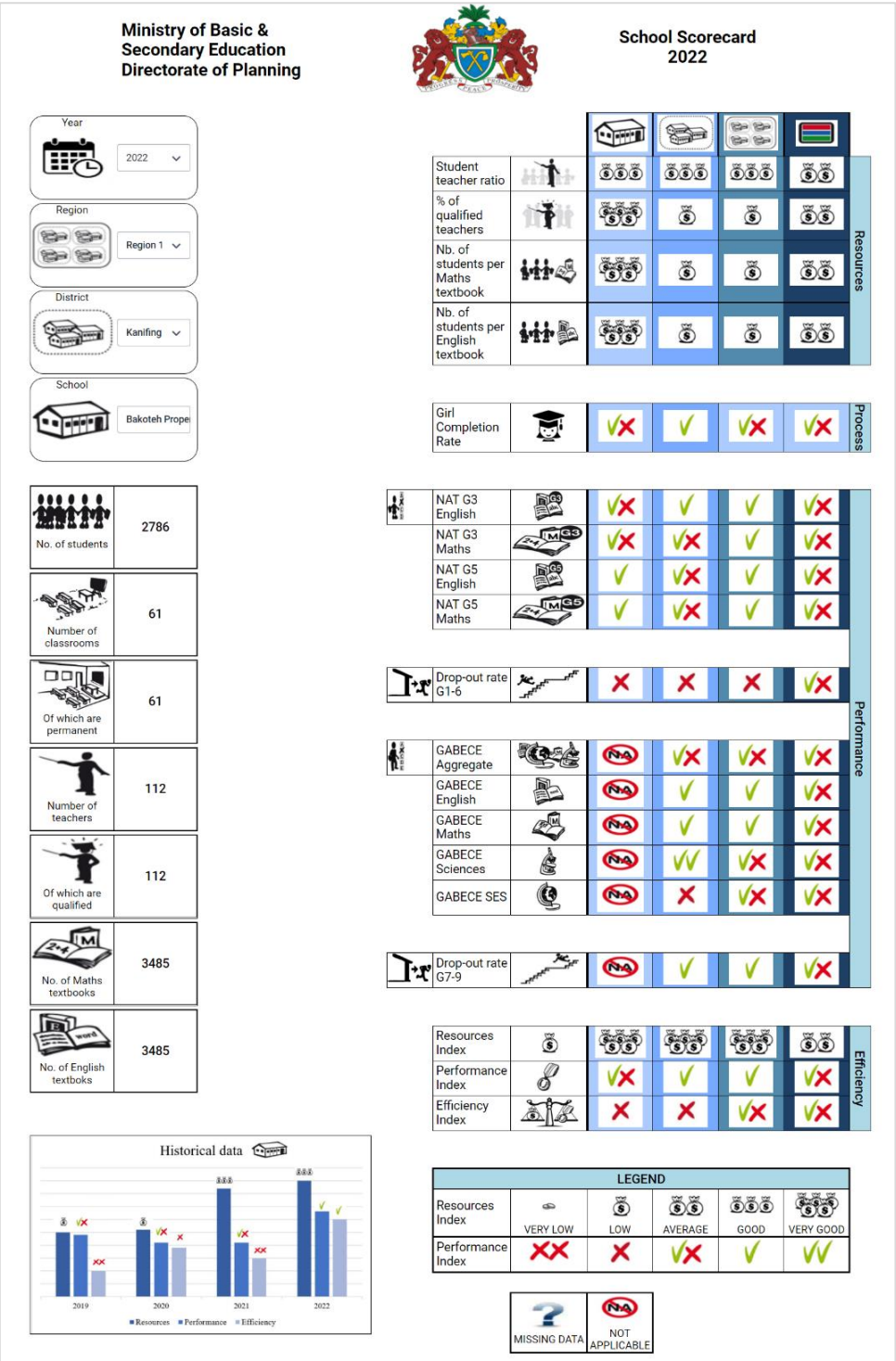


Figure 5.7. SRC version 1.1

SRC version 2.1

The interview continued with the SRC version 2.1 questions. Since the only thing different from version 1.1 are the icons representing the values of performance indicators, drop-out

rate, and efficiency index the informants were only asked to interpret specific values of these indicators. These “smiling faces” icons were proposed to make the SRC more intuitive. They were also asked about possible better or worse values that the school performance could have.

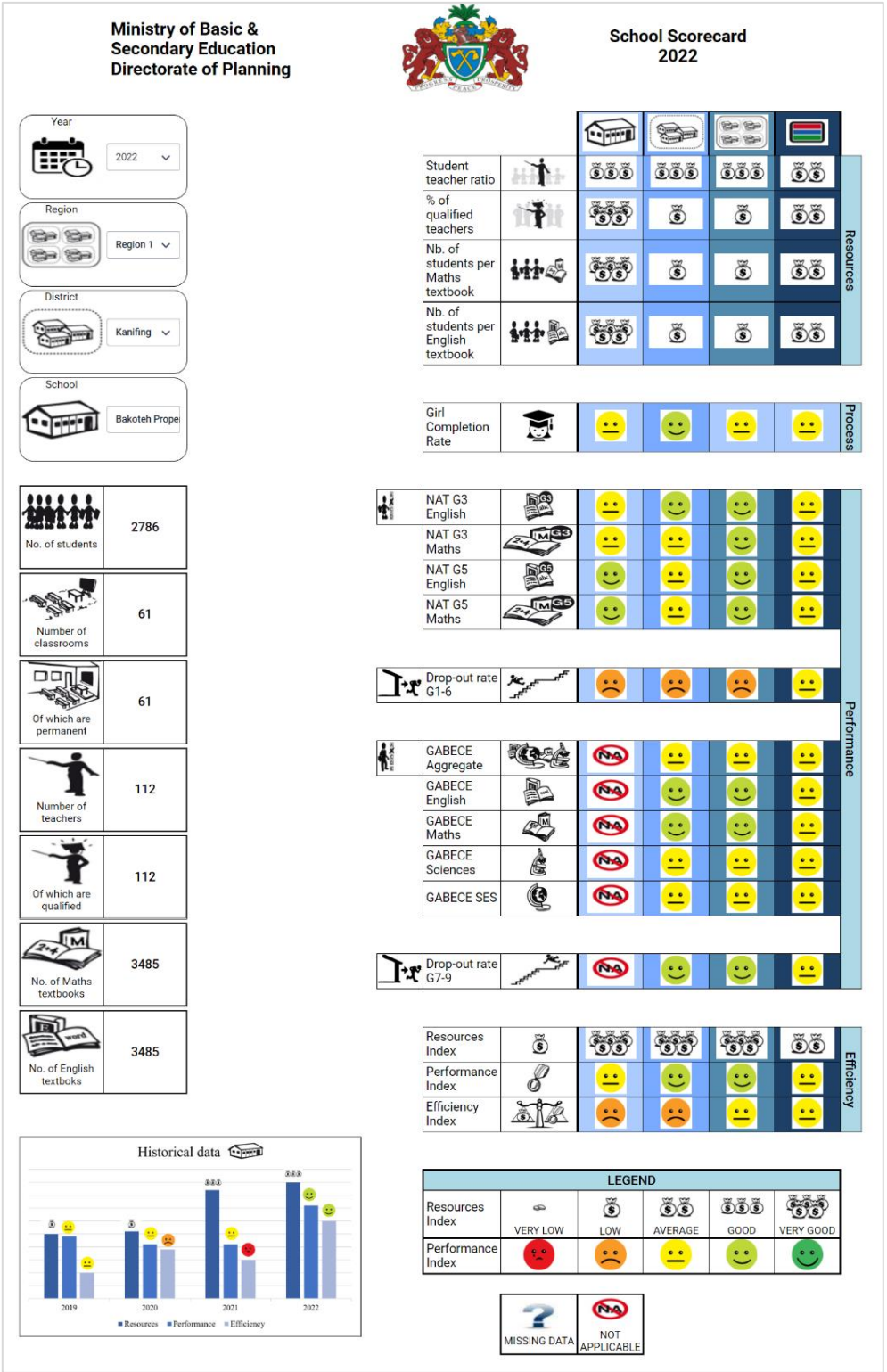


Figure 5.8. SRC version 2.1

Results

The interviews resulted in quality data as the informants gave relevant information. The following results are presented as a result of data analysis from answers of different informants.

The last question in the interviews was choosing the version they find most intuitive and informative. The majority chose version 2.1 with the "smiling faces" icons.

SRC version	Most intuitive and informative
SRC original version	2
SRC version 1.1	3
SRC version 2.1	6

Table 5.1. Remote interviewing results on the most intuitive SRC version

The majority of the informants agree that there are regional differences and dynamics that affect learners' performance, some of the most mentioned differences are presented in Table 5.2. Most of the informants pointed out the regional differences in the education obstacles that affect the learners' performance by referring to how Region 1 and 2 are more advantaged. The parents of these regions are more aware of education importance, they have better financial situation, the children are not affected by rainy seasons as much as other regions, they have more qualified teachers, more material resources etc.

"Most of the other regions during the rainy season attend the farm and it takes time before the learners report back to school but here for Region 1 and 2 sometimes September is normal, everything goes normally."

– Parent (Region 1)

"The parents of Region 1 and 2 are more aware of the values of Western education than parents in the other areas … financial status of parents in Region 1 and 2 is far better than parents of other regions...In these regions there are physical materials that encourage learners to participate in school. So obviously there is a difference."

– Headteacher (Region 5, south)

Regional differences	Frequency
Parents' awareness of education importance	5
Rainy seasons affecting attendance of learners	4
Family financial situation	3
School facilities (electricity, water, internet, computer laboratory)	5
Qualified teacher distribution	4
Luma markets	2

Table 5.2. Regional differences that affect school performance

When it comes to gender issues most of informants agree on there being obstacles for both genders on pursuing education. Some of the most common answers are presented in Table 5.3. Some of the gender related issues are actually the same or connected to the regional differences. Parents' awareness on education importance affects the learners' performance or is a reason for learners to drop out. Rainy seasons are a reason of boys being absent in school and therefore missing parts of the syllabus leading to poor performance. The links between regional differences and gender equity issues are relevant to this study as it discovers the possibility of representing gender equity issues through dynamic indicator in the SRC in the regional level.

Girls	Boys
Early marriage	Farming (rainy seasons)
Parents' attitude towards education	Family's financial situation (pursuing skill jobs)
Household work	Luma markets
Teen pregnancy	

Table 5.3. Gender equity obstacles in pursuing education

Chapter 6

Discussion and Analysis

The aim of this chapter is to analyse and discuss the findings in relation to the research question.

RQ: How can a dynamic indicator, with a focus on gender equity, be integrated in the digitized Gambian School Report Card and in what ways will it be informative?

This research question led to the discovery of gender disparity and local disparities in the Gambian education system in general, and also highlighted the need and opportunities of re-designing it. New features like a dynamic indicator on a regional level can especially add value to the current design and functioning of the report card system. The majority of participants stated that there are regional differences that lead to poor performance of the learners. The gender equity issues are present and cause poor performance or not completing school for both genders.

This research implies that a dynamic indicator representing gender equity issues can be integrated in the SRC. A framework based on the educational structure of the Gambia and the research results on how to integrate such an indicator is proposed.

The report on reviewing the SRC across 14 countries mentioned in section 2.2.2 state that inclusion of all aspects of education, inputs, processes and outcomes expands the available school-level information. The evidence on participatory design approach of the SRC tailored to the community needs show community ownership and willingness to participate and improve the education outcomes, like in the Uganda's case. Involving stakeholders in

decision making and tailoring the SRC indicators to community needs shows that it can influence positive behavioural changes and increase the school's performance. Another mentioned detail in the SRC's is that community in Uganda uses "smiling faces" as a scale for school's performance, and they are the ones deciding on the representation icons too. The participatory approach can be a challenge if there is no capacity-building around it to define and measure the indicators.

This research builds on top of the participatory approach of the SRC. It introduces the process indicators in the Gambian SRC which is the missing aspect of the education in the SRC, since it has input indicators in the resource category and output indicators in the performance category. The research proposes an optional dynamic indicator that is tailored to regional level community needs. Another aspect that is addressed through the research is the user friendliness of the SRC, some of the proposed changes are meant to increase the understanding of the SRC, accountability and transparency. To mitigate the challenges of using a participatory approach the research proposes a framework to be followed in the decision making of the dynamic indicator. As comparability is also important to have and it exists in the Gambian SRC, adding a dynamic indicator would not disturb the district and regional level comparison. The change of icons in the SRC version 2.1 results in the version that the stakeholders find the most intuitive, therefore the inclusion of participants in the icons decision as well leads to better understanding of the SRC.

During the interviews, as mentioned in section 5.1.1, I identified a tension between local relevance of the SRC information system and its comparability across regions and schools. The results show more informants favouring the local context, but the comparability is a relevant factor as mentioned in section 2.2.2 it increases competition and social pressure for schools to improve.

As mentioned in section 2.1 that it is necessary to balance between the local contexts and the need to standardize across context, in this case the dynamic indicator is not hindering the opportunity to compare the efficiency index across schools within a district or a region, but it does affect comparing across regions and the whole country. However, since the other part of the SRC, besides the dynamic indicator would be standard, with the flexibility of the DHIS2, the comparison between the standardized indicators will be possible. The literature suggests that the process of finding a balance between the local and need to standardize

should ensure flexibility technically and politically on different organizational level. The suggested framework tries to involve the different organizational levels in the process of including a dynamic indicator tailored to the local context, in order to have flexibility across the organizational level, since the technical flexibility is provided by DHIS2.

The mentioned Nepal's Equity Index, section 2.3, explores the idea of contextualized indicators based on the districts' needs. The data shows that it was a successful intervention in improving children inclusion in schools. The Equity Index assesses disparities across the education sector in Nepal. The index ensures that action is taken to respond to the needs of children facing the challenges to access or stay in school and ensures that resources get to where they are most needed.

A standardized approach throughout the country when there are differences present and there are no equal opportunities for education is hard to address issues. The dynamic indicator would be contextualized and periodical to the challenges faced by schools in different regions. The SRC presentation and discussion leads to action plans and awareness of the problems, the stakeholders will have an ownership of the dynamic indicator and them setting the indicators tailored to their needs would lead to more effort put on tackling issues.

The results from interviews and testing of the re-designed SRC suggest that a dynamic indicator is necessary and welcomed in the Gambian SRC by the SRC stakeholders. Gambia seems to have introduced measures like the feeding program and the Mothers club, which have had their impact in the society and the gross enrolment rate mentioned in section 3.3.8. Adding a dynamic indicator and addressing issues through evidence, presenting it in a meeting with the community, and getting ideas for the school action points on how to address the present issues will lead to a more effective use of the SRC. The School Performance Monitoring Meeting (SPMM) is a key event with the community, and parents' participation and presenting contextualized indicators that affect learners' performance would increase the accountability and transparency towards them. In addition, the credibility and the efficacy of the SRC will increase as the action points from the SPMM can be based on more evidence and the improved performance will lead to increased credibility of the SRC in the community. The evidence presented through indicators in the SRC will open discussions in the SPMMs and lead to solutions or awareness of issues present in education in a local level. By adding

a dynamic indicator, the tool will become more versatile, and can be adopted by other countries facing similar challenges in their education system.

As the literature on the School Report Cards from section 2.2 states that decentralization and an increased emphasis on community and parent participation represent significant education reform trends. These reforms require that information to be available to all education system stakeholders, local, regional, school officials, and communities in order to increase transparency, accountability and provide tools for effective management at the local level. Since the SRC is used at a local level, a dynamic indicator can be inserted to accommodate the challenges and opportunities of the local context. By experimenting with dynamic indicators, different regions can also learn from each other based on their success vectors and failures.

Regional differences are present and the stakeholders are aware of these differences. Representing these differences with an indicator tailored to their context is a good approach in tackling their challenges and improving the schools' performance. This does not hinder the opportunity to compare the indicators with other schools as the schools within a region therefore within the districts of that region would have the same set of indicators.

The results show that gender equity issues in the Gambian education system have been tackled and it had an impact on the enrolment rate. On the other hand, there are gender issues that make both genders either drop-out of school or perform low. These issues are mostly due to parents' awareness on children's education importance or financial issues in the family.

In section 2.2.3, it is emphasized that the information is relevant if data are understood and used, and the information should be presented in a simple way that the targeted audience understands. The results from this research also show that the community finds the SRC more intuitive with the "smiling faces" and proposes the changes in the Gambian SRC design by replacing some of the icons with what they find more intuitive. The legend in the SRC from section 5.1.2 results to be successful in increasing the understanding of the SRC of all stakeholders.

6.1 Theoretical contributions

This research contributes with a framework on adding a dynamic periodical indicator in a digitized School Report Card. Participatory design approach of the dynamic indicator can lead to difficulties in calculating or collecting the necessary data therefore having a framework to follow before adding a dynamic indicator mitigates these challenges.

As mentioned in section 2.2.2 the participatory approach of the SRC needs capacity building on defining indicators and measuring their values. To contribute to the SRC literature I propose a framework on how to mitigate the identified challenge. The framework takes into account three types of indicator based on the content the SRCs usually have, involves the community level stakeholders in deciding the SRC's content, the representation of the indicator and its values, as well as its measurement. The framework can be followed as it is, or adapted to the country's needs. The framework follows the education sector terms and stakeholders but can also explored and adjusted to other sectors that use these type of performance tools.

A dynamic indicator is an indicator that is contextualized and periodical. The indicator is contextualized in a lower education structure level and not generic for the whole country, as not all the regions of a country have the same challenges. The dynamic indicator is periodical as it will change once the context and the situation in the lower education structure level changes and another dynamic indicator can be introduced. The idea is to have a dynamic indicator in the regional level that would allow region and district comparison between schools which is already in the SRC under the same set of indicators. This indicator gives more power at the regional level, increases accountability and transparency, and increases the opportunity to solve specific obstacles that schools in a region are concerned about.

The suggested solution on deciding for the dynamic indicator to mitigate challenges of defining and measuring the indicator:

- Involve different departments on the regional level and in discussion with the schools and community representatives propose indicators or areas of concern affecting the schools' performance
- Discuss on deciding on one dynamic indicator by asking questions like:
    - What type of indicator is it?
        - Resource (if it measures the resources a school has whether material/infrastructure or human resources)

        - Performance (if it measures the performance of the students)
        - Process (if it measures whether planned activities took place)
    - What is the definition of the indicator?
    - Does it affect the schools' performance and how?
    - Is this indicator informative and of interest to the community (the audience of the SRC)?
    - How would you measure this indicator?
        - Make use of the data that is already collected through different data collection tools like the ASC, the teacher attendance or other means of data already being collected at the schools-
        - If you need new data collected:
            - Plan the data collection (either include it in your region's ASC questionnaire or specify how you want to collect the new needed data, keeping in mind to utilize the current processes in place if possible for an easier procedure).
    - What icon will be used to represent the dynamic indicator?
    - What icons will be used to represent the dynamic indicator's values?
        - If possible, utilize the icons that are already representing values of indicators in the SRC.
    - What can be the values of the dynamic indicator?
    - How will the values of the dynamic indicator be interpreted (if it has the lowest value what does it mean until the highest value)?
    - How will the efficiency index be calculated including this dynamic indicator?
    - How many years do you want to include this dynamic indicator for?
        - Possibility to extend the period based on the region's needs.
    - Offer possible solutions (plans and strategies to be followed) in case of the school having a bad/low value in this indicator. Some examples:
        - Use School Performance Monitoring Meetings (community meetings) to get ideas from the community on possible solutions, and spread awareness of this concern.
        - Schools should collaborate with the district and regional level on tackling the problem or seek help even at the higher levels.

        - Share information between schools in the region to achieve better results.
- Send the report with all the information above for approval to the regional and central level.

For the Gambian context:

- Send a report to the SQAD team and EMIS for your region's proposed dynamic indicator (with all the information mentioned above).
- If approved the EMIS team will handle the necessary configurations and adjustments in the SRC in DHIS2 for the specific region.

Chapter 7

Conclusion

The digitized School Report Card in the Gambia can be re-designed and improved with further indicators affecting the performance of the learners'. There is a lot of progression in gender equity in the Gambian education gross enrolment rate, but there is need to work on retaining the enrolled children in school. The main factors driving the drop-out rates or low performance in school for girls in the Gambia are early marriage, household work, parents' attitude towards education and teenage pregnancy. On the other hand, the main factors causing the drop-out rate or low performance in school for boys are the financial status of the family, and the absence because of farming in some regions. These issues are not presented in the SRC with an indicator like leaners' absence for boys and for girls which can be accountable for their performance in the examinations. The level of awareness about the importance of education among parents also seems to be a key factor that will help retaining children in schools therefore the SRC tool and School Performance Monitoring Meetings should spread awareness of the children's education importance. Representing gender issues through a dynamic indicator that is contextualized in the regional level is achievable and increases the accountability and transparency of the SRC. The audience of the SRC will have a clearer picture of the situation in school and what is affecting the school's performance.

The study has focused on practical contribution and a framework that engages with the SRC literature. I see a potential to theorize the data further as a local and global tension, but that this was not a priority making a contribution to practice with limited time.

This research contributes to the School Report Cards literature with a framework on how to add a dynamic indicator with a participatory approach. The framework is designed to be a solution to school report cards, but can be adapted to other performance tools.

Additionally, to increase the accountability and transparency of the School Report Card stakeholders a historical data feature presenting the school resources, performance and efficiency index over the years is an added value and presents relevant information.

This research also proposes adding a legend in the SRC to increase its readability. The legend increases the understanding of the SRC and makes the presentation of it easier as it serves as point of reference. Changing the icons in the SRC to “smiling faces” makes the SRC more intuitive.

Generating the SRC in the local languages resulted in being unnecessary, as the population mostly speaks but cannot write or read the local languages.

7.1 Future work

Future work to be considered in building up on the dynamic indicator could be to explore new areas outside of the gender equity issues that can be integrated in the SRCs. The community mostly showed interest on the discipline of the learners, the teacher attendance, delivery of lessons and other resource indicators not included in the SRC.

The calculation of the present indicators’ values in Gambian SRC should be reviewed and validated in the digitized version. One of these indicators that could possible require more work is the calculation of the dropout rate. Further research on what would be the calculation leading to the most transparent information can be pursued.

As this research was time limited, no evidence of the impact of the SRC’s dynamic indicator is provided. Once it is implemented and integrated in the SRC in Gambia, research on its impact on the education and the ability to tackle problems in the schools can be pursued.

This research also can lead to research on results of changing from a standardized SRC to a participatory approach of the SRC.

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