UNIVERSITY OF OSLO

Master Thesis

Assessing Information Flow Impediments in Public Sector Organisations

An Interpretive Case Study in the Context of the Teacher Posting Process in the Gambia

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Informatics: Programming and System Architecture

60 credits

Department of Informatics

The Faculty of Mathematics and Natural Sciences

November 2023

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Acknowledgements

Abstract

This study explores information flow impediments in the teacher posting processes within the Gambia's Ministry of Basic and Secondary Education. It specifically examines the impact of these factors on decision-making and coordination. Through a qualitative analysis of data from twenty-two interviews and three group discussions with HRD education officers, Regional Directors, and other stakeholders, the study identifies six major impediments - unreliability, inaccessibility, inconsistent information and data formats, human resource capacity strain, inadequate stream of information and non-compliance. These factors significantly hinder informed decision-making and efficient resource distribution (i.e., appointment of teachers, promotions, and distribution) in public educational settings. The findings offer crucial insights for enhancing organisational operations and improving information systems in public sector organisations. Limitations of the study include the potential underrepresentation of certain perspectives, yet it provides valuable insights for future research in public sector information flow impediments and management.

Keywords: information flow impediments, teacher posting process, information systems, education, human resource operations, The Gambia

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List of Acronyms

CMFP	Cluster Monitor Focal Point
CPAD	Committee of Appointment, Promotion and Discipline of Teachers
ECD	Early Childhood Development
GDP	Gross Domestic Product
GPE	Global Partnership for Education
GTTI	Gambia Technical Training Institute
GTU	University of the Gambia
HR	Human Resource
HRD	Human Resource Directorate
HRFP	Human Resource Focal Point
MOBSE	Ministry for Basic and Secondary education
MOHERST	Ministry for Higher Education, Research, Science and Technology
RED	Regional Educational Directorate
TVET	Technical and Vocational Education and Training

Chapter 1

Introduction

The Gambia is the smallest country located in mainland Africa and is surrounded by Senegal, except for its short Atlantic coastline to the west. It has a population of over 2.7 million people as of 2023 (*Gambia Demographics 2023 (Population, Age, Sex, Trends) - Worldometer*, no date), with a predominantly young demographic and a median age of around 17 years. Education is a growing priority, aiming to harness the potential of its youthful population despite challenges with literacy and infrastructure. The nation's demographics present a unique opportunity for growth and development, where the energy and aspirations of its young citizens are central to its progress and future.

The Ministry for Basic and Secondary Education (MoBSE) is responsible for basic and secondary education in the Gambia. Due to a significant population share of the youth, MoBSE believes that education plays a vital role in the nation's development. One of the crucial stakeholders in facilitating better education in the country is the teachers. MoBSE handles the appointment and the distribution of the teachers. Communication and HR operations at the MoBSE rely heavily on manual processes. This includes communication from schools that must go through the Regional Education office to reach the headquarters. Similarly, any communication from the regional directorate to the headquarters is also processed manually.

One of the crucial operations in HR is the annual teacher posting process. The process usually starts during the second term of an academic year when the Regional Education Directorates collect data on transfer requests from the teachers. The collected data is analysed to establish the number of requests for teachers that are within and outside the region. The analysis helps the directorates to decide on who to release to another region, move within the same region, and also make a request to the office of the Permanent Secretary for new teachers to fill the vacant positions in schools inside these regions throughout the Gambia. MoBSE aims to enhance the efficient and effective service delivery of HR operations, including these stages of the annual teacher posting.

1.1 Research Background

The project was led by the Health Information Systems Programme (HISP) at the University of Oslo (UIO) in coordination with the Ministry of Basic and Secondary Education of the Gambia. One of the objectives of this coordination is to digitalise the Human Resource Directorate (HRD) Operations and to make sure the teachers are posted on time and where their services are needed. The literature about teacher posting in the Gambia and the study of information flow in this context has been found as an under-researched area. As part of the data collection process for this study, two field trips to the Gambia, one in September 2022 and one in April 2023 were included.

Efficient information flow is essential to the effectiveness of organisational operations, which influences coordination and decision-making processes across various contexts, including supply chains and humanitarian efforts. Building on existing research that has identified known impediments to information flow in the organisational settings impacting operational efficacy, this thesis aims to identify impediments based on the knowledge of known impediments of previous research and by focusing on the context of teacher postings aspect of the MoBSE's HRD operations. By doing so, this study aims to extend the literature with empirical findings into how specific impediments can hinder information flow, thereby impacting the operational efficacy of an organisation.

1.2 Research question

The existing literature presents a framework to study the information flow occurring in an organisation and identifies several impediments in the information flow within different contexts. (Day, Junglas and Silva, 2009) identifies eight information flow impediments in the context of supply chain management. Additionally, (Abrahamson and Goodman-Delahunty, 2014) presents seven impediments to information and knowledge sharing among organisations in policing. The research explores a gap in the literature about the study of information flow impediments in the public sector and low resource context. The teacher posting process at MoBSE involves the flow of information between central, regional, and School levels. At the same time, it requires coordination among several actors and stakeholders, including education officers at the HRD, the Permanent Secretary, Regional directors, Human Resource Focal Points, cluster monitors, and the teachers. This involves informed decision-making based on the flow of information across many levels. And it pertains to the key education sector resource

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for the Gambia. Hence, the teacher posting is an interesting case to study how impediments can hinder information flow, thereby impacting the operational efficacy of a public sector organisation. The focus of this thesis is to study these factors that impede the information flow in the context of teacher postings in the Gambia.

By utilising the existing literature to look through the collected data from the theoretical and practical studies during this research, this study identifies the main factors that hinder the information flow from different dimensions in the teacher posting process of the Gambia. I aim to do this by answering the following research question:

What impedes the information flow in the teacher posting process of the Gambia?

To answer this research question, firstly, steps were taken to delve into the concepts from the literature about the information flow in general and within the organisational context, and then the concepts of impediments in the information flow from the literature were studied. Later, the data from the study were analysed using these definitions and concepts to identify the factors that impede the information flow in the teacher posting process of the Gambia.

1.3   Thesis Structure

Chapter 2 presents the background literature this thesis is based on and will be discussed. It starts with giving a background on the study of information and defining information flow in organisations. In addition, it provides concepts of formal and informal information flow and known impediments based on the literature.

Chapter 3 provides an overview of The Gambia's context. It begins with a brief introduction to the country, highlighting its geographical, demographic, and economic aspects. The chapter then delves into the Gambian education system, with a particular focus on the teacher posting processes managed by the Ministry of Basic and Secondary Education (MoBSE).

Chapter 4 presents the research approach that was adopted for the study. It outlines the methodology used, which includes the rationale for the chosen research design, data collection methods, and analysis procedures. Additionally, this chapter provides details of the field visits that were conducted as part of the research process and highlights how these contributed to the data collection and the overall study.

Chapter 5 focuses on the empirical findings from the study. The chapter defines and provides examples of the various activities related to information flow that were found during the study. It also presents the identified impediments to information flow in teacher postings in The Gambia, as revealed by the empirical evidence gathered in the study.

Chapter 6 presents a discussion related to the findings, analyses the impediments found in the study using the concepts and results from the literature, and provides interpretations of the impediments identified in the information flow within the context of teacher posting.

Chapter 7 provides a conclusion that summarises all the empirical findings from this study and presents possible directions for further research areas.

Chapter 2

Literature Review

2.1 Information

The definition of the term "information" has been looked upon in many literatures. Barlow proposes a taxonomy of information, suggesting that information is an intangible concept that can be understood through its various properties, such as being an activity, a life form, and a relationship (Barlow, 1994). Barlow, in his paper, does not provide an extensive literature survey but focuses on presenting his own taxonomy and conceptual framework for understanding information.

The literature by Michael K. Buckland discusses three meanings of "information": "information-as-process," "information-as-knowledge," and "information-as-thing (Buckland, 1991). This paper delves into the nature and characteristics of "information-as-thing", identifying various forms of it, including data, text, documents, objects, and events. It argues that "information-as-thing" goes beyond communication and encompasses what is stored and retrieved in information storage and retrieval systems. The paper proposes that these three meanings of "information" and the concept of "information processing" can be used to classify different information-related activities and provide a topography for information science. While the literature on information science has traditionally focused on data and documents as information resources, the paper suggests that other objects can also be informative, such as dinosaur fossils. Based on the literature review, three meanings of information can be viewed as:

Information-as-process: When someone is informed, their knowledge is changed. This transformation is referred to as "information-as-process." In this context, "information" means the act of informing, which involves communicating knowledge or news about a fact or event. It is the action of telling or being told about something.

Information-as-knowledge refers to the knowledge that is communicated through the process of informing. It includes the knowledge communicated about a particular fact, subject, or event and the intelligence or news that one is apprised of or talked about. The concept of information

as a tool to reduce uncertainty is a subset of information-as-knowledge. However, sometimes, information can increase uncertainty.

Information-as-thing refers to objects such as data and documents that are regarded as informative. These objects are referred to as "information" because they have the quality of imparting knowledge or communicating information; they are instructive.
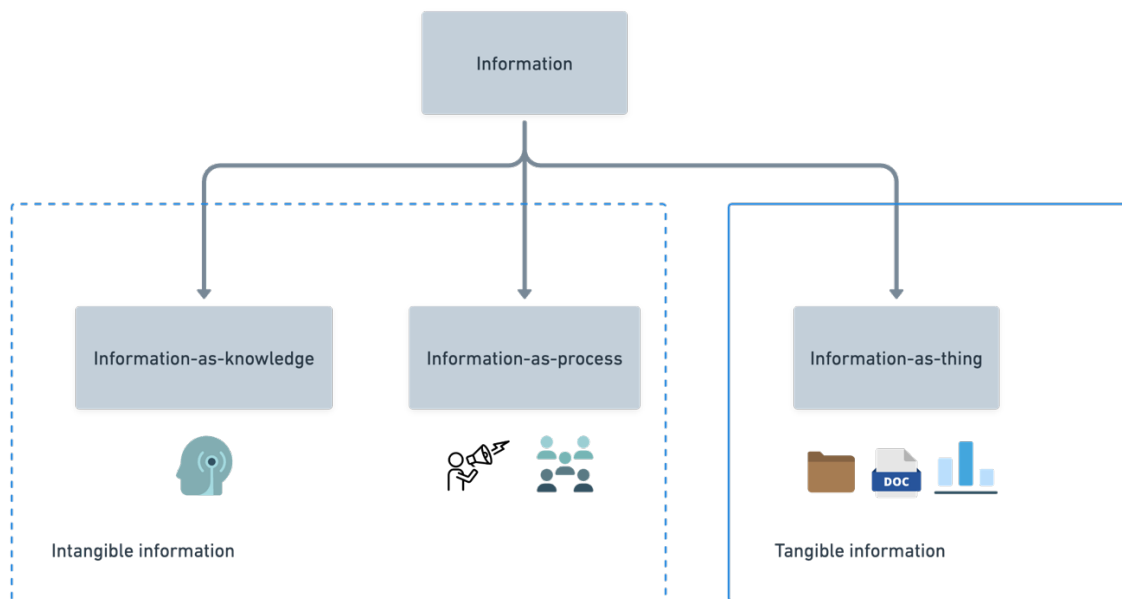
Figure 2.1: Aspects of Information

2.2 Information Flows

Based on the existing literature, the information can be tangible as well as intangible—the movement of data across different entities in an organisation. The authors in the literature (Durugbo, Tiwari and Alcock, 2013) focus on approaches for modelling information flow and the current state of information flow modelling research. Based on the review, the information flow can be referred to as the movement of information within an organisation, involving the access, sharing, and communication of information among individuals, groups, processes, and communication channels.

2.2.1 Information flow in an organisation

(Petrauskas, 2006) discusses the use of information flow analysis for building an effective organisation, emphasising the influence of information technologies on organisational performance. It presents a three-layer system view of organisations, where information flows connect material flows with decision-makers.

While the author (Petrauskas, 2006) proposes a formal model that evaluates the effectiveness of information flow in organisations based on three criteria: time, cost and path, it also presents a three-layer system view of organisations, where information flows connect material flows with decision-makers. This view conceptualises organisations as a system with three layers: the material flow layer, the information flow layer, and the decision-making layer. **The material flow layer** represents the physical movement of resources and information within the organisation. **The information flow** layer represents the flow of information that supports and connects the material flows. **The decision-making layer** consists of the individuals or groups responsible for making decisions based on the information received. The three layers are interconnected, with information flows facilitating the coordination and decision-making processes within the organisation. This three-layer system view also provides a framework for understanding and analysing the effectiveness of information flow in organisations.
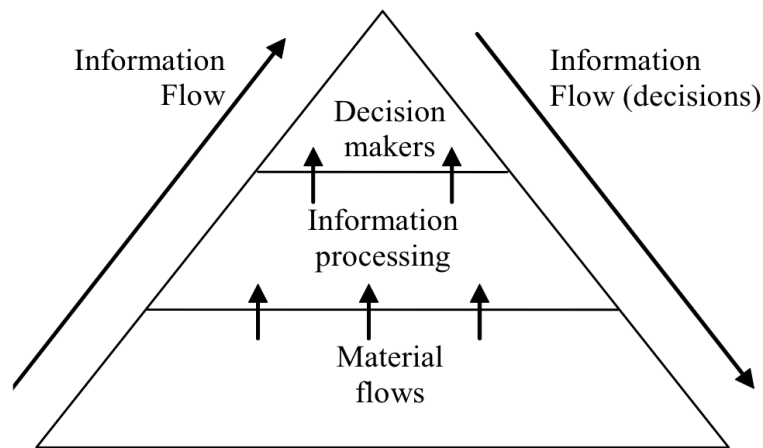
Figure 2.2: Organisation macro model

Note: from *(Petrauskas, 2006)*

The organisation macro model is utilised in the following chapters to discuss the findings from this study by looking towards the information flow happening within the teacher posting process in the Gambia.

2.2.2 Formal and Informal Information Flow

The existing literature suggests that the information can flow across different levels. This begs the question: How are the information flows categorised? In the past, organisational information flows were categorised based on the channels used for communication as formal or informal (Lievrouw and Finn, 1996). (Lievrouw and Finn, 1996) also compares formal and informal information flows in terms of all six factors of the Communication Situations Model

(CSM). To analyse communication in technology-intensive environments, the Communication Situations Model (CSM) framework considers six key factors, namely culture, relationships, content, temporality, involvement, and control. The author discusses the rise of new information technologies used in organisations and their implications, which are changing the way information is exchanged, leading to a shift towards informal communication styles in these environments. The study analyses formal and informal information flows regarding the six factors of the CSM. Based on the analysis, the following differences between formal and informal information flows have been outlined. However, the paper does not provide empirical evidence or case studies to support its arguments.

Table 2.1: Differences between formal and informal information flow

Aspect of Information Flow	Formal Information Flow	Informal Information Flow
Nature of Information	Documented, one-way, hierarchical	Interpersonal interactions, multi-way, often no permanent record
Process Characteristics	Structured, predefined	Flexible, adaptable
Channels and Protocols	Official channels and protocols	Face-to-face, telephone conversations
Type of Information	Primarily task-related	Task-related and social
Influencing Factors	Organizational culture, relationships, control	Organizational culture, relationships, individual perceptions, involvement

Table 2.1 provides a comparison between formal and informal information flow within organisations. Formal information flow is characterised by its hierarchical, one-way, and documented nature. It follows structured and predefined processes that utilise official channels and protocols primarily for task-related information. Organisational culture, relationships, and control mechanisms influence formal information flow. On the other hand, informal information flow is established through interpersonal interactions that are multi-directional and often lack a permanent record. Such information flow is flexible, using direct channels like face-to-face meetings and direct telephone conversations. It covers both task-related and social information. Organisational culture, relationships, as well as individual perceptions and involvement shape this type of flow.

The concepts of formal and informal information flow are utilised in the following chapters of empirical findings to categorise information flows found in this study. The concepts will be used to distinguish different types of information flow later from the findings but will not be actively discussed within this study.

2.2.3 Information Flow Impediments

Organisational communication involves a complex and non-linear flow of information that is sometimes unpredictable or disorderly. The meaning of information is influenced by the context and interrelationships within the organisation. The flow of information affects the organisational climate, morale, and adaptation, which in turn has an impact on the flow of information. The author of the paper (Ahsanul, 2013) examines the challenges of information flow in organisational communication and the need to ensure information reaches all parts of the organisation. It is also received from all parts of an organisation.

With reference to the information-as-knowledge (Buckland, 1991) concept and an information flow model in an organisation (Petrauskas, 2006), information can be knowledge that transfers from one entity to another.

Study shows that information flow faces impediments. (Moss, 1974) indicates that secrecy is an impediment to the transfer of knowledge but argues that it is not the central problem during that time's context. In another example by (Day, Junglas and Silva, 2009) severe impediments in the information flow in disaster relief supply chains are identified. The literature review of the paper acknowledges the limited existing research on information flow impediments in disaster relief supply chains. The study identifies and categorises information flow impediments in disaster relief supply chains, specifically focusing on three activities: collection, sharing, and processing of information. It also highlights eight specific information flow impediments in these activities, providing insights into the challenges faced in the inter-organizational flow of information during disaster relief efforts.

Table 2.2: Information flow impediments and action/interaction strategy

From *(Day, Junglas and Silva, 2009)*

Information flow impediment	Definition of information flow impediment	Action/interaction strategy
Inaccessibility	Difficulty in accessing data or information that is confirmed or believed to be present. This can occur due to limitations in physical accessibility or when information systems are not adequately equipped.	Revert to physical (non-technical) means of data collection,
Inconsistent information and data formats	When similar data or information from multiple sources cannot be compared or aggregated due to inconsistent classification, coding, or definitions, it is known as data inconsistency	Aggregate dissimilar information, embrace incongruent data and consider the worst-case scenario.

Inadequate stream of information (shortage/ overload)	Too much or too little information is available to an organization.	Rely on best assumptions when data is scarce; expedite processing when overloaded.
Low information priority	Occurs when information flow processes are not taken into consideration by organisations collecting and processing data and information.	Information inactivity or substandard activity
Source identification difficulty	Organizations often struggle to identify necessary information and its sources.	Information inactivity; deployment of extra resources
Storage media misalignment	Organisational decisions about data storage and management formats are crucial. They affect interoperability and cross-platform information retrieval.	Increase processing efforts or information inactivity.
Unreliability	Data reliability can be a major when an organization lacks faith in the data or information it holds.	Leverage meaningful parts of information only and accept information quality.
Unwillingness	Lack of cooperation by other actors can also lead to inaccessibility of information. This can be due to legal constraints or simply organizational preferences.	Building personal relationships based on trust and cooperation can facilitate information sharing.

The current literature indicates the need for more research on the impediments to the flow of information in organisations. The study of information flow impediments, particularly in the context of teacher postings, has been found to be under-researched. Although (Day, Junglas and Silva, 2009) focused on Hurricane Katrina and identified and categorised the impediments to information flow, their sources and the impact on disaster recovery efforts, their findings will be used as a foundation in the upcoming chapters to examine how impediments to information flow are identified and analysed in the context of teacher posting, based on the definitions provided in Table 2.2. Additionally, any other impediments to information flow will also be studied.

(Abrahamson and Goodman-Delahunty, 2014) focuses specifically on three Canadian police organisations to examine the impediments to information and knowledge sharing within and across organisations. Responses from 134 police officers were analysed by the study, which identified seven distinct impediment themes: processes/technology, individual unwillingness, organisational unwillingness, workload/overload, location/structure, leadership, and risk management. The study revealed that organisational structure was the most cited impediment, followed closely by organisational culture. Each organisation had its unique combination of impediments to information sharing, as highlighted by the study. The research emphasises the

importance of addressing these impediments and provides recommendations for policy and practice to improve information and knowledge sharing within police organisations. The study also mentions that organisational incentives for individual achievement, rather than teamwork, are a specific aspect of the process that creates impediments to information sharing.

In the following chapters, the impediments identified from the literature will be utilised as a reference point for identifying and defining similar impediments as well as new impediments from the empirical findings. The relation between these impediments will also be explored in the following chapters.

2.2.4 Integrated complexity–information flow impediment framework

A study conducted by (Altay and Labonte, 2014) discusses challenges to the information flow in response to the Haiti Earthquake case in 2010. It emphasises the importance of timely access to relevant information and the need to recognise and mitigate information flow impediments for effective decision-making and coordination. In this study, the authors have created an integrated complexity-information flow impediment framework, combining the effects of complexity on humanitarian systems with the information flow impediments identified by the study mentioned above by (Day, Junglas and Silva, 2009). According to the authors, the impediments to information flow act as a moderator between the humanitarian information management and exchange (HIME) and the two response dimensions that are affected by the complexity of the humanitarian system – decision-making and coordination. The levels of coordination within and across the systems are affected by the information flow impediments. Similarly, the decision-making process aspect of organisations is also impacted because of complexities in the information flow. The framework presented by the authors in the context of Humanitarian Information Management and Exchange is shown in Figure 2.3 below:
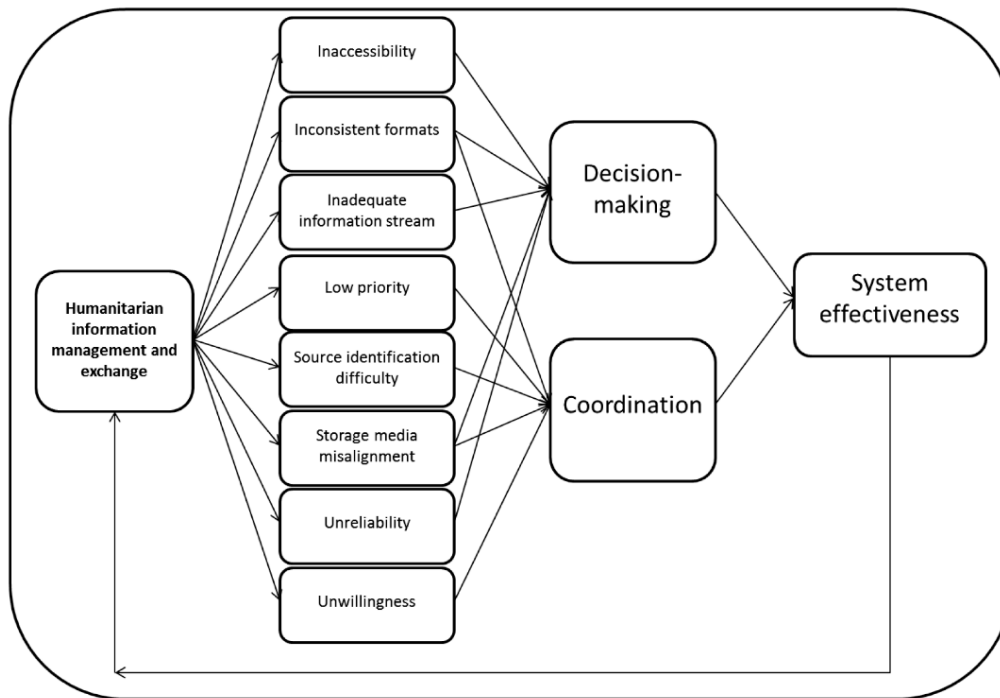
Figure 2.3: Integrated complexity–information flow impediment framework

Note: from *(Altay and Labonte, 2014)*

Despite the study focusing on an information flow occurring in the different areas of Humanitarian Information Management and Exchange, the framework explores intricate relationships of these identified impediments in crucial organisational processes. Given the limited research availability and due to its relevance, the following chapters will revisit the presented framework to analyse information flow impediments and their impacts in the context of teacher posting.

The presented framework indicating relations between the impediments and decision-making and coordination dimension of the system will be utilised in the later chapters to discuss the findings from this study and identify the correlation between identified impediments and these two dimensions of the teacher posting process in the Gambia.

In the later chapters, the definition and concepts of information flow will be used to identify and categorise information flows found in this study. To answer the research question-*"What impedes the information flow in the teacher posting process of the Gambia?"* firstly, the organisational macro model will be used to look through and categorise the information flow in MoBSE within the context of the teacher posting. Furthermore, the chapter on findings will utilise the concepts of formal and informal information flow to categorise the flows and utilise them in the discussion. Although studies were conducted within different contexts, the

definitions and references will be later discussed to identify, define, and discuss correlations between these impediments since the literature focuses on impediments from information flow aspects within and across organisations.

Chapter 3

Research context and background

This chapter presents the research context and the background of the study of information system impediments in the teacher posting process in the Gambia. Starting with an introductory overview of the country, it later delves into the current educational structure of the Gambia. The teacher posting process is introduced, including information regarding the stakeholders involved, purposes, timeline, objectives, and an overview of the process. This information has been collected through the resources available on the internet and from the documents that were available for the research with the help of our contacts at the MOBSE office in Banjul, the Gambia.

3.1 The Gambia

The Gambia is a sub-tropical and sub-Saharan country located on the West Coast of Africa. Senegal borders it and has a narrow Atlantic coastline. It has a unique geographical and historical position. It is a small country, spanning approximately 11,295 square kilometres, and is bordered by Senegal to the north, south, and east, while the Atlantic Ocean lies to its west ('The Gambia', 2023). Despite its size, The Gambia is known as "The Smiling Coast of Africa" due to its rich cultural, geographical, and socio-political complexities. With an estimated population of 2,910,000, the Gambia is also one of Africa's most densely populated countries. English is the official language. However, different ethnic groups have their languages, including Mandinka, Wolof, Fula, etc. (*The Gambia | Culture, Religion, Map, Language, Capital, History, & People | Britannica*, 2023). Most of the population is Muslim, about 96.4%, with a small Christian (3.5%) (mostly Roman Catholic) minority and some adherents of traditional beliefs.

Figure 3.1: The map of the Gambia

Note: from *('The Gambia', 2023)*

3.1.1 Geography

The Gambia's unique shape spans 480 km from the Atlantic coast to eastern Senegal (*The Gambia | Culture, Religion, Map, Language, Capital, History, & People | Britannica*, 2023). The Gambia River is the most prominent feature of The Gambia. It originates in the Futa Jallon highlands in Guinea and flows into the Atlantic Ocean. The river is surrounded by mangrove swamps for about 170 miles inland, followed by open savanna and red iron-stone cliffs in some areas. The river is affected by tides throughout most of the country, and the intrusion of saltwater ranges from 90 miles upriver in the wet season to nearly 160 miles during the dry season. The Gambia has a subtropical climate with two distinct seasons. The period between June and October is hot and rainy, while November to May is cooler and dry. The temperature ranges from 9°C in January to 43°C in October, with significant variations between the two seasons. Due to the cooling effect of the ocean, the temperatures are lower along the coast than in the interior (*Gambia, The geography, maps, climate, environment and terrain from Gambia, The | - CountryReports*, no date).

3.1.2 Demographics of the Gambia

With a population of 2,773,168 in 2023 and a fertility rate of 4.5, the Gambia is one of the most densely populated countries in Africa. Most of them live in urban areas such as Serekunda, which has a population of 340,000. The general life expectancy of the Gambian people is 64.1 years (Both sexes combined). Most of the population is young, under the age of 25, and the

median age in the Gambia is 17.2 years. (*Gambia Demographics 2023 (Population, Age, Sex, Trends) - Worldometer*, no date)

Gambia age breakdown (2020)
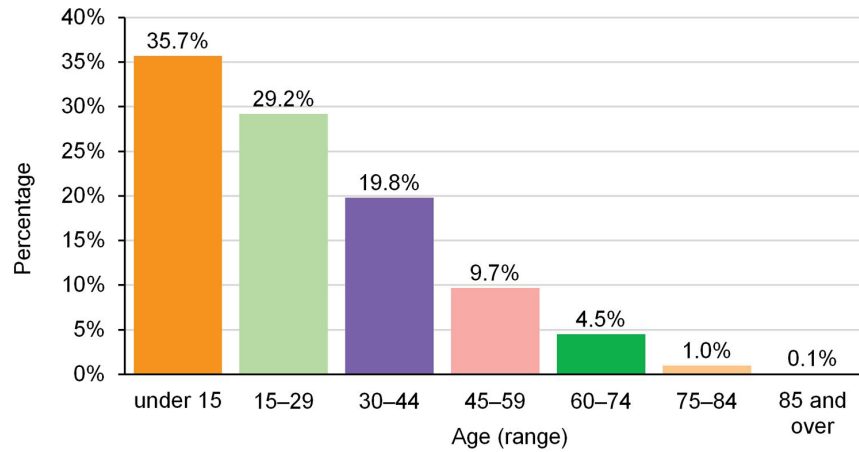
© Encyclopædia Britannica, Inc.

Figure 3.2: The Gambia: Age breakdown

Note: from (*The Gambia - Population, Migration, Urbanisation | Britannica*, no date)
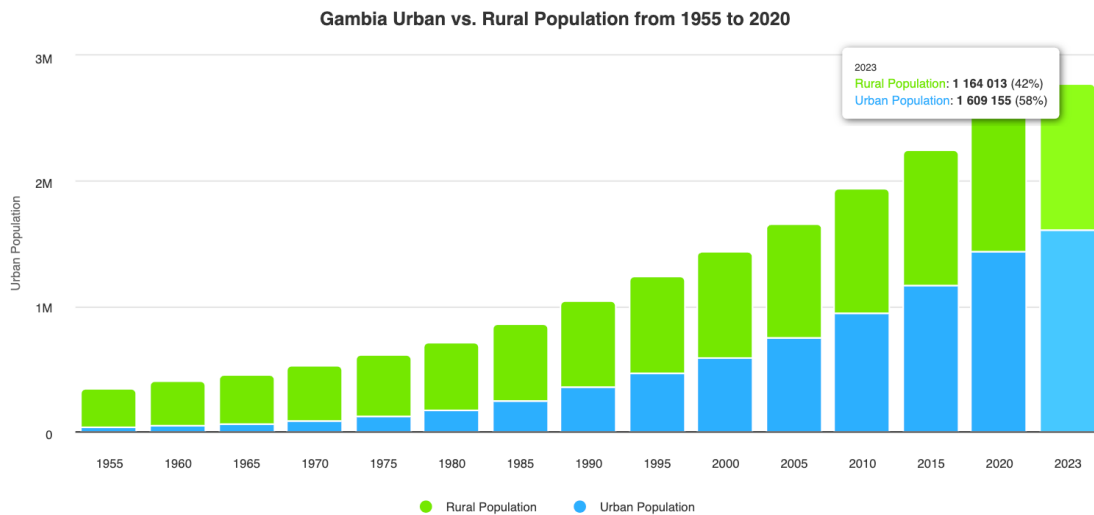
Figure 3.3: The Gambia's urban vs rural population

Note: from (*Gambia Demographics 2023 (Population, Age, Sex, Trends) - Worldometer*, no date)

3.1.3 Economy

The economy of the Gambia revolves predominantly around agriculture, even though there has been growth in tourism. It relies on the production and sale of Groundnuts, which are exported to Europe (*Gambia, The geography, maps, climate, environment and terrain from Gambia, The | - CountryReports*, no date). In 2022, the economic growth reached 4.3% in the Gambia. Despite the positive change, poverty is still expected to increase to 20.3% in 2022 from 18.4% in 2021, primarily because of weaker growth in per capita GDP and rising prices. For the first time in the last three decades, the annual inflation reached double digits to an average of 11.6% in 2022 from 7.4% in 2021 (*Overview*, no date)

3.1.4 Education

The Gambia's Education Policy is in line with Sustainable Development Goal 4 (*Sustainable Development Goal 4: Quality Education | United Nations in The Gambia*, no date), which aims to provide accessible, equitable, and inclusive quality education for all. The Gambian Constitution recognises primary education as a fundamental right, making it accessible, compulsory, and available to everyone (*Education | UNICEF Gambia*, no date). The Gambia has improved education access, equity, and quality but has yet to achieve its policy goal of having 80% of children attain minimum learning competencies. Poor performance in literacy and numeracy has led to high rates of repetition and dropout, with almost 29% of Gambian children out of school. The Gambia is working with GPE (*About GPE | Who We Are | Global Partnership for Education*, no date) and other partners to ensure accessible, equitable, and inclusive foundational learning to equip students with basic competencies for lifelong learning. This involves expanding access to quality early childhood education and enhancing teacher support to ensure that all students in The Gambia acquire fundamental skills by the fourth grade. (*Education in The Gambia | Global Partnership for Education*, 2003). As of 2021, the literacy rate of the Gambia was 58.06 % (*Gambia Literacy Rate 2000-2023*, no date)
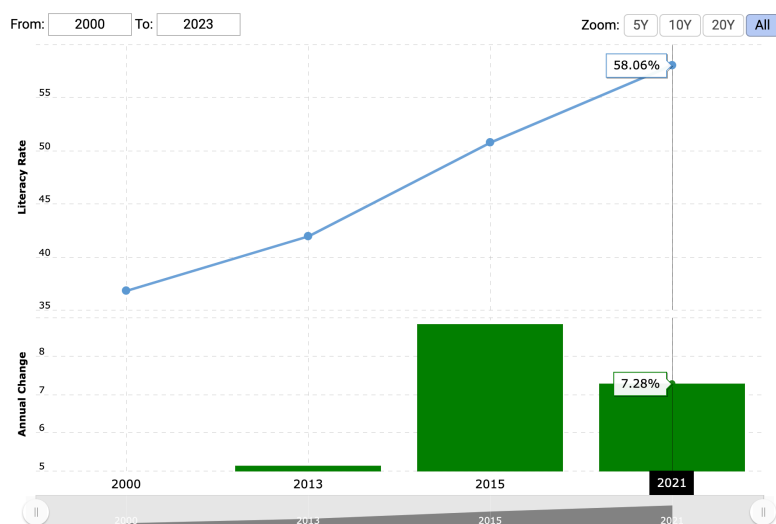
Figure 3.4: Gambia Literacy Rate 2000-2023

Note: from *(*Gambia Literacy Rate 2000-2023*, no date)*

3.2 Education System of the Gambia

In the past, the Department of State for Education (DOSE) oversaw education in the country. This was until 2007. This included the public education system, Grant-Aided and private schools, and Madrassas. However, the DOSE was divided into two separate entities - the Ministry of Basic and Secondary Education (MoBSE) and the Ministry of Higher Education, Research, Science and Technology (MoHERST). The MoBSE operates centrally with some decentralisation to regional directorates, while the MoHERST is highly centralised. There are approximately 1,116 registered basic and secondary education schools, with the majority being public schools.

Additionally, there are 97 registered higher education institutions, including 14 public higher education institutions. Enrolment in MoBSE schools was around 455,568 students, with most of them attending public schools. On the other hand, higher education enrolment was estimated to be close to 46,000, with about 61% in public institutions in 2014 (*2016-30 Education sector plan. The Gambia | Documents | Global Partnership for Education*, no date). Table 3.1 displays the total and school-aged populations, including projections to 2030, for the past three census periods.

Table 3.1: The evolution of the school-aged Population by Age Group 1993 – 2030

Note: from *(*2016-30 Education sector plan. The Gambia | Documents | Global Partnership for Education*, no date)*

	1993 Census		2003 Census		2013 Census		2020 Projection		2030 Projection	
	Total	%	Total	%	Total	%	Total	%	Total	%
Total population	1038145	100	1360681	100	1857181	100	2308994	100	3151524	100
3-6 years	150862	15	178322	13	211624	11	238570	10	283124	9
7 - 12 yeas	170522	16	224770	17	283290	15	333101	14	419825	13
13 -15 years	71632	7	95876	7	128285	7	157297	7	210481	7
7 - 15 years	242154	23	320646	24	411575	22	490398	21	630306	20
16 - 18 years	64734	6	86319	6	119319	6	149669	6	206887	7
Subtotal	457750	44	585287	43	742518	40	878637	38	1120317	36

3.2.1 Education Structure

Education in the Gambia can be categorised into four stages: Early Childhood Education (ECD), Primary Education, Secondary Education, and University Education. ECD lasts for three years, comprising grades 1 to 3. Primary Education is a nine-year program, which includes Lower Basic Schools (LBS) from grades 1-6 and Upper Basic Schools (UBS) from grades 7-9. After completing Primary Education, students can move on to Senior Secondary School (SSS) for Secondary Education, which lasts for three years or opt for technical and vocational education and training (TVET) for two years. University Education, on the other hand, is a four-year program that students can pursue after completing Secondary Education or TVET.

The government of the Gambia encourages early childhood development (ECD) programs and has expanded access to these programs. The basic education structure has been reformed to ensure that students receive a unified basic education from grades 1 to 9, with automatic promotion and continuous assessment at the school level. To measure student performance, mandatory assessments have been instituted for grades 5 and 8. At the end of grade 9, students take the Gambia Basic Education Certificate Examination. The government primarily funds all the government and grant-aided institutions, while private sources support private schools. Madrassahs, even though recognised as private schools, receive government grants. The government mainly funds the University of The Gambia and other public tertiary institutions. At the end of the senior secondary cycle, students take the West African Secondary School Certificate Examinations or IGCSE to qualify for higher education. The University of The Gambia offers various bachelor's degree programs, while the Gambia College offers diplomas

and certificates in multiple subjects. The Management Development Institute provides training for civil servants, and technical and vocational education is offered at the Gambia Technical Training Institute.

Type of schools	Level	Legal age
Nursery (Public, Private, Community based)	Early Childhood Development	3 4 5 6
Lower Basic Schools & Basic Cycle Schools (Government, Grant-Aided*, and Madrassa**)	Lower Basic Education	7 8 9 10 11 12
Upper Basic Schools and Basic Cycle Schools (	Upper Basic Education	13 14 15
Senior Secondary Schools (Government, Grant-Aided, Private, Madrassa)	Senior Secondary Education / Technical and Vocational Education and training	16 17 18
University of The Gambia Gambia Technical Training Institutes (GTTI), Management Development Institute (MDI), The Gambia College and other skills centers	Higher and Tertiary Education	19 20 21 22 23 24 25

Figure 3.5: The education system in the Gambia

Note: From (*2016-30 Education sector plan. The Gambia | Documents | Global Partnership for Education*, no date)

3.3 Teacher Posting in the Gambia

The process of teacher posting falls under the human resource management process and involves HR operations such as recruiting, distributing, deploying, and managing teachers across the country. The Gambia is divided into six regions. The teacher posting process under the supervision of MoBSE fulfils the demand of schools in these regions by the supply of all the teachers graduating from the colleges who wants to become a teacher as well as from a pool of already qualified teachers who would go to upgrading their education and then re-posted back according to their most recent qualifications. The human resource operations at MoBSE are handled by four units: Human Resource Management (HRM), Human Resource Development (HRD), Payroll and Human Resource Information Management System (HRIS). It was found that the HRM unit is the most responsible for all the operations related to the Teacher posting and, hence, more actively involved than other interlinked units.
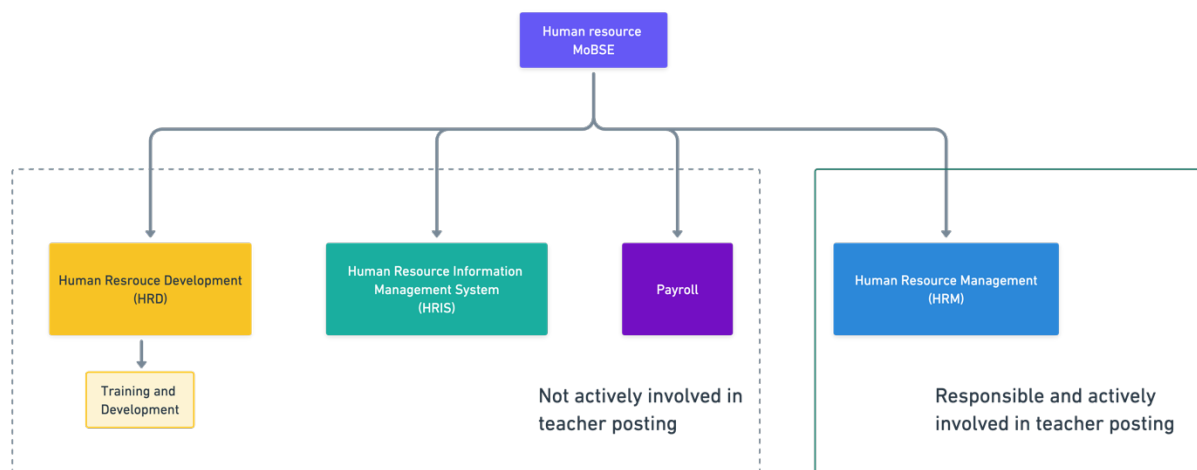
Figure 3.6: Involvement of Human Resource units for Teacher Posting operations.

The operations of teacher posting involve heavy communication across multiple levels (Central office at MoBSE, Regional Directorate offices, Cluster monitors, and Schools) until the final national posting is completed. During the second term of the academic year, Regional Education Directorates collect data on transfer requests made by teachers. This data is then analysed to determine the demands within each region, as well as those outside of it. Based on this analysis, the directorates decide which teachers should be released to the other regions, which ones should move within their current region, and also make a request to the office of the Permanent Secretary.

3.3.1 The Roadmap of the Teacher Posting

The academic year in the Gambia starts in September and lasts until mid-August. It is divided into three terms: Term 1 (September to December), Term 2 (January to April) and Term 3 (April to August). The teacher posting process generally starts in mid-May and lasts until the end of July, taking almost two and a half months. The teacher posting is completed before the end of the academic year and the start of the next one, leaving sufficient time for teachers to prepare and move to their posted schools. The overall process involves seven different significant operations:

1. **Planning meeting**: In this phase, past successes and challenges are reviewed, and the plans for the current year are drafted. Also, the schedule is determined and communicated to the Regional Directors. Then, a team is formed, and a Posting Framework is proposed. Finally, the budget for the operations is submitted to the Permanent Secretary. Major stakeholders involved during this phase are the Director of HR, the Posting Coordinator, and the Principal Education Officer.

2. **Training exercise**: These are aimed at HRFPs' in the preparation of national postings, mainly involving data management training.

3. **Bilateral meetings with regions**: The meeting occurs between the central HRD Posting committee and each region. This phase involves several operations, including verifying the current teacher posting for each school, conducting feedback/staff audits on the previous year's National Posting, standardising the fields of the posting template and central elements, reviewing the enrolment data per school and region to establish teacher requirements, presenting transfer requests per region, submitting the comprehensive regional seniority list, requesting the list of prospective graduates from the training institutions (Gambia College, GTTI, and UTG), distributing teacher quotas per region, submitting regional postings by REDs, consolidating the regional submissions and cleaning duplicates, and sharing the consolidated version with RED. Stakeholders involved include Human resource focal points, the HRD Posting committee, and the training desk officer.

4. **Multilateral meetings with regions**: These meetings are aimed at establishing the number of teachers transfers from each region, solving issues with the data such as duplicates and missing information, etc., and information sharing.

5. **Convergent of the National Posting Committee**: In this step, all the matters that are put forth by the regions are presented, the national seniority list of the teachers is

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reviewed to make necessary adjustments for the posting, and final data cleaning is performed.

6. **Validation of the EMIS Codes and fixing gaps and standards**: In this step, the final consolidation and validation of EMIS (Educational Management Information System is a unit within MoBSE responsible for managing and providing reliable educational data used in decision-making) codes are performed, and inconsistencies are resolved if identified.

7. **Publication of the National Posting**: The EMIS unit and the Director of HR at MoBSE are responsible for publishing the final national posting.

8. **Submission of posting report**: In this step, the posting report is submitted to the office of the PS and shared with relevant partners. The director of HR is responsible for this.
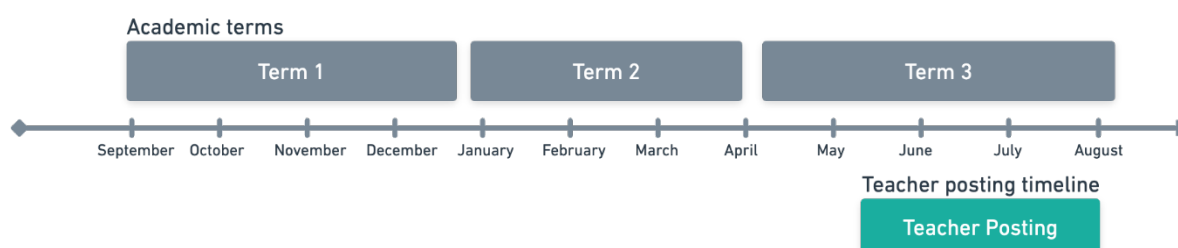
Figure 3.7: The timeline for academic terms and teacher posting.
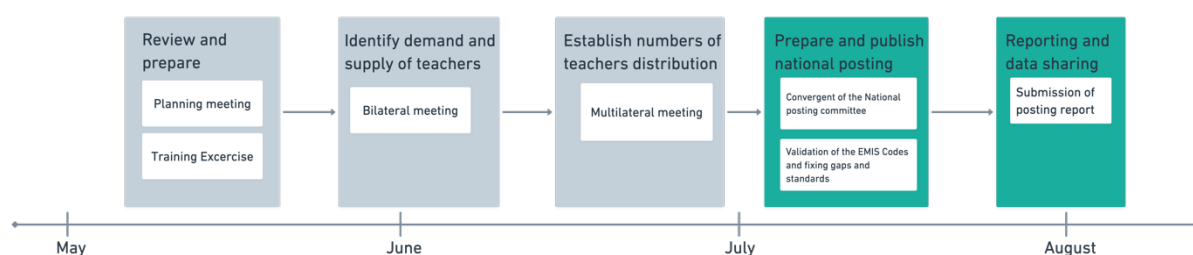
Figure 3.8: The Roadmap of the Teacher Posting Process
Note: *It is based on the national posting roadmap of the year 2022-2023*

3.3.2 Overview of the Process

The teacher posting involves a process of reflecting on the previous year's posting processes, planning for the new one, realising the demand for teachers and the supply of teachers that are available, including new teachers and existing teachers who are looking to upgrade their levels, transfer between schools in the regions, and those who like to come back to the teacher

profession after exiting for specific periods. Based on different kinds of circumstances, a teacher who becomes a part of a teacher posting process can be of various types. It was indicated that a teacher could be a pre-service, in-service, reinstated teacher, foreign (non-Gambian) teacher, or voluntary teacher.

Pre-service teachers

The pre-service teachers are the prospective graduates who are trained to become teachers at institutions such as the Gambia College but have yet to be appointed by the government. They are the fresh candidates coming from the college who will apply through their preferred regions. The regions have a certain quota of teachers based on their demand for teachers within the region. As presented in Figure 3.9, if there is a remaining quota in the selected region, the teacher can be posted to that region. Otherwise, the teacher can likely be appointed to another region in the country where there is a need and vacancies. The process is incorporated by the Human Resource Management (HRM) of MoBSE in the national posting. During the application process, teachers are required to submit an expression of interest to go to specific regions.

In-service teachers

Qualified teachers who have been appointed by the MoBSE at least once are referred to as in-service teachers. During their teaching career, they may want to upgrade their qualifications by enrolling in graduate-level courses or training. As presented in Figure 3.10, if they gain admission to colleges, such as the Gambia College, they must apply for study leave from their school. During this time, they may also apply for grants from the MoBSE. If they receive sponsorship for the entire period of their study, they will continue receiving their salaries. Teachers who receive sponsorship from the government are required to sign a bond, which commits them to serving as a teacher for at least two years after completing their training. After completing their training, they will be posted to the same region based on the needs of their schools. Those who do not receive grants from the government will have to apply for study leave, and upon their return, they will have to reapply to become teachers.

Pre-service teachers

Start

Apply to preferred region
Eg. Region 1

Check available quota and needs

Quota fulfilled in this region → Check with other regions and find schools that has need

Available vacancy

Inter-regional release memo sent

Posting memo:
One Memo to the teacher
One Memo to the school

Teacher: Report to the school and start teaching

Headteacher reports back to the regional office about teacher's arrival through attestation

At MoBSE, teacher is registered in the system and in the payroll

End

In-service teachers

Start

Apply for study leave

Study leave with grant | Without grant

Complete the study | Complete the study

Apply to become a teacher from the beginning

Posted back to the same region

Possible to get posted to different regions

Posting memo:
One Memo to the teacher
One Memo to the school

Teacher: Report to the school and start teaching

Headteacher reports back to the regional office about teacher's arrival through attestation

At MoBSE, teacher is registered in the system and in the payroll

End

Figure 3.9: Teacher posting process for Pre-Service teachers.
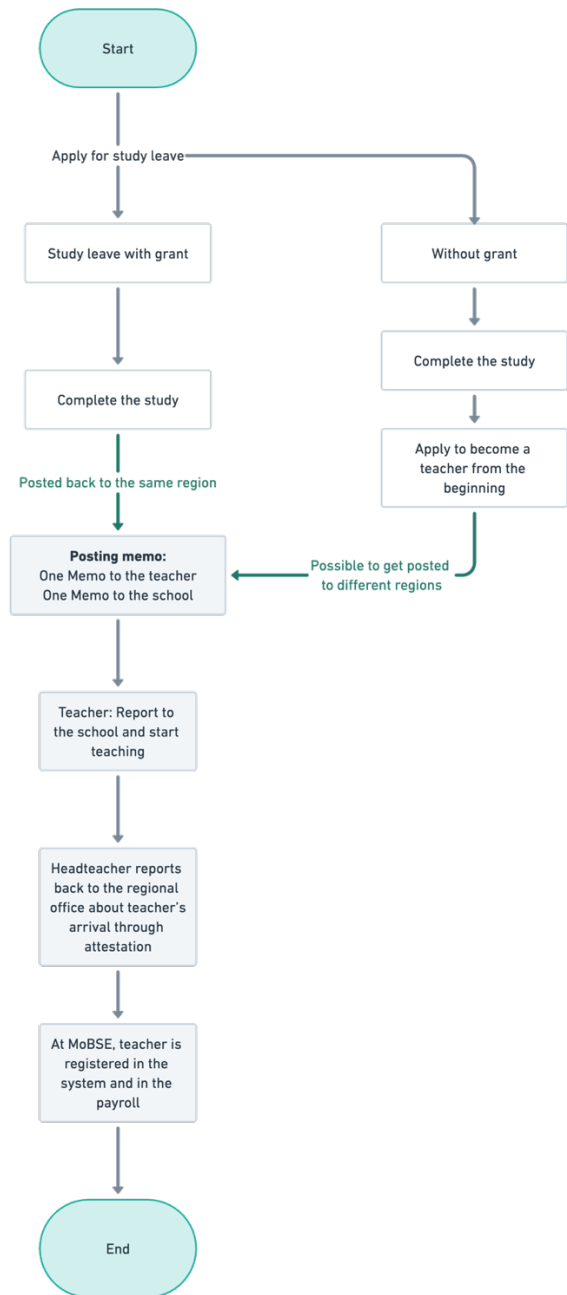
Figure 3.10: Teacher posting process for In-Service teachers.

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Reinstated teachers

There are a certain number of teachers who eventually would want to come back to become teachers again after leaving the profession or unceremoniously leaving their current position as teachers in the schools. In other words, these are the teachers who are already in the system and left teaching and, after a while, want to come back. There can be various reasons a teacher needs to be reinstated, for example, posted teachers deciding not to accept their posting and waiting for the next posting, switching to different professions and coming back, etc. The decision to reinstate a teacher is typically made by applying through the headquarters at MoBSE directly and after successfully interviewing the willing teacher who would like to get posted to the school. The flowchart from Figure 3.11 outlines this process. This is coordinated by the Committee of Appointment, Promotion and Discipline of Teachers (CPAD) under the HRM. As a disciplinary action, after the national office receives their application, they are offered mostly rural provinces, Region 3 to Region 6 instead of 1 and 2 because they are aware that they would prefer those. Regions such as 1 and 2 are believed to be "*Hot Cakes*" and are more preferable among teachers for numerous factors, such as available facilities, accessibility, infrastructure, etc.

Unqualified teachers

The MoBSE can also appoint teachers who only have a grade 12 certificate or a senior secondary school certificate. These are the teachers who still need to get a specialisation. They are only appointed when there is a part of the demand for teachers that needs to be fulfilled, and the regional offices believe these teachers can teach the students prior to getting certifications. For example, someone can be good at mathematics and is able to teach maths to the students. As indicated in Figure 3.12, when they apply to become teachers, they are required to submit TIN, birth certificate, Grade 12 academic certificates, and High school certificates. These teachers are referred to as Unqualified teachers (UQ).

Reinstatement of in-service teachers

```
┌─────────────┐
│    Start    │
└─────────────┘
      │
Apply to the
MoBSE office directly
      │
┌─────────────────────┐
│  Interview at MoBSE  │
└─────────────────────┘
      │
  If accepted
      │
┌─────────────────────────┐
│   Posting memo:         │
│ One Memo to the teacher │
│ One Memo to the school  │
└─────────────────────────┘
      │
┌─────────────────────┐
│ Teacher: Report to  │
│ the school and start│
│     teaching        │
└─────────────────────┘
      │
┌─────────────────────┐
│ Headteacher reports │
│ back to the regional│
│ office about teacher's│
│   arrival through   │
│     attestation     │
└─────────────────────┘
      │
┌─────────────────────┐
│ At MoBSE, the teacher│
│   is re-appointed    │
└─────────────────────┘
      │
┌─────────────┐
│     End     │
└─────────────┘
```
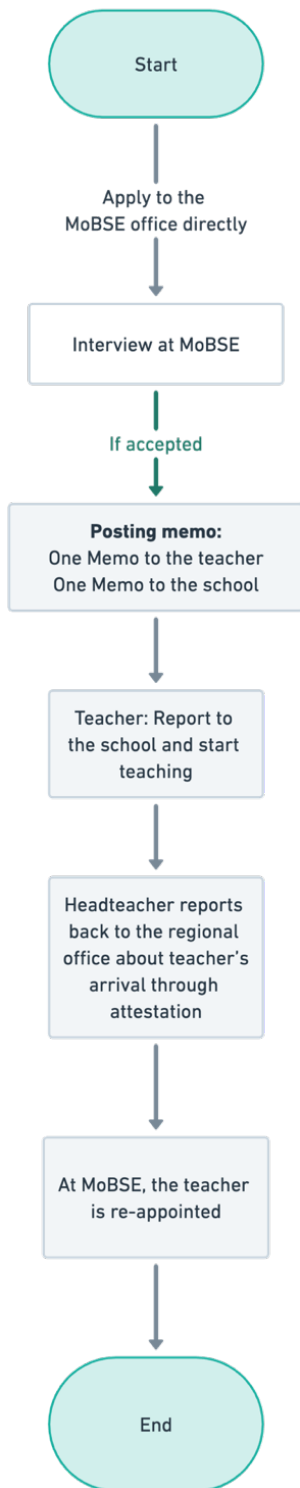
Figure 3.11: Teacher posting process for reinstatement of in-service teachers.

Unqualified teachers

```
┌─────────────┐
│    Start    │
└─────────────┘
      │
Apply for the
position of teacher
(For eg. Region 1)
      │
┌─────────────────────┐
│ Region 1 requests   │
│ applicant's documents│
└─────────────────────┘
      │
┌─────────────────────────┐
│   Posting memo:         │
│ One Memo to the teacher │
│ One Memo to the school  │
└─────────────────────────┘
      │
┌─────────────────────┐
│ Teacher: Report to  │
│ the school and start│
│     teaching        │
└─────────────────────┘
      │
┌─────────────────────┐
│ Headteacher reports │
│ back to the regional│
│ office about teacher's│
│   arrival through   │
│     attestation     │
└─────────────────────┘
      │
┌─────────────────────┐
│   At MoBSE, the     │
│ teacher is appointed │
│  as an Unqualified  │
│   teacher and       │
│ registered in the   │
│     payroll         │
└─────────────────────┘
      │
┌─────────────┐
│     End     │
└─────────────┘
```

Figure 3.12: Teacher posting process for unqualified teachers.

Foreign teachers

It was also indicated that non-Gambian teachers could also enrol into teaching in the Gambian schools whenever there is a gap in the supply of qualified teachers to meet the demand for teachers. This process of appointment is conducted and coordinated by the CPAD committee. Any such teachers are on a contractual basis and are required to renew annually. It was found that the system to appoint foreign teachers is gradually phasing out since MoBSE believes that the Gambia is producing sufficient teachers for the existing demand for teachers.

National Voluntary Teachers

The MoBSE launched the National Volunteer Teacher Programme in 2010. The programme is a strategic partnership between MoBSE and volunteer recruitment organisations such as VSO, Peace Corps and the Nigerian Technical Aid Corps (TAC) (*National Volunteer Teacher Programme officially launched - The Point*, no date). The programme facilitates voluntary teachers to serve as teachers in the more disadvantaged regions such as Region 5 and Region 6, where the demand for the number of teachers still needs to be fulfilled. The 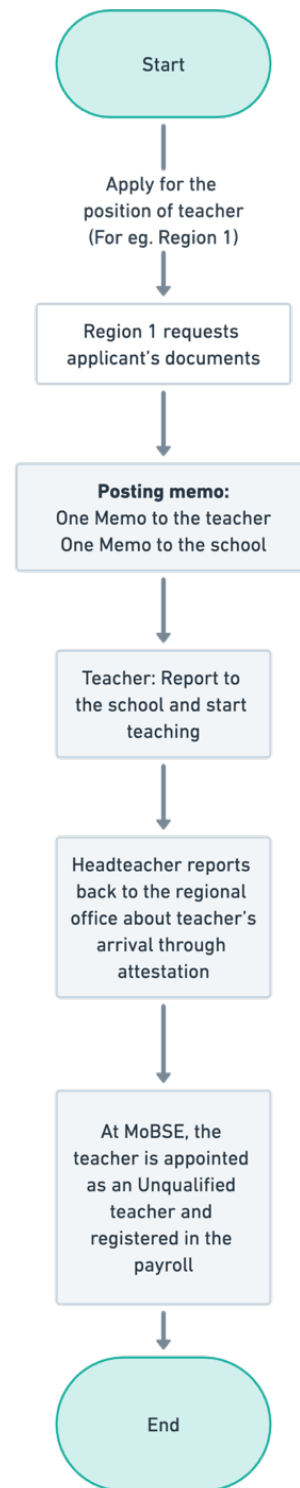voluntary teachers could be someone who has a higher certificate but is not specialised in teaching; They don't have a pedagogy to teach yet.

The Gambia is a small, densely populated agricultural country spanning 480 km from the Atlantic coast to eastern Senegal. Most of the population is young. The Gambia has a weaker economy primarily because of low GDP and rising global prices. In the education sector, the country has been constantly improving with the aim of having 80% of children attain minimum learning competencies. MoBSE and MoHERST oversee the education in the Gambia. Education in the Gambia has four stages: Early Childhood Education (ECD), Primary, Secondary, and University. The government emphasises ECD and has restructured basic education to ensure a unified curriculum up to grade 9, followed by the Gambia Basic Education Certificate Examination. Then, the students go for secondary education and university education. The Gambia's population is comprised of 40% of students aged below 20 years in 2013. MoBSE believes that bolstering education is the key to the Gambia's overall development and economy. Teachers are crucial stakeholders in education. The appointment and distribution of qualified teachers throughout all the schools in the rural and urban parts of the Gambia becomes challenging. MoBSE believes that a data-driven decision-making process in the teacher posting could make the appointments and the distribution of the teachers more

efficient and address the needs and demands of the teachers in the country better by digitalising the Human Resource Development (HRD) operations.

One of the important HR operations is the annual teacher posting. Understanding the general context of the education structure of the Gambia and how the teacher posting is conducted paves the way to identify the areas that can be improved. The process usually begins in the second term when Regional Education Directorates collect data on transfer requests from teachers. This data is analysed to establish which requests are within and outside the region. The analysis helps the directorates to decide who to transfer to another region, who to move within the same region and to make a request to the office of the Permanent Secretary. The contextual background also provides information required to map the information flow that is involved during the process. The research aims to identify impediments to the information flow in the process and understand the impacts in the context of the teacher posting in different aspects. Based on the findings, the following chapters further discuss each impediment and look back into the existing literature on information flow impediments that were found in different contexts.

Chapter 4

Methodology

This chapter provides a comprehensive account of the methods used to achieve the goal of the thesis. It begins with a summary of the project and then goes on to explain the data collection techniques that were used in the research. The timeline of the research journey is also presented. The chapter also outlines the data analysis approach that was employed. Additionally, the ethical considerations that were considered during the research are described in detail.

Project summary

At the start of my master's thesis, I developed a keen interest in an existing project at the University of Oslo(UIO). The project initially involved creating a lightweight human resource app that was based on the District Health Information System (DHIS2) platform. During this study, the scope narrowed to theoretical research due to time constraints. The start of the project goes back to early 2022. The scope of research was primarily focused on improving the teacher posting process in the Gambia from an information systems perspective. The outlined plan for researching this area included two field trips to the Gambia. The first trip was scheduled between 19 September 2022 to 27 September 2022, and the second trip was between 17 April 2023 to 30 April 2023. Before the first trip was made, several discussion sessions were conducted to get a preliminary idea of the project itself. This part involved studying the education system of the Gambia, existing educational policies, the organisational structure of the MOBSE, and the draft of the project on the Digitalization of HR operations. The clear focus of this research had yet to be established. However, the earlier goal was to understand the whole process involved in the human resource management and structure of the teacher posting process. After having several interviews at the MOBSE office during the first interview, a more explicit focus of this research was established, which is to map out all the information flow happening in the teacher posting process and outline its potential impediments.

To understand teacher posting and study the impediments in the process, it was perceived as crucial to collect various perspectives and experiences from different stakeholders involved in the process. The information in qualitative data is often presented in unstructured and unwieldy

formats, such as verbatim transcripts from discussions with respondents, field notes, and other written documents. (Ritchie and Spencer, 1994) Qualitative data was chosen for this research, and accordingly, a total of twenty-two interviews were conducted. These interviews were semi-structured. During the interviews, open-ended questions were used to guide discussion and allow respondents to freely express their thoughts, experiences, and opinions regarding teacher posting.

With the help of our contact person at MoBSE and helpful HR officials present at the office, the interviews were arranged with stakeholders from the Central office at MoBSE, four RED offices, one Basic Cycle school, and two Lower Basic schools. The time after each trip was invested in reviewing, synthesising, and analysing the findings and going through available and shared documents.
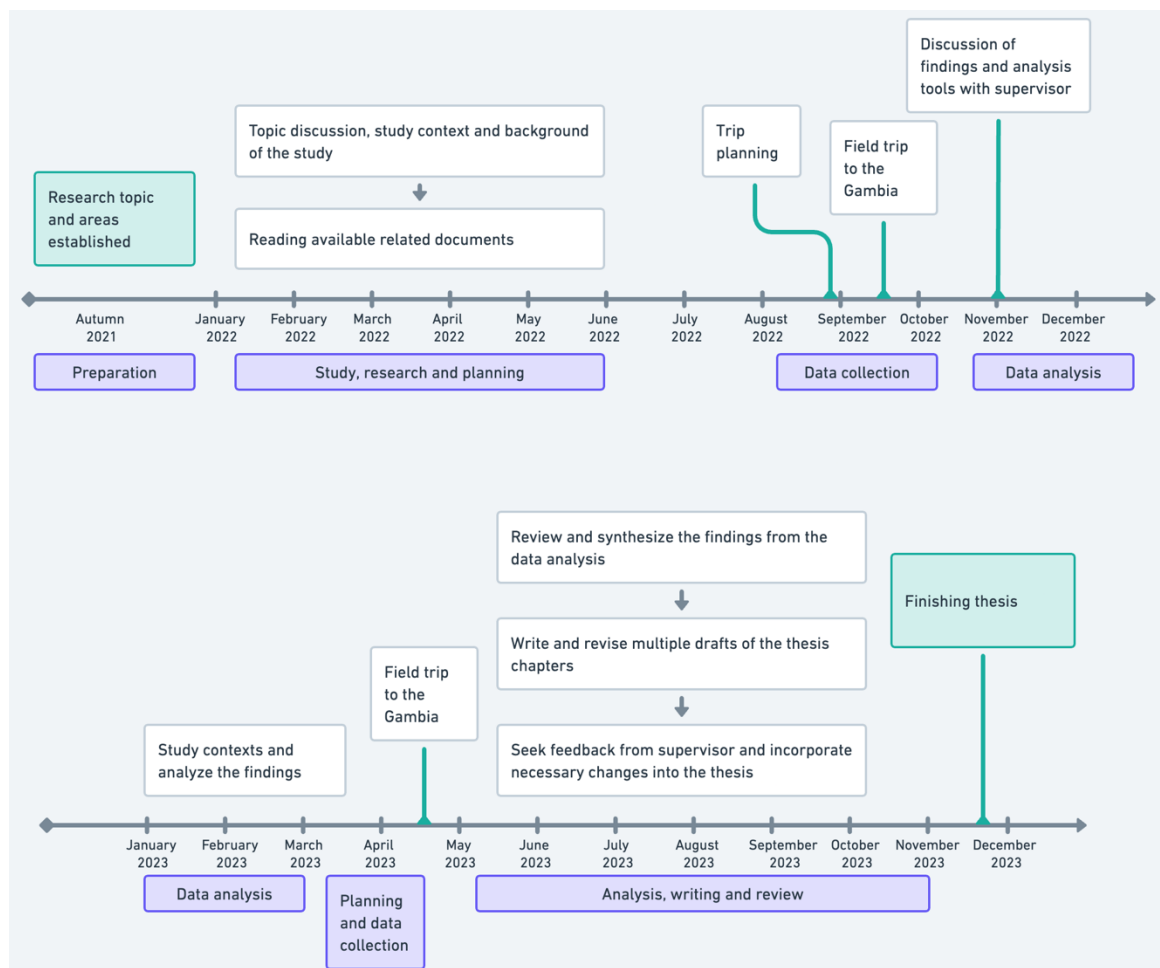

Figure 4.1: Thesis Timeline Overview

During the autumn of 2021, the research topic and areas were selected for the study of the Master thesis. The first half of the following year, 2022, started with the study, research, and

planning phase when the topic was elaborately discussed, the context and the background of the study were being studied. The available documents related to the teacher posting in the Gambia and the education system were gathered and studied. The data collection phase did not start until the mid of September 2022. After the first trip, I started familiarising myself with all the gathered data, studying the contexts, discussing the data and findings with the supervisor, and the usage of available tools. Then, after the second trip in the mid of April 2023, more data was gathered and reviewed, and the findings from the data analysis were synthesised. Feedback from the supervisor was sought iteratively to analyse the findings and improve the writing before submitting the paper in November 2023. This timeline is also presented in Figure 4.1.

Data collection

Qualitative research aims to understand non-numerical data through a rigorous process of problem identification, data collection, analysis, explanation, evaluation, and interpretation. (Nassaji, 2020). A qualitative research method was chosen for this research, and a total of 22 semi-structured interviews and two meeting/discussion sessions were conducted at the central MoBSE office, regional offices, and schools. Moreover, one brief discussion was arranged with a teacher who was visiting one of the RED offices at the time of our presence at the office. Notes were taken during each interview, and audio recordings were made. These audio recordings were later transcribed using OpenAI's whisper tool (*Introducing Whisper*, no date). Semi-structured questions were prepared prior to each interview, and participants were primarily asked open-ended questionnaires while sharing their experiences and perspectives about the teacher posting process. These interviews were conducted at the central office of MoBSE inside its various departments, including HR, payroll, and record offices. Additionally, the interviews were conducted with participants from four RED offices: RED(A), RED(B), RED(C) and RED(D). One Basic cycle school and two Lower basic cycle schools were also visited. Headteachers and teachers were interviewed for the research.

Interviews

All the interviews that were conducted for the research were semi-structured.

Table 4.1: Overview of interview and interviewees

Level	Participant	Number of Participants
Central	Senior Officer	1
	Educational Officer	3

Regional	Regional Director	1	
	HR Focal Point	4	
	Focal Point of Cluster Monitors	1	
	Cluster Monitor	4	
School	Head Teacher	3	
	Deputy Head Teacher	1	
	Teacher	4	

Table 4.1 presents an overview of interviews conducted during two field trips to the Gambia. A total of four educational officers from the central level were the participants in the interviews. Similarly, one regional director, four HRFPs, one focal point of cluster monitors and four cluster monitors were interviewed who were from among four regions of the Gambia.

Table 4.2: Detailed overview of data collection

Level	Method	Affiliation	Participant(s)/Interviewee	Data collection
Central	Meeting/Discussion	Planning – *MoBSE*	Thesis supervisor and contact person at MOBSE	Notes
	Meeting	HRD – *MoBSE*	Senior officer and 6-8 Ed. Officers	Notes
	Interview	HRD – *MoBSE*	Education Officer A	Notes
			Senior officer in upper management	Voice rec. and notes
			Education Officer B	Voice rec.
			Senior officer and 6-8 education officers	Voice rec., audio transcripts
			Education Officer A	Voice rec., audio transcripts
			Education Officer B	
			Education Officer C	
			Education Officer B	Voice rec., audio transcripts
			Senior officer in upper management	Voice rec.
Regional	Interview	RED – Region B	HRFP and Regional director	Notes
			Cluster Monitor	Voice rec. and Notes
		RED – Region C	HRFP	Voice rec. and Notes
			CMFP	Voice rec.
			Cluster Monitor	Voice rec.
			HRFP	Voice rec. and audio transcripts
		RED – Region A	HRFP	Voice rec. and audio transcripts
		RED – Region D	HRFP	Voice rec. and audio transcripts
			Cluster Monitor	Voice rec.

Schools			Cluster Monitor	Voice rec, and audio Transcript
	Meeting/Discussion	School A - *Region B*	Teacher	Notes (D)
	Interview	Basic Cycle School A – *Region B*	Two Teachers	Voice rec., Notes
			Head Teacher	Voice rec., Notes
			Teacher (Math)	Voice rec., Notes
		Lower Basic School A – *Region C*	Head Teacher, Deputy Head Teacher	Voice rec., audio transcript
		Lower Basic School B – *Region C*	Head Teacher	Voice rec., audio transcript

Table 4.2 provides a detailed overview of all the interviews and meeting sessions conducted along with different forms of collected data:- voice recordings, notes, and audio transcripts.

Interview Questions

The interview questions that were prepared for all the interactions during the research were mainly open-ended, allowing the participants to describe their answers inductively. General questions were drafted to surround the participant's position in the context of the teacher posting prior to each interaction. These questions mainly aimed at gathering participant's perspectives, experiences, thoughts, and opinions towards various steps conducted and carried out throughout the teacher posting process. A series of unstructured questionnaires were also asked during the interviews. Prepared questions included but not limited to the following questions:

- What is the standard form of communication that is supposed to be used? Are there any guidelines that are supposed to be used, and what are they?
- How are the guidelines used? Are they followed correctly? If not, why? What could be made better in these guidelines for you to follow them?
- What modes of communication are used?
- Did you receive any data? If so, what is this?
- When you receive data, how is it stored?
- Do you ever use any alternative means of communication? E.g., WhatsApp?
- In case of an unexpected situation, how do you communicate efficiently?
- Why do you use (a form of communication)?

Observation

The observation method in qualitative research involves systematically observing people and events in natural settings to gain insights into behaviours and interactions. (Mays and Pope, 1995) During the trips to the Gambia, it became possible during multiple instances to observe the office operations and involvement of people relating to the teacher posting process at the central office of MoBSE and RED offices. These include the HR requesting information about teachers from the record office, teachers' interaction with the payroll department, teacher's applications to the RED offices, and a teacher querying where he had been posted utilising QCell's (GSM service Provider) SMS gateway, officers using the existing system to track teacher files whereabouts at the records office, etc. These events were carefully observed, and in several instances, even photos were taken as long as they were allowed. All the data that were collected and observed did not reveal any sensitive data or situation and were consented to by those present at the premises.

Figure 4.2: Storage of files on teachers at MoBSE office

Document analysis

During the research, personnel at MoBSE provided several relevant documents. Documents such as a Draft concept note of Digitalization of HR operations, posting templates, teacher transfer request forms, status verification of teachers' templates, inter-regional and intra-regional teachers release memos, posting memos, national posting roadmap, etc. were studied

carefully, and notes were taken. These were especially helpful in understanding the whole process better and in all the stages of this research. From each document, individual notes were taken, and concept maps were drawn to compile the information and simplify the understanding. Both handwritten notes and online tools such as whimsical were used to create illustrations. For example, an Excel sheet containing detailed planning and roadmap information about how the national teacher posting for the year 2022 – 2023 will be conducted in different phases was first thoroughly examined, and then notes were taken. Afterwards, utilising the notes, the visual illustration was drawn to map out an overview of the roadmap of the teacher posting, which is shown in Figure 4.3.
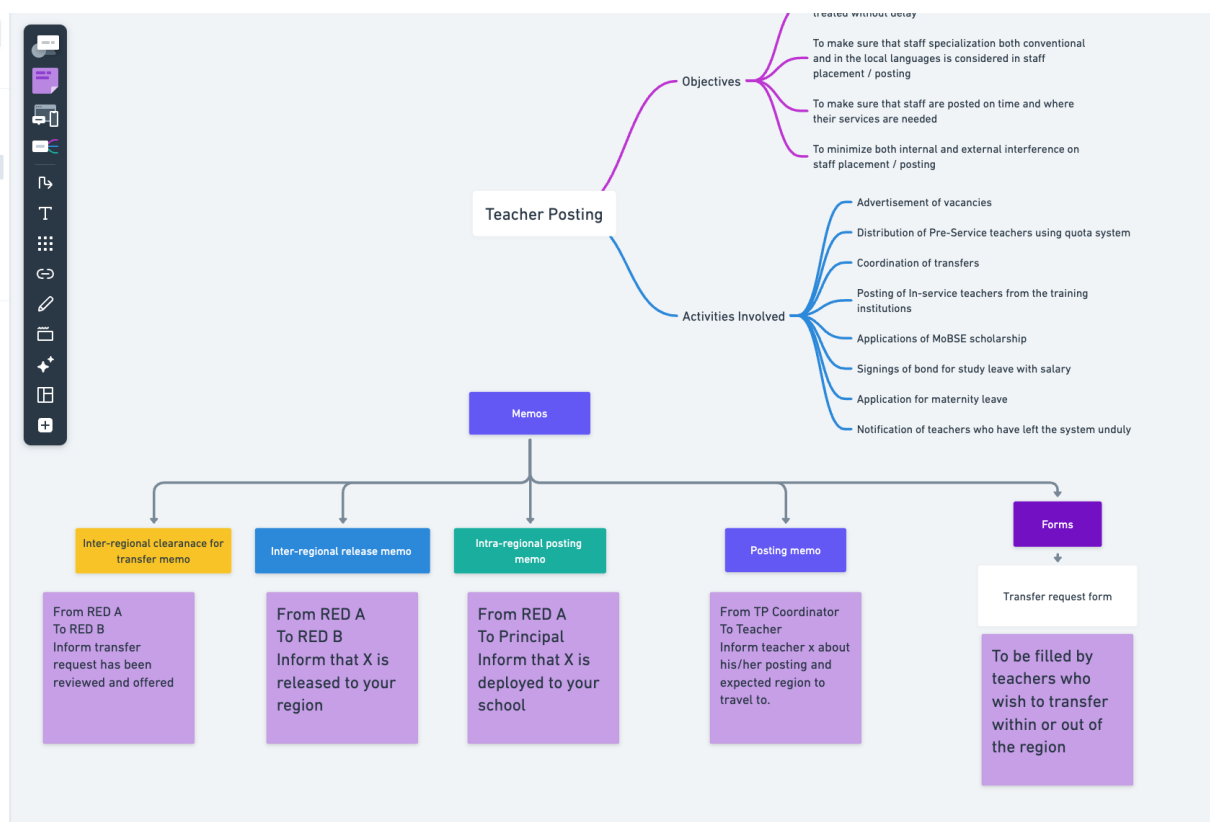

Figure 4.3: An example of using concept mapping tools as part of document analysis.

Figure 4.4: Teacher's transfer request form and posting memo, respectively.

Data analysis

The data analysis approach selected for the research is thematic analysis. This method has several advantages, such as it is capable of being largely inductive, and it proves to be a valuable tool for examining data that permits researchers to condense, emphasise important aspects of, and make sense of a vast array of data sets. Additionally, its techniques are fundamental to a variety of other forms of qualitative analysis (Kiger and Varpio, 2020).

After the first trip in September 2022, the collected data consisted of 10 audio recordings, handwritten and digital notes taken during 11 interviews and three meeting/discussion sessions. Since the data collection was done with a collective effort from two other colleagues doing their thesis circulating the same context with different individual focus areas, it was later discussed together and decided to divide the notes and audio files and extract information. Initially, a tool called NVivo was used to take and compile notes. By then, the focus areas for the research were yet to be determined after getting familiar with the collected data.

Before going for the second trip, initially, a particular interest was developing to investigate the potential bottlenecks in the information flow involved in the teacher posting. Later,

however, it was determined not to limit the focus on bottlenecks throughout the data collection phase during the second trip. Later, during the analysis phase of the study, it was determined to investigate the impediments in the information flow in the teacher posting. Like the first trip, a total of 10 interviews and one meeting session were conducted. This resulted in 11 audio recordings and notes. For the transcription, OpenAI's Whisper tool (*Introducing Whisper*, no date) was compared with Google's Speech-to-Text tool (*Google Cloud Speech-to-Text V2 API*, no date). The accuracy of Google's Speech-to-text was found to be low, and that of the Whisper tool was found to be almost accurate to what had been spoken in the actual interviews/meetings audio recordings. Therefore, OpenAI's Whisper tool was chosen for audio transcription. In the first step, collected data was familiarised while transcribing the audio files and going through the notes taken during the visits. After that, the data was coded into various labels to describe the content. The coded labels and data were later utilised to identify patterns and themes revolving around the teacher posting. Because the scope of this research revolves around the information flow impediments in the context of teacher posting, the codes and labels revolving around this theme were selected to be analysed further. These themes were later reviewed multiple times. The findings of the analysis are discussed in the later chapter of this paper.

The thematic analysis process includes six steps (Caulfield, 2019): (1) Familiarization, (2) Coding, (3) Generating themes, (4) Reviewing themes, (5) Defining and naming themes, and (6) Writing up. The steps taken for the data analysis are described below:

(1) Familiarisation

This step involved familiarisation with the data that was gathered from the trip and all the interviews. Since all the voice recordings of the interviews were also transcribed, the collected data were in the form of texts, audio recordings and notes. In this step, all these data were thoroughly studied to understand the context and an overview of all the content.

(2) Coding:

This step involved coding the data by highlighting phrases or sentences and assigning shorthand labels to describe their content. In this study, initially, different parts of the transcribed text documents were highlighted. For example:

Codes	Coded Quotations
Data duplicates	*"You may say that this particular teacher was with me, but he was released to your region. What causes the duplicates? When you release that teacher, you do not delete him from your end. You both submitted the same thing. Obviously, it's going to appear twice. That is the main challenge we face. During the multilateral. We make sure we clear all those duplicates."*
Poor internet connectivity	*"Some will send through email. But this is difficult for them because internet connection is not that good over there. So they will prefer to come with. Physically? In the flash drive. Okay. Sort of. And when they supply, they submit to me,"*

(3) Generating themes

After all the coding part was done, these codes were reviewed, any kind of commonalities among them were identified, and then brainstormed to generate appropriate themes. Themes are generally wider in scope than codes, and multiple codes were combined into a single theme. For instance, in our example, the grouping of these codes was done as follows:

Unreliability (n=25)
Incorrect data
Duplicate data
Data unrelialibility
Data verification issue
Lack of updated data
Data Update excercises

Human resource capacity strain (n=13)
Increasing manual tasks/operations
Knowledge gap of stakeholders

Inaccessibility (n=21)
Data inaccessibility
Poor network connectivity
Data transfer difficulties
Slow document transfer
Lack of adequate digital method to send documents
Teachers file access difficulties
Use of personal resources/credits
Reliance on hard copies

Inadequate stream of information (shortage/overload) (n=7)
Lack of data on teacher's preferences
Hard to communicate special cases
Lack of data on teachers leaving unceremoniously, unnoticed misconducts
Recording extra data points
Incomplete data

Inconsistent information and data formats (n=16)
Lack of interconnected/synchronised data
Data consolidation issue
Re-verification of existing data
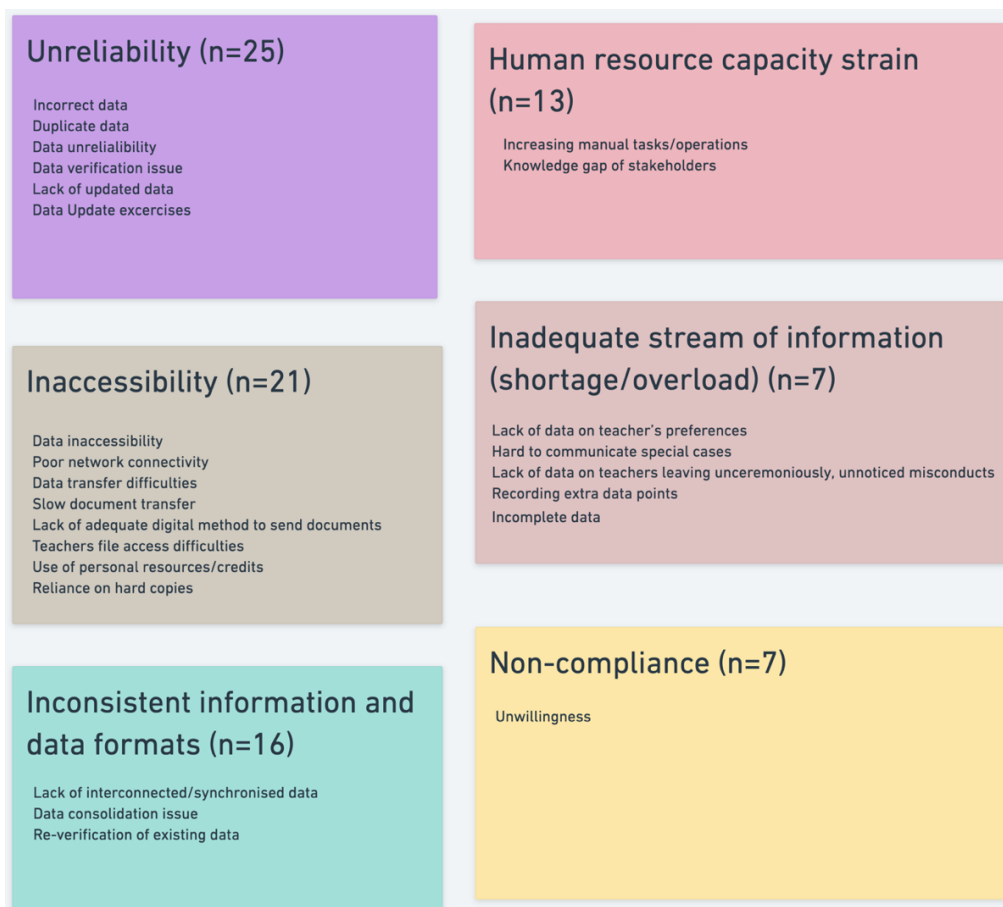
Non-compliance (n=7)
Unwillingness

Figure 4.5: An example process of generating themes

Figure 4.5 shows six themes generated after carefully grouping them based on the similarities between the codes. It also shows the number of quotations from all the codes related to each theme combined. For example, there were 25 combined quotations highlighted under the theme "Unreliability".

(4) Reviewing themes

The next in the process involved validating the identified themes during data analysis. The aim of this step was to make sure that the themes accurately reflect the data. At least three iterations were involved during the analysis, where the themes and codes were split, merged, and grouped again, or some were discarded. This was done to achieve a reliable representation of the underlying data.

(5) Defining and naming themes

This step involved finalising the themes from the data and defining them. While defining and analysing the themes, a deductive approach was applied. The literature was visited every once and then to look for any correlation between the known impediment themes from the literature and the themes from the findings of this study. After carefully looking through the data and these impediments, a final step was when the definition of each theme was determined.

Table 4.3: Themes with their codes, definitions and quotations

Themes	Codes	Definitions	Quotations
Unreliability	Data unreliability, Lack of updated data, Data verification issues, Duplicate data, Incorrect data, Data Update exercises	Refers to an organisation's lack of confidence in the data it possesses, both received and transmitted	*"[...] Just this year, we did what we call staff audit. [...] We compared the data and what is really on the ground. And you'd be surprised that audit stopped a lot of appointments and salaries because it's like- the system that we have cannot pick every movement."*
Inaccessibility	Data inaccessibility, Data transfer difficulties, Slow document transfer, Use of personal resources/credits, Lack of adequate digital method to send documents, Reliance on hard copies, Poor network connectivity, Teachers file access difficulties.	Refers to the inability to obtain data or information that is known or assumed to exist.	*"if you are going to look for the file at records, we have 50-50 percent that. I'm just going there, but I'm sure I'm not going to find any file."*
Inconsistent information and data formats	Lack of interconnected/synchronised data, Data consolidation issue, Re-verification of existing data	Information from multiple sources cannot be compared or aggregated due to inconsistent content configuration	"Yes, how many of them are graduating? So if the data is synchronised, you can get all that. Yeah, all the plannings would be smoother."
Human Resource Capacity strain	Knowledge gap of stakeholders, Increasing manual tasks/operations	State of Human Resource being overloaded by manual operations	"So the way we see it is the number of manual executions is increasing. It's growing. And it is affecting the decision-making process, the time involved in it."

Inadequate stream of information	Incomplete data, Hard to communicate special cases, Lack of data on teacher's preferences, Lack of data on teachers leaving unceremoniously, unnoticed misconduct, Recording extra data points	Referred as too little or too much data available to an organisation.	"These people left the job and up to March their salaries were active. You can see this. These are just the ancillary staff category. The total number of ancillary staff is about 2,360, I think, as of last month. So these people, and some of them, it's too long since the salary has been going and they left."
Non-compliance	Unwillingness	Refers to the reluctance from the teachers to accept the teacher posting they receive.	"[…] some of these teachers, when they are promoted, to move them from this region to upper regions is difficult. So as a result, they will prefer to stay here and remain classroom teacher than to be a head in the upper regions. We face those challenges also."

Table 4.3 contains all the final themes that were found in the study and their definitions and exemplary quotations.
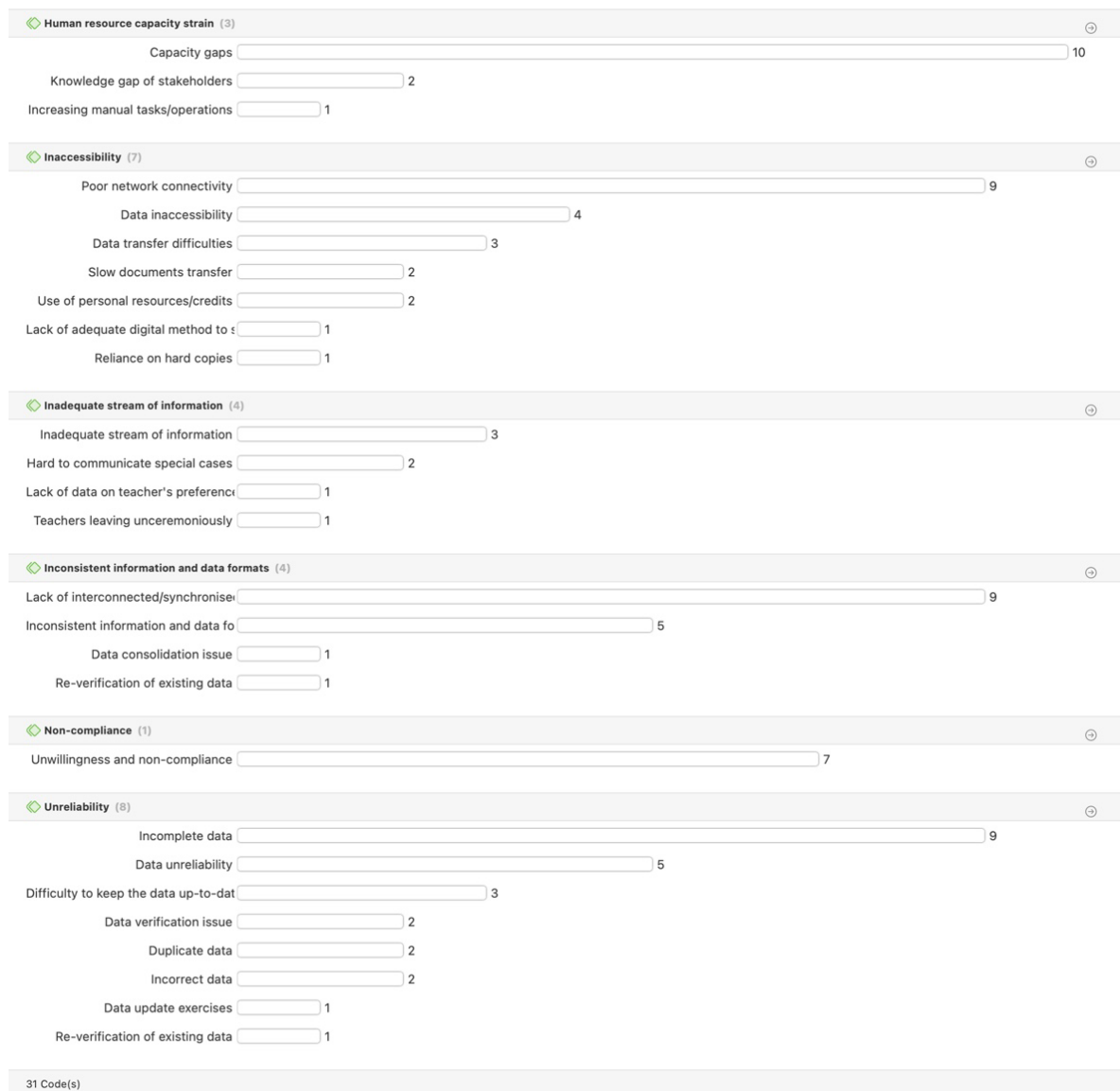

Figure 4.6: Information flow impediments themes from thematic analysis

Figure 4.6 is an overview of all the impediments that were identified, along with their codes and the number of quotations alongside each impediment.

Reflection on Methods

As mentioned above, the research included two trips to the Gambia and interviewing multiple stakeholders actively or non-actively involved in the teacher posting process. In the Gambia, it was found that the internet connectivity was weak in most of the locations throughout our trips. Thus, it was crucial to collect as much data as possible during our stay there. Hence, the interview method turned out to be much more efficient for us as it was also possible to observe the interviewee's physical movements and body language, which were natural to them. According to (Sachan, Singh and Sachan, 2012), during an interview, the interviewer can gather insights into an interviewee's behaviour, personality, opinions, thought processes, and beliefs beyond just their spoken responses. Observing the interviewee's expressions and reactions to questions can reveal the accuracy of the information provided and any inconsistencies between different sources of information.

Conducting interviews in the informants' workplaces had unique advantages. It allowed for more natural conversations that made the interviewees feel comfortable. They could talk about their experiences and work in a familiar environment, which often led to more genuine dialogue. However, being an outsider had its challenges. As I was not part of the local educational system, I had to be sensitive to how informants perceived me. This was important, as their willingness to share information could be influenced by my status as an outsider. To overcome this, I made efforts to establish connection and trust early in the interview process, ensuring that informants understood the confidentiality, scope and purpose of the research. Handling rumours and "off the record" statements was also a critical aspect. While such information could provide valuable insights into the local context and a deeper understanding of the teacher posting processes involved, it also posed a challenge in terms of verification, ethical use and sensitivity. Therefore, I approached these aspects cautiously, using them to inform my understanding of the context to some extent rather than as definitive evidence.

The way informants perceived me inevitably shaped their sharing of information. Some were more open, seeing an opportunity to provide more in-depth details. Others were more reserved or reluctant, potentially altering the nature of the information they chose to share. This dynamic was a crucial consideration in analysing the data, as it required a careful balance between

valuing the informants' perspectives and critically assessing the influence of my presence on their responses.

Overall, this method provided rich and insightful data. However, it also highlighted the complexities and considerations inherent in conducting qualitative research in a field setting, especially as an external researcher.

Ethical consideration

"Good research is ethical research, and that requires investigators who take seriously the importance of participant welfare, meaningful informed consent, and respect for research participants" (Diekema, 2006). Throughout this research, efforts have been made to consider the ethical aspects of the research activities. This includes the interviews of all the participants, where they were asked for consent to take the audio recordings of the conversation and briefed that the use of these recordings would only be for this research and referencing purposes. There were two instances where the interviewees refused to take audio recordings, and their choices were respected, and notes were taken, which they acknowledged to be okay. Moreover, the focus and the context of the research being conducted were also highlighted to them. It was also informed to each participant of this research that privacy and confidentiality will be maintained, and efforts have been made to do so accordingly.

Another significant factor to consider for all the interviews was the hierarchical organisation of the MOBSE. While it was proposed to them which stakeholders could be relevant for this research, in almost all instances, our contacts at the MOBSE were helpful in choosing the appropriate regional offices, schools, and relevant stakeholders such as human resource focal points, cluster monitors, the head teachers, regional directors, and office personnel at the MOBSE office. This was based on the time and availability of our interview participants, the accessibility of travel for both parties and the sensitivity of the priorities of their responsibilities. The dialogue with the contacts at the MOBSE office was always kept open to be able to be contacted whenever needed.

Chapter 5

Empirical Findings

This chapter presents the empirical findings obtained from the research data collected. The chapter comprises two parts. The first part discusses five information flow activities that were identified in the study to facilitate communication among different stakeholders involved in the teacher posting process. These activities include acquiring information, processing the information, delivering information across functional units, moving information through formal and informal channels, and information sharing. These activities were found to contribute to the coordination and the decision-making process. The flow of information happens between various stakeholders, such as between cluster monitors and the human resource focal points, between the senior officials at the Ministry of Basic and Secondary Education and the human resource focal points. The second part of the chapter focuses on six specific issues that impede the information flow activities mentioned above.

5.1 Information flow activities and their impacts

Efficient information flow within the context of teacher posting stands as an indispensable element in the smooth and timely process of the distribution of teachers across the different regions of the Gambia. The availability of complete information regarding the regional demands for the number of teachers and updated and accurate information storage on the teachers are key factors that were found necessary to conduct the national teacher posting efficiently and in a timely manner to facilitate the movements of the teachers before the start of the academic year of the students. As mentioned in the above paragraph, the information flow activities observed during the study are shown in Figure 5.1 below:
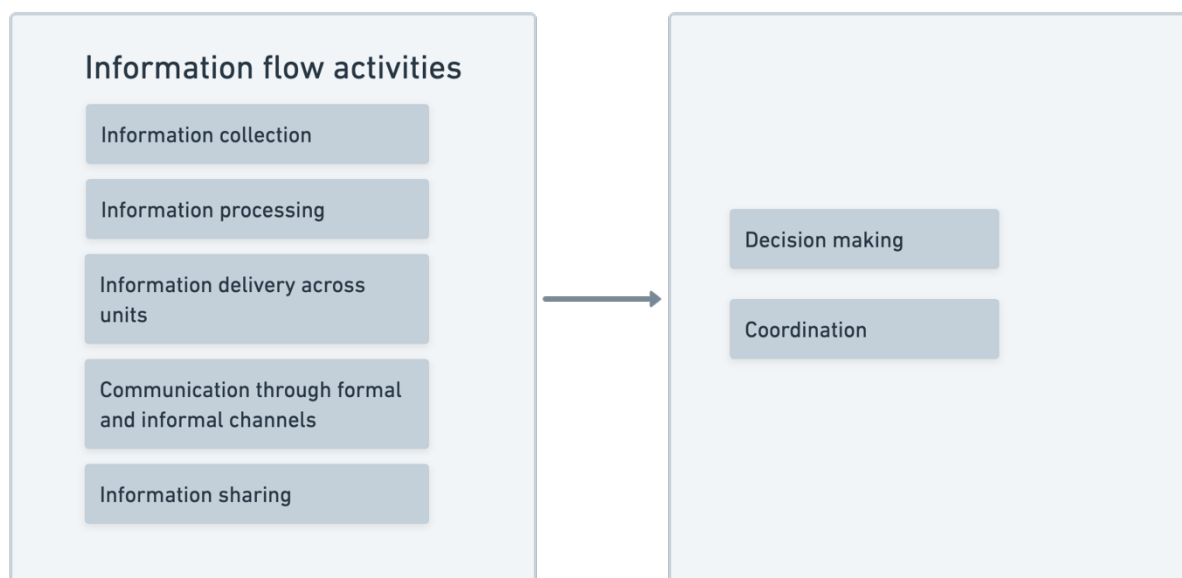
Figure 5.1: Observed information flow activities and their impacts

The following quotes from an Education officer at the MoBSE illustrate the information-collection process and the subsequent steps taken from the collected data for the national teacher posting process.

> *"[...] Before postings we would have collected teacher needs from every region. Every region will provide HR with teacher gaps in all levels- at the lower basic level, at the upper and senior level. Then we will consolidate, we will put that data together and it becomes a national data. Then we would have then collected data on people that are coming from the college. We would have known how many of them are in service and how many of them are pre-service then when we deal with at the national posting level."*

Firstly, the information acquisition process begins with collecting data on the specific requirements for teachers in every region. This involves gathering information on the gaps in the teacher workforce at various educational school levels, including the lower basic level, upper basic level, and senior level, within each region. In addition to the information on the regional needs, the ministry also gathers data on teachers coming from educational institutions such as the Gambia College. This process involves acquiring information on the number of teachers currently In-Service, as well as the number of teachers in the Pre-Service phase, typically those who are still undergoing their training in colleges or universities before starting to teach. After collecting individual regional data on teacher needs, the ministry consolidates

the data from all regions to create a comprehensive national dataset. This dataset provides an overview of the teacher requirements and the supply of the teachers. The data that is gathered from the regional needs assessment and the information on teachers from educational institutions is crucially important during the teacher posting process at the national level. This data serves as the foundation for making well-informed decisions regarding the allocation and deployment of teachers across various regions and educational levels within the country.

Another quote from another Education Officer at the MoBSE also points out the data collection and information processing when inquired about how the information flows during the national posting process:

> *"The first source of information as far as your question is concerned, is cluster monitors. Even the posting data I'm talking about, is cluster monitors that will take the profile of the teachers at the school. Then they will provide it to the regional office and the regional office will compile all the cluster monitors. When they consolidate, then they submit regionally to us. When they submit, we also receive the same information from other regions. Then we also consolidate."*

The officer highlights the pivotal role of cluster monitors as the primary source of information, underscoring their responsibility to gather data on the present number of teachers within schools. The information acquired by these cluster monitors is subsequently transmitted to the regional offices, initiating the first stage of the information flow process. At the regional level, the data obtained from various cluster monitors is compiled and consolidated, providing an overview of current teachers available at schools and identifying the needs for the new teachers within the specific region. The compiled data is then forwarded to the central office, serving as a basis for the overall national data aggregation process. Here, two information flow activities are indicated: information processing and the delivery of information across organisational units. As indicated in the quote above, one example of such information delivery occurs from the cluster monitors to the regional offices. Then also from the regional offices to the central office. Data consolidation, which is a part of information processing, is found to happen at each level.

The information processing activity of information flow was found to be very crucial in terms of decision-making. Here is a quote from the Education officer at MoBSE that speaks about how an impediment in the information processing activity impacted the decision-making aspect of the teacher posting process:

"There was this mass promotion. We promote so many people. […] But we realized that some people benefited from the promotion that should not benefit. And the reason was that we have wrong information on them. Because we are using the posting data, national posting data. And it is not 100% reliable. So if you make decisions based on that information, you always make so many errors. And when that happens, teachers, they are good in terms of writing. So they will petition."

In this case, the Education officer at MoBSE provides an example of how unreliable information can lead to faulty decisions. How information is collected, processed, and disseminated is vital for making accurate decisions. The mentioned case depicts that few people were promoted at one instant who were later discovered to be undeserved. Later, the teachers were found to be petitioning at the MoBSE office in the same regard. This shows how impediments in the information flow can affect the decision-making aspect of the teacher posting process and the sensitivity of the information.

It was also found that the movement of information (communication) as an information flow activity happens through formal and informal channels. One nature of formal information flow, as mentioned in Table 2.1, indicates that the information flow is documented, one-way and hierarchical. In previous chapters, the formal way of passing out information using hard copies of Memos between different stakeholders is described as part of an overview of the teacher posting process. In the following excerpt from an interview with an Education Officer at the MoBSE involved in the national teacher posting, the officer denotes the use of memos.

"The pre-service, like we say, will apply. These are fresh. […], they have to do it themselves. Fresh. They will have to apply to the regions wherever their services are needed.[…] When they apply, the region knows their gaps. As an applicant, they will tell you, we are sending you to this school- that's where your service is needed. And you will be given a memo. […]"

In essence, the formal information flow in MoBSE, as exemplified by the use of memos, reflects the use of formal communication modes. Furthermore, during the research, it was also found that the officials at MoBSE utilise official emails provided by the Ministry while transferring information across the levels.

Moreover, in the following quote, one of the regional directors highlights the information flow happening through informal channels.

> *Like you said, we use our own resources and call them.[...] And there are certain information that we need based on the scenario of a particular school. We cannot wait until the end of the month for them to come and report it. [...] And teaching and learning in the schools are basically arranged by the school. And there is something wrong there. So we have to use our credit and call the cluster monitor. [...] So the particular cluster monitor ended up using his own credit to send us the data and the documents we need through WhatsApp.*

The regional director emphasised the importance of informal communication channels in conveying crucial information across different levels within the system. Stakeholders like HRFP sometimes use their personal resources to make phone calls, highlighting the crucial role of informal channels in ensuring timely and effective communication, especially in urgent situations. As listed in Table 2.1, face-to-face communication and communication through telephone conversations are defined as informal information flows.

The director also pointed out that relying on informal channels may also sometimes be suitable for urgent and time-sensitive information due to the bureaucratic processes involved. Therefore, the director's use of direct communication with the cluster monitors through phone calls and digital platforms like WhatsApp demonstrates the use of different informal modes of communication in addressing pressing issues and facilitating effective communication through both formal and informal channels.

Another information flow activity that was found was Information sharing. The sharing of information happens across different levels within the ministry. The following excerpt from an interview with a senior official at MoBSE highlights the information sharing between the central office (headquarters) at MoBSE and the regional offices.

> *"[…] Like if there is any information right now, for example, teachers that are reporting to headquarters that they are not posted, we will get all their information and send it to the regions. And:- see this particular staff, they were in your region, we have observed that they are not posted, they are not in any schools, but they were in your region. Can you please post them and inform us accordingly? We will send them the information. We are not mandated to post to schools. [...] The way it works, we post from the headquarters to the regions. Who do we post? Graduate teachers from the universities, those who left the system and they want to come back, those who qualified years ago but they never took up posting."*

The excerpt indicates a simple hierarchical structure in information flow from the central office or headquarters to the regional level. It was also found that the teacher posting process is conducted with a partial decentralisation of the process and operations towards the regional levels. In the example mentioned in the excerpt above, if teachers report to the headquarters that they haven't been posted to any school, the headquarters takes note of this. To ensure that every teacher gets a posting, they provide specific details about the unposted teachers to the relevant RED office, including a clear directive to resolve the situation.

It was also found that information sharing occurs between the MoBSE and external institutions as well. In the context of teacher posting, the information about how many teachers is graduating from training institutions was found to be valuable information for allocating the available supply of teachers to meet the demands of different regions. Stated below is a quote from one of the education officers at the MoBSE speaking about data sharing that happens between MoBSE and the Gambia College.

> *"For example, Gambia College. Gambia College. […] The names they will send, they will leave so many people behind. […] Most of them are in-service teachers who should be posted: In-service teachers, were in-service.[…]. And they miss out. The Gambia College: they will send us the data. According to them, this is the number that's supposed to graduate this year. So we are expected to post them accordingly. But the data they are sending, they leave some people behind. And this office has no way to find out who got missed."*

The education officer highlights the existing collaboration between MoBSE and the Gambia College and points out the discrepancies in the data-sharing process. It also hints at the impediment that impacts the data-sharing between these two parties. When the Gambia College provides information that is in a different format and does not include complete, exhaustive information on prospective teachers, it impacts the cross-referencing capabilities for the available data at MoBSE. Institutions such as the Gambia College stand as crucial external stakeholders because they provide the supply of prospective teachers to the national teacher posting operation. Therefore, it was also discovered during the field study that one of the meetings occurring at the MoBSE also actively invites the representatives from the Gambia College on a regular basis as part of the National teacher posting roadmap. This happens during the 'Identify demands and the supply of teachers' phase of the teacher posting roadmap, as indicated in Figure 3.8.

Various information flow activities were observed in the study. Primarily, the teacher posting process starts with data collection activity where all the relevant information is collected through different levels of MoBSE, namely central level, regional level and school level. The cluster monitors play a vital role in collecting new information as well as verifying existing information. The information processing activity was also observed and found to be happening in every stage. An example above indicates factors like incorrect information can impact information processing activity of the information processing. Notably, the communication of information was observed to be happening through formal channels such as through Memos and informal channels such as through the WhatsApp digital platform. Data sharing is another information flow activity which was found to be existing in the teacher posting process. To have efficient data-sharing capabilities, it was highlighted that having an exhaustive data set that is cross-referenceable across sharing parties is key to making the teacher posting process efficient. Otherwise, various aspects of teacher posting, such as decision-making and coordination, can be impacted due to impediments to these information flow activities.

5.2 Information flow impediments

The previous sections presented five different information flow activities that were observed in the teacher posting process in the Gambia. These findings reveal that the flow of information is a crucial aspect for MoBSE to conduct the national teacher posting efficiently. It was found that efficient information flow strengthens the decision-making, coordination, and overall functions involved during the process. However, during the study, six information flow impediments emerged from the analysis of collected data on the teacher posting process in the Gambia. These impediments are Unreliability, Inaccessibility, Inconsistent information and data formats, Human resource capacity strain, Inadequate stream of information, and Non-compliance. Analysis showed that the most common information flow impediments were Unreliability and Inaccessibility, followed by the others. Four impediments, Unreliability, Inaccessibility, Inconsistent information and data formats, and Inadequate stream of information, were already established, and their definitions align with the definitions presented by (Day, Junglas and Silva, 2009) in Table 2.1. Non-compliance emerged as an impediment with an expanded variation in the definition presented by the author. Definitions for each of these impediments, along with the two new impediments, are presented below. Relevant examples from the interviews are also provided for each impediment. It is important to note that these impediments cannot be claimed as an exhaustive set of impediments, and further

research may expand on these definitions or find more impediments. Additionally, some quotations for the impediments may be used as examples to present and discuss more than one impediment.

5.2.1 Unreliability

Unreliability refers to an organisation's lack of confidence in the data it possesses, both received and transmitted (Day, Junglas and Silva, 2009). Unreliability is the most stated information flow impediment in the findings from the interviews. For example, a quote from an Education officer at MoBSE points out Unreliability as the "biggest" challenge.

> *"Our biggest challenge is our data is not reliable. Several occasions we will promote people who are not to be promoted. We will leave people who should be promoted based on the data we receive. They are not reliable. You have to do further verification. […] We use our posting data as our main source, but it has problems […]. You will see someone who is appointed in 2012, but in the system, in that very data, you will find that the person is appointed 2020. […] The data we are using is not reliable. Still challenging."*

The Education Officer at MoBSE has highlighted that a major problem in the national teacher posting is to work with data in which MoBSE needs to increase the reliability. This has led to serious mistakes, such as promoting the wrong people and overlooking deserving candidates. To address these issues, the institution has to spend extra time and resources verifying information. For example, the 'posting data' they rely on is often inaccurate, with discrepancies like a teacher's appointment date being recorded as 2020 when it was actually in 2012. These inaccuracies highlight the challenges posed by the institution's unreliable data.

Various factors that contribute to making the data unreliable were found to be the existence of duplicates in the available data, the presence of data that is not up to date, incorrect data, and issues with the data verification. As indicated in the examples above, it is crucial to have complete data that is accurate, up-to-date and verified. Only then the MoBSE, as well as the HRFP of Regional Directorate offices (RED) believe that an informed decision can be taken and efficient coordination in terms of teacher posting can be maintained.

Given below is an excerpt from the interview with a regional director of one of the "rural" provinces.

"[…] Just this year, we did what we call staff audit. […] We compared the data and what is really on the ground. And you'd be surprised that audit stopped a lot of appointments and salaries because it's like- the system that we have cannot pick every movement."

The director has pointed out that the system still has some data that needs to be completely verified. When the regional office started to cross-check the data with the actual number of teachers working in schools, they identified some discrepancies. It was surprising to find out that a significant number of teachers had their appointments and salaries cancelled due to these discrepancies.

There are also mentions of duplicates in the existing information on teachers at MoBSE. Such occurrences have been stated by one of the education officers at MoBSE.

"What causes the duplicates? When you release that teacher, you do not delete him from your end. You both submitted the same thing. Obviously, it's going to appear twice. That is the main challenge we face. During the multilateral, we make sure we clear all those duplicates. […] Usually, I think Excel has that function where you can delete the duplicates. But usually, we don't take that risk. We have to go one by one. If the duplicates appear, we go to the conditional form. That is a function that identifies all the duplicates. Then we will ask individual focal points to give a clarification. "

The education officer points out the existence of data duplicates. To address this, multilateral meetings are utilised to identify and clear these duplicates. Before removing any duplicates, however, the specific HRFP are requested for clarification.

Another factor acting as a supporting factor for the Unreliability impediment is the existence of incorrect data**.** One of the cluster monitors, in the quote below, illustrates how incorrect data can be generated in the data collection process.

"[…] because you see data; once we miss a figure, everything is wrong. So sometimes it could be when the guy is inputting, he could mistakenly miss one of your data, your payroll number. If you just miss one, just like your telephone number, if I miss one, I cannot call you. If I change your last digit to somebody's last digit, I call somebody, I don't call you."

For example, the cluster monitor mentions that a slight mistake in recording a teacher's telephone number can result in a situation where the teacher is not reachable, and the wrong person is contacted.

Here is a quote from an education officer at MoBSE where another example of how incorrect data can exist is illustrated.

> *"[…] If you are posted to region 3, we expect your salary to be located to region 3 at a particular school. But this may not be the case. Sometimes, I have a data; posting data, and this data is telling me Mr. X is posted to region 1. But when I look at the payroll, I realize it's in region 6. So when that comes, we have to work with them. When we confirm that the teacher is actually in region 1, then they have to change the pay location. So their involvement is key."*

As stated in the example, a teacher posting location can sometimes be entered incorrectly, creating inconsistency. The existence of such inconsistencies requires different departments to work together. After confirming that the teacher is indeed assigned to "Region 1", the payroll is adjusted accordingly. This highlights the importance of coordination among departments to guarantee the accuracy of data and fix any inconsistencies.

Hence, unreliability was found to be impacting different aspects of the teacher posting process, such as well-informed decision-making and coordination. Having unreliable data was found to be the biggest challenge and poses an impediment to the information flow across different central, regional and school levels. As illustrated in the examples and quotes above, factors such as incorrect data, information needing verification, existing duplicates in the data, and the data not kept up-to-date can further strengthen the unreliability factor, which impedes the information flow in the context of teacher posting.

5.2.2 Inaccessibility

According to the definitions presented in Table 2.2, inaccessibility refers to the inability to obtain data or information that is known or assumed to exist. Inaccessibility of information is found to be caused by factors such as teachers' files being inaccessible, poor connectivity in several areas within the regions, slower transfer of information and reliance upon the hard copies arrival to take necessary actions.

In the following quotes, an Education officer at MoBSE states a challenge with accessing the teachers' files from the record office -

> *Quote 1: "[…] For example, if you want to know the location of a file, when you check in the system, the system will tell you, yes, this file is sent to HR or is sent to services or is sent to PS office. It can give you that one, okay? But let's say we want to promote people and we need to access their personal file, okay? The file itself, not the information on the system. We need the file itself […] This usually will take forever. […] When you go there, you will not find it there."*

> *Quote 2: "if you are going to look for the file at records, we have 50-50 percent that. I'm just going there, but I'm sure I'm not going to find any file."*

Although the digital system at the record office displays the location of a file when requested, the process of physically retrieving it was found to be challenging. Often, the files were not found where they had been indicated by the system, making the efforts to locate them time-consuming. As per the officer's remark, there was only a 50% chance of finding a file in the records department. This highlighted the depth of the inaccessibility challenge in MoBSE. This discrepancy between the digital tracking of teachers' files and the actual location of physical files showed the wider challenge of inaccessibility within the organisation that impedes information flow.

Another challenging factor stated during the field study that points towards inaccessibility impediment to the information flow is poor connectivity. This has been highlighted not only by the education officers at MoBSE but also by the regional stakeholders: Human resource focal points, the cluster monitors, and the teachers at the schools.

A teacher from a remote school provides a concrete example of the poor connectivity faced in certain areas.

> *"[…] places like here, you know, for example, where I am right now, I may not have a network. I have to go to the street, or here, or somewhere at the quarters. You stand at that place, […] so places like provinces where you are not having a usual network, actually you have to go to a place where you have a network, and then click on that."*

In remote regions like the one the teacher was currently in; network connectivity was stated to be often limited. To access necessary data at the time, these teachers must sometimes physically move to specific locations, such as a particular street or part of the area, where a network connection becomes available. This was particularly found to be challenging in regions like the provinces where there was sporadic network coverage, requiring people to search for specific

areas to ensure connectivity and access to information. This illustrated the real-life impact of "inaccessibility" in certain contexts.

Given below are other excerpts from an Education officer at MoBSE illustrating the challenging internet availability.

> *Quote 1:* *"Some will send through email. But this is difficult for them because internet connection is not that good over there. So they will prefer to come with physically in the flash drive. Sort of. And when they supply, they submit to me,"*

> *Quote 2:* *"Finally, when the posting is published, all the regions will receive the published national posting. So that will be the updated version. The final source of truth. […] But when it is published, usually we make sure, at this stage also, we make sure we send through email. But like he said, some regions will complain that due to the poor internet connection, they could not get it."*

As illustrated in the statements, unreliable internet connectivity makes the process of sending and receiving data through email inefficient. In addition, as pointed out, the stakeholders may also physically carry data on flash drives to ensure its delivery. Moreover, when the final postings were published and needed to be disseminated to all the regions, it was found that few regions expressed their difficulties in receiving such information because of poor connectivity. Due to poor internet connectivity, it was found that certain areas need help accessing vital information, highlighting the problem of digital inaccessibility within MoBSE.

The information inaccessibility has also been found stated by the cluster monitors. While interviewing one of the cluster monitors in a rural part of the Gambia, the connectivity struggles were mentioned.

> *"The trouble there is internet connection. Because some schools are located in a place where, even getting network for the campaign is difficult. You just need a network. So those people, before they access information, sometimes information is expired. Like, please come to meeting tomorrow at nine o'clock in the office. Might be the person who received the message around five to 10. Then the message already expired because of connection problem. Network."*

In rural areas, accessing timely information can be a huge challenge due to weak or non-existent internet connections. Even basic network connectivity for mobile phone communication can be a struggle in some remote schools. According to the shared experience

in the quote above by the cluster monitor, this lack of reliable connectivity leads to delays, where time-sensitive information like meeting invitations might reach the intended recipient too late. For example, a meeting scheduled for 9 o'clock might have the invitation delivered only shortly before the stipulated time due to poor network, making the notice ineffective. The implications of digital inaccessibility in such regions are profound and underscore the need for better connectivity.

Another cluster monitor from the same region as the one quoted above also states the same issue of poor connectivity.

> *"I even use my phone to call to inform them about what is coming to happen. Some of them will not have access to the internet, so they will not see the message. Internet coverage is a problem in some areas."*

The cluster monitor shared that to inform the teachers about upcoming activities, sometimes telephone calls are made on personal phones. It is also stated that some of the teachers end up being unable to view the message due to the problem with internet connectivity.

This challenging concern was also stated by the Human resource focal points in one of the rural regional RED offices where the interviews were conducted.

> *"Especially this area, it's poor here. Even now I was just trying to download something from headquarters. It's difficult. They want me to identify the contract teachers but I'm still struggling to download so that I know who the contract teachers are."*

During the interview, the Human Resource Focal Point expressed their struggles with poor internet access. It was stated that just earlier, before the interviews were being conducted, they were trying to download some information coming from the Headquarters at the MoBSE. This incident highlights the bigger picture of data inaccessibility in these areas, which poses significant barriers to efficient information access and dissemination. Specifically, in this example, where the HR focal points were expected to identify the contract teachers in the system, it shows how downloading issues for relevant information can hinder the identification of contract teachers, which has been highlighted as a crucial task as part of the teacher posting.

Additionally, a slow movement of information also prevents the data and information from being accessible, as stated by cluster monitors and HR focal points in the regional RED offices.

Given below is a quote from one of the cluster monitors belonging to a regional office located at a rural province of the Gambia.

> *"But they will just come and complain:-"I gave you my name for the money since, up to now, and I didn't receive anything.". Not knowing that your name has gone, but we are also waiting for your colleagues who will also report the same. This is where they can put all the notes together and send it. Sometimes once the notes are sent, if they are sent after the 5th, you cannot send the allowances for that month because it's too late, until the other month."*

The cluster monitor highlighted this issue and recounted the complaint from teachers who had submitted their details to inspect the reasons for not receiving their salaries but were left waiting and uninformed. According to the statement, the delay usually stems when the office waits for more individuals to report similar cases before sending them to the action-taking units. This leads to a bottleneck in information dissemination. This impediment especially impacts these teachers when such consolidated notes are sent after sensitive dates, such as the 5th day of the month, as mentioned. In such cases, the processing of salaries for that month gets deferred, leaving individuals waiting for another month. This situation highlights the impacts of delays and underscores the pressing need for timely information flow.

This type of scenario was also mentioned by the HR focal points in the same region.

> *"Issue them with a posting memo to report to a school. The challenge will be now. These hard copies will be lying down here. And the culture in this country is that after the 5th of the new month, creation of salary is always difficult. It's a problem. The system will close. So sometimes these hard copies will be lying down here. We will not have somebody to carry them to headquarters for processing so that salaries are imported. Even though I will send the soft copy. I have the soft copy of all those recruited per week and send it through there. But the evidence they will want to see is hard copies. Make sure every document is in order. So that's the greatest challenge."*

As stated above, the organisational operations and procedures mandate the submission of hard copies as stronger evidence to verify information and process the salaries of the teachers. However, as in the example above, the information flow slows down when these crucial hard copies remain yet to be transported to the headquarters for timely processing. Even though the HR personnel might have sent the information digitally first, followed by the hard copies later,

the headquarters might have to wait oftentimes for the physical documents to verify and act in crucial matters. This scenario highlights the information flow challenges that arise from relying on hard-copies-based information flow for evidence, particularly when contrasted with time-sensitive digital systems.

Ensuring access to data is crucial for the smooth operations of the teacher posting process, as it directly affects communication and decision-making in various aspects of the process. However, data inaccessibility is a significant hurdle in the process, particularly in rural areas, where obtaining crucial information is a challenge. This impediment is further supplemented by factors such as slow information movement, reliance on hard copies, unreliable network connectivity, and delayed processing due to system constraints. These challenges affect personnel at the central, regional, and school levels, making it difficult for them to manage the teacher posting process efficiently.

5.2.3 Inconsistent information and data formats

According to the definitions by the (Day, Junglas and Silva, 2009) in Table 2.2, when similar data or information from multiple sources cannot be compared or aggregated due to inconsistent content configuration, it is known as data inconsistency. The factors that were found attributed to the data inconsistency from the study are the existing need for interconnected and synchronised data and Challenges in data consolidation and verification. The examples stated by different stakeholders of the Teacher posting process below highlight the inconsistent information and data formats as an information flow impediment in the teacher posting process.

An education officer at MoBSE highlighted the need for interconnected and synchronised data among multiple sources of data MoBSE currently had.

> *"[…] was emphasising that, if you can remember, tasking HR to work with planning on that so that the EMIS will capture, can synchronise these data. But that is not happening. For them, they have that EMIS […]. For us, we have a system and […] it's kind of analog; that is Excel."*

Seamless data interconnectivity and synchronisation among various data sources within the Ministry of Basic and Secondary Education (MoBSE) is crucial, as highlighted by an education official. According to the officer, the Human Resources (HR) department had been urged to collaborate and plan the data synchronisation with the Education Management Information

System (EMIS) team to ensure all the data are synchronised across these two systems. While there were departments within the MoBSE using the EMIS for data, the HR department was found still relying on systems such as Excel, which can be viewed as "analog" in comparison.

Another education officer at MoBSE elaborates on this inconsistent information between the two systems.

> *"For them, they deal with statistical data […] But for us, we want a data that is beyond that. We want to know profile of teachers so the biography and the that data would be captured. […] What is your date of birth? When are you first appointed? When did you move from this school to this school? We need all those data because they are critical in our decision-making. They don't have. They are with us. And they have their statistical data, which is enrolment. So if those two data can be synchronised, it's better for the system."*

While the EMIS system was indicated to be primarily dealing with statistical data that is more quantitative and generic, on the other hand, the HR department aimed to collect comprehensive data on teachers' profiles. The department is particularly interested in gathering detailed information about teachers, including their biographical data, date of birth, initial appointment date, and any subsequent school transfers. It was mentioned that this type of information is crucial for decision-making processes in the context of national teacher posting. However, it was pointed out that such types of detailed data of teachers are not present in the EMIS, which mainly was mentioned to be tracking enrolment figures. To improve efficiency, the officer also recommended synchronising these distinct sets of data to benefit the system at MoBSE.

One of the education officers further highlights the challenge with the cross-referencing part of the information processing, especially when there is a mapping issue due to the absence of common data points between two information sources.

> *"But at the Gambia College, that is not their unique identifier. So if you want to cross-check, this is where the challenge is. The mapping doesn't happen that easily. […] what they have usually, that we can at least try to compare the two data, is the telephone number. Telephone number. […] And the GC number, they call it GC number, that means Gambia College number which we don't have."*

For instance, the unique identifier for teachers used in the teacher posting process by the MoBSE was indicated to be not found in the data provided by institutions such as the Gambia

College, which complicates direct comparison and mapping. And in another instance, the reverse was also mentioned to be true; the unique identifiers, like the "GC number" (an acronym for Gambia College number) provided by the Gambia College, were non-existent in the data maintained by the HR at MoBSE. Although there are some common data points, such as the telephone number, that could potentially aid in reconciling the two systems, a more suitable data point for accurately mapping the data from two sources was mentioned to be lacking, further complicating the alignment process.

The officer further elucidates the challenge of maintaining multiple copies of the same information because of the lack of interconnected data.

> *"since our data are not interlinked, […], what we do is, if a teacher come here and then say that my name did not capture in the posting, […] I will update here in Excel and then I will advise the individual to go back to the regional office also. They also will update."*

Due to the lack of interconnected systems for the teacher posting across the central level and the regional offices level, there were redundancies in data handling. For instance, if a teacher reported an issue, such as their name not being recorded in a particular posting, HR would manually update the information in an Excel file at MoBSE. Afterwards, the teacher would be advised to visit the regional office for a similar update. This process not only increases the workload but also heightens the risk of inconsistencies across different copies of the same information.

One of the senior education officers at MoBSE also felt the need to synchronise the data using the interconnected systems.

> *"Yes, how many of them are graduating? So if the data is synchronised, you can get all that. Yeah, all the plannings would be smoother."*

The officer believes that such synchronisation would enable MoBSE to have more efficient access to crucial details, such as the number of prospective graduates (new supply of the teachers) and that with interconnected and streamlined data, planning and administrative tasks would be significantly more efficient and effective.

It was also found that data consolidation remained a challenge due to the difficulties in collecting information in a standardised format and configurations. An education officer at MoBSE highlighted an example of such a hardship.

> *[…] we are all using the same template. But the standardisation in terms of the terminologies we use, for example, when you say English teacher, how do you categorise this English? Whether you're going to write in full English or you're going to write E-N-G and stop there. So others will just write full English, others will write E-N-G. […] when you consolidate and analyse, then you have extra work to do. […] So date of birth there, you also have a problem. Because we will want them to use like dates, the month and the year. [...] But some will use, [...] 4/13/2020. Some will use 13/4/2020."*

According to an education officer, the inconsistent use of templates within the process of teacher posting could cause such inconsistencies in the collected information. In the given example, while denoting an 'English teacher', some might use the abbreviation 'E-N-G', while others might spell out 'English' in its entirety. Although these differences may seem small, they add to the workload during the consolidation and analysis phase. In the same way, there were inconsistencies in the recording of dates of birth. Different individuals used varying formats, with some using the MM/DD/YYYY format (e.g., 4/13/2020) and others opting for DD/MM/YYYY (e.g. 13/4/2020). These inconsistencies create additional challenges during data consolidation.

One of the Human Resource focal points from a RED office also shared a similar experience of recording and managing important dates, such as date of birth, during data collection processes.

> *"Like when it comes to promotion and others, that can be a stumbling block. Like the date of birth […] If those ones are mixed up, it can give problem to decision makers. Like, first date of appointment, date of birth, first promotion. Because those are issues that deal with seniority, and which also has connection with promotion."*

The HRFP stated that these types of details could have a significant impact on decision-making processes, particularly in matters related to promotions. Dates such as the first appointment date, date of birth, and first promotion date were found to be crucial in determining an employee's seniority, and inconsistencies or errors in this data can lead to incorrect decisions regarding promotions. This highlights the importance of accurate and consistent data recording

and management, as even a single data point, when recorded incorrectly, can have a significant impact on the core teacher posting HR operations at MoBSE.

Inconsistencies in information and data formats were found to have emerged as significant hurdles in managing educational data, particularly in areas such as determining promotions and seniority during teacher posting processes. The lack of standardisation in data recording, whether in terminologies or date formats, was found to be a consistent challenge that hindered seamless information flow across various hierarchical levels within the MoBSE. The earlier examples and quotations highlight the implications of such inconsistencies. According to the findings, the discrepancies, such as varying terminologies for the same data point or mixed date formats, not only increased the workload during data consolidation but also posed a risk of misinformed decision-making. In addition, having multiple sources of information without proper methods of mapping information or having interconnectivity across these information holders were found to be key factors for efficient data-driven decision-making.

5.2.4 Human Resource Capacity Strain

Managing human resources involves processing and disseminating a lot of information. However, when the HR department is understaffed or overloaded, it can be difficult to manage information flow in the teacher posting. This can be defined as the HR Capacity Strain. It leads to delays in decision-making, miscommunication, challenges in data processing, and overall inefficiencies. A bottleneck gets created in the smooth flow of critical data and information within and across different levels of the organisation when the capacity of the human resource department is not aligned with the volume or complexity of the information to be managed.

One of the HR focal points in the RED office believed that the number of manual operations is increasing within the teacher posting process.

> *"So the way we see it is the number of manual executions is increasing. It's growing. And it is affecting the decision-making process, the time involved in it."*

> *"[…] it will have gaps in terms of, not everybody is able to do what you want in time. And eventually, it will delay processes for everyone. […] Like if I need information on teachers, and then some cluster monitors are able to go and collect theirs easily because they have the capacity. Others are finding it very difficult to get that information. And then I need information on the region. You know, that is going to create a gap."*

The officer highlighted that the reliance on growing manual operations was causing inefficiencies, particularly in decision-making. It was also pointed out that human capacity could vary from person to person while performing any HR operations or tasks. For instance, some cluster monitors were found to be able to gather data on teachers quickly, while others might struggle, leading to incomplete or delayed data collection. As a result, when core operations of processes like the Teacher posting relied on complete data collection, it resulted in an overall hindered process.

An education officer at MoBSE highlighted the challenges of working with the teachers' files and collecting these files from the records office at the MoBSE central office due to a limited number of staff working at the record office. The record office at the MoBSE was found to be storing all the information on every teacher in each individual teacher's files.

> *"They will be pointing at me - the file is in your office, when the file has left my office a week or two ago. But because they did not update. […] the file is lying down somewhere else. The system will not tell you where exactly the file is because they are overwhelmed. They have limited staff working towards managing 20,000 files."*

Each teacher's details were found to be maintained in separate files, leading to an overwhelming volume of individual documents. The storage of the files is also shown in Figure 4.2. This type of system was found to be often causing the misplacement or mismanagement of files. The record office was found to be using a Record-keeping system to record the activity of the movement of teacher's files from person to person or across the departments. However, sometimes, for example, the file could have already been transferred out of the HR office, as mentioned in the quote above, but the system could be unable to tell about the file's exact whereabouts at the time. The officer suggested that the known issue as such could arise when the record office was overwhelmed with requests and failed to record the activity of the file's movement. As a result, locating a particular file became a challenge. As mentioned, the inefficiency could largely be due to the records office being overwhelmed with the sheer volume of information it had to manage, with limited staff being responsible for maintaining as many as 20,000 individual files. The understaffing and the manual nature of the process made tracking and updating teachers' file locations a challenging task.

The officer also pointed out cluster monitors as another possible stakeholder that could be overwhelmed at times when they were usually sought for during the collection process.

> *"Most of the projects if it concerns data collection it is easy to use them to get the data than use any other person. Not only that, any other project, even outside education, even the partners, different departments, they go for the cluster monitors so they are overwhelmed."*

The officer further explained that the Cluster monitors were highly sought after for data collection not only during the teacher posting process of MoBSE but also by external project stakeholders and partners from various departments. During those times, it was indicated that the cluster monitors could be overwhelmed with the volume of requests.

Here is a quote from another education officer who pointed out that the Human Resource Information System (HRIS) was not fully operational at that time due to staffing challenges.

> *"HRIS, in fact, at the moment, they are not very active because let me say, we have staff problem at HRIs. They are handicapped. Because all these units have to be functional. Though we are trying to recruit. [...] because in fact, whatever we do, should be captured in a statistical data form by HRIS."*

The officer further elaborated that the HRIS was a system that captures and maintains data in a structured, statistical format and plays a pivotal role in data management of teacher posting.

Apart from a limited number of personnel having to handle immense manual operations causing HR capacity strain, the knowledge gap was also highlighted among personnel. For example, during the teacher posting process, it was noticed that not all involved had the same level of expertise. This lack of consistent skill, especially in core data collection, meant that some stakeholders had to step in and guide their less knowledgeable counterparts. An excerpt below is from one of the HRFPs:

> *"That data [...] when it comes in, how does it come? Isolated [...] Somebody has to sort of combine the data. And then compile it into original data. [...] Headteachers in particular, some of them, we used to call them "born before computers". They have this scare of using, I mean, digital processes, even simple smartphone [...] And then that would be very difficult to get data as you want. Because the monitors are physically, they would have to go to support them and get all that."*

The HRFP stated an example of headteachers, some of whom he colloquially termed as "born before computers." They were mentioned to display fear towards digital processes, even

hesitating to use essential technology like smartphones. Due to their unfamiliarity with such a digital process of data collection, it not only hinders the smooth data collection process but also necessitates cluster monitors to help them gather the required information, potentially adding to their already strained workload. The illustrated example emphasised the need to bridge the knowledge gap and alleviate the strains on human capacity.

An HRFP from another region also added to the potentially existing knowledge gap among HR focal points themselves when it comes to data processing.

> *"Some of us may even have a certificate or a diploma in HR management, but some may not. So we have capacity, I have capacity gaps, and I saw my colleagues; they have the same capacity gaps as far as the data processing is concerned."*

It was stated that while some HRFPs may possess formal qualifications in HR management, such as certificates or diplomas, others may not have any such qualifications. The officer acknowledged this by saying ("I have capacity gaps") and recognised that their colleagues also faced similar skill deficiencies in handling data. Thus, it was pointed out that there can be significant differences in knowledge and skills among personnel involved during the teacher posting, resulting in human resource capacity strain and possibly affecting the overall efficiency of operations.

Hence, the process of teacher posting was found to have an impediment in the information flow due to the strain on human resource capacity. The shortage of adequately trained personnel and knowledge disparities within the same roles contribute to this strain, which acts as a bottleneck to seamless data handling and processing. This strain was found to be contributed by factors such as insufficient data standardisation training, inconsistencies in data processing skills, and hesitancy of some personnel involved to adopt digital methods. As a result, the information flow in the context of teacher posting is hindered.

5.2.5 Inadequate stream of information

In (Day, Junglas and Silva, 2009), the author defines an Inadequate stream of information as too little or too much data available to an organisation. It was found during the study that the teacher posting faced a shortage of complete information/data. The following quote from one of the education officers describes a situation where MoBSE needs more complete data for some of the teachers.

> *"Our records supposed to have a file for every teacher. But that one also is not the case. You go there, you will not find some of the files for certain people. […] We go to the records and look for the file. If you cannot see any file of this individual, then we look at where the individual is, which region. If the person is in region one or region two, then we call regional office. […]. What we have in the system, we are not sure. So then the regional office will either call this individual or send those additional documents."*

The quote from the education officer highlights an operational challenge at MoBSE, where the intended standard is to have comprehensive records for each teacher, but in practice, there are gaps. The officer states that MoBSE reaches out to regional offices to verify missing information to resolve the gaps, revealing systemic data incompleteness and unreliability.

An education officer stated another example of incomplete data in the following quote:

> *"So if you are a prospect graduate, meaning you're supposed to finish this year. […] then we make sure that we incorporate your names in our posting. […]. So where do we get this data of this prospect grad ones? It's from the institution they are in. From say for example, Gambia College. […] The names they will send, they will leave so many people behind."*

While sending the list of prospective graduates, MoBSE needed more information on several teachers, indicating a gap in the data collection. This omission of information highlights MoBSE's challenge in making informed decisions based on the supply of teachers to meet the demands.

Another quote from a senior education officer at MoBSE stated the need for more exhaustive information on the number of teachers who have left the system but were still receiving their salaries.

> *"These people left the job and up to March their salaries were active. You can see this. These are just the ancillary staff category. The total number of ancillary staff is about 2,360, I think, as of last month. So these people, and some of them, it's too long since the salary has been going and they left."*

The information on the number of teachers that are teaching in the schools actively is valuable information. This is also a determining factor for addressing the objectives of national teacher posting.

Similarly, given below is an excerpt from a cluster monitor at one of the regional offices from an "urban" province that indicates the challenge with missing information.

> *"Because when it comes to date of birth, for instance, you must have that in your system. Because this is what will determine when you are to retire, that has to be there. [...] Sometimes you go to the records and see a particular teacher's file is partially empty. [...] Sometimes, we have to advise them to go and update their own files. [...]"*

The cluster monitor states that sometimes the teacher's file records are partially missing information. In such instances, the teachers are suggested to provide missing details about them and keep their record files updated.

Another example of a lack of comprehensive data on the teacher's preferences of regions/provinces was stated by a senior officer at one of the RED offices.

> *"That, you know, sometimes people might be in search of experience, so they want to move away from the urban and experience the rural. [...]. So maybe we could, if we are able to see a trend in that, and then look at some of the conditions that are keeping them here,"*

It was pointed out that some teachers might opt to move from urban to rural areas to diversify their teaching experiences. The officer further explained that if data were capturing these preferences, it would allow MoBSE to identify trends among teachers and recognising such trends could then lead to understanding the factors that retain teachers in certain areas, which would facilitate better decision-making and possibly improve teacher placements and retention strategies.

The teacher posting process was found to be affected due to the inadequate stream of information. This has a negative impact on strategic decision-making and effective coordination. The lack of complete and reliable data is a major obstacle in the coherent flow of information within MoBSE and between its central, regional, and school-level counterparts. The gaps in data were discovered through missing individual teacher files, incomplete lists of prospective teaching graduates, lack of data on the number of teachers who were no longer in the system but were still receiving salaries, and the absence of data capturing teachers' regional preferences. This information shortage not only influences the decision-making and

coordination involved in the teacher posting process but also necessitates MoBSE to collect missing information that is crucial to the process.

5.2.6 Non-compliance

Non-compliance refers to the reluctance from the teachers to accept the teacher posting they receive. In the teacher posting process, reluctance was found to exist among teachers to accept their postings, especially when they didn't align with their preferred regions or schools. In this section, the non-compliance factor is presented as an impediment found in the information flows of teacher posting using examples and quotations from HRFPs from three regions and educational officers.

In the following quote, an HRFP from one of the regions stated teachers' reluctance to accept the postings they receive and subsequently requested transfers to their more preferred regions/schools.

> *"Issues like, let's say, transfers. […] sometimes they are transferred to maybe a place or a school, where sometimes they might not feel like they want to report there. They will still keep lobbying; they will stay around. […] They will not report to the school, […] Lobbying to be transferred to another school. […] And that is one of the main challenges. […] There are many requests of transfer."*

> *"Sometimes they can, you know, even rebel in a way, like trying to create problems. So that you have a chance to be transferred somewhere else."*

The HRFP highlighted that the main challenge was teachers' reluctance to accept postings in schools or regions they consider non-preferable. It was indicated that rather than accepting their postings, they would lobby or try to influence decision-makers for a more desirable teacher posting for them. This behaviour was mentioned to become a significant challenge for the HR department, with many teachers requesting transfers. Some even were stated to go to the extent of creating problems in schools, hoping to increase their chances of being transferred to a more desirable region/school.

When an HRFP from one of the "rural" regions was asked, the HRFP also stated the same type of reluctance from the teachers.

> *"So people will be posted to places they don't want. So you come and find people queuing at our office here looking for a change of postings.   So it's another*

challenge. Especially this area of the country. It's difficult. People think it's difficult to be here. Everybody wants to be concentrated in Banjul."

Another HRFP from a different region also stated a similar reluctance among teachers and provided insights into the reasons why teachers request RED offices for transfers.

> *"You post a particular teacher to a different school and the teacher will be like I am posted to this school, but I have this family problem, so I can move from my place to this school. [...]. So they wish to move to the school that is closer. [...] So most of the teachers will want to be in the urban area. So you see that sometimes the request of teachers being around this area might overstaff the schools."*

> *"So there are some instances you have these very stubborn teachers. They will come and insist that you must post them here. And you need to report to that HR focal person."*

Some teachers were stated to be expressing concerns related to personal issues, such as family problems, which prevent them from moving to or teaching at their posted school. Also, they were stated to be requesting to be posted to the schools closer to their homes or in more urban areas. This preference for urban postings can create an imbalance in staffing, with urban schools potentially becoming overstaffed. The HRFP further noted that some teachers can be especially persistent or obstinate, insisting on being posted to specific schools, which may require discussions with the HR focal person from another region to address the issue.

One of the education officers at MoBSE also highlighted a challenge of scenarios when the teachers leave the system unceremoniously.

> *"Because he is represented in both schools [...] we have got something in place to track that but it is not working.[...] They will leave that school unceremoniously What I mean by unceremoniously is that they will not leave because by right you should inform that I am no more here so that we can take note and stop your salary. They will not do that. They will go and look for jobs in another region. Most likely around region 1 and 2. Because you have schools here either private or board school and they will be there. So the board will pay them salary."*

The officer indicated that some teachers were leaving the system without following proper notice or HR procedures, which has been described as "unceremoniously". It was acknowledged that the HRM had a method of identifying such behaviours from the teachers, but it could not track all such occurrences. As a result, some teachers, even though they need

to notify their leaving formally, which should be communicated to stop their pay, were mentioned to have not notified the MoBSE. Meanwhile, they were often found seeking employment in other regions, especially in regions 1 and 2, where they find opportunities in either private or board schools while still receiving salaries from the MoBSE.

The education officer also highlighted teachers' reluctance to accept their postings, consequently posing a challenge in the teacher postings process.

> "[...] some of these teachers, when they are promoted, to move them from this region to upper regions is difficult. So as a result, they will prefer to stay here and remain classroom teacher than to be a head in the upper regions. We face those challenges also."

When some teachers were offered promotions, they tended to be hesitant to accept the postings. Rather than accepting promotions that come with the postings for new roles, such as that of a headteacher, these teachers preferred to forgo the promotion and continue as classroom teachers in their current region. This reluctance was indicated to be making it challenging for MoBSE to allocate and promote teachers effectively.

Hence, when many teachers were reluctant to accept their teacher postings, it was indicated that it could lead to delays in relaying other information within the teacher posting process, especially if the teacher is expected to report to the posted school and the headteacher is supposed to report back about the teachers' arrival and presence to the MoBSE. It was also highlighted that this could lead to a lack of motivation among teachers to collaborate or communicate effectively, which can stifle the flow of information. When many teachers resist their postings, the HR operations within MoBSE can increase while becoming bogged down in handling these cases. This indicates a close connection between this impediment and the previous impediment of Human Resource Capacity strain, as this can increase HR operations significantly so that the existing staff can become overloaded to handle these cases. Moreover, instances of teachers' non-compliance, such as not notifying the MoBSE of their leaving the teaching position officially, also impede the necessary information flow for the teacher posting. Thus, the non-compliance, in turn, can lead to delays in disseminating crucial information related to the teacher posting.

Chapter 6

Discussion

The aim of this section is to reflect on the research findings in relation to the research question and the related research reviewed in Chapter 2. The results of this research indicate six information flow impediments in the context of teacher posting in the Gambia. These impediments are Unreliability, Inaccessibility, Inconsistent information and data formats, Human resource capacity strain, Inadequate stream of information, and Non-compliance. The data and its analysis demonstrate a correlation between the definitions of known impediments identified in the previous study conducted (within the context of disaster relief supply chains (Day, Junglas and Silva, 2009), information flow in the policing organisation's context (Abrahamson and Goodman-Delahunty, 2014) and information flows in the humanitarian response (Altay and Labonte, 2014)) and the thematic definitions of impediments of the results from this study. Although the study in these earlier papers is conducted in a different setting than the teacher posting, the study of impediments is centred around the information flow occurring within and across different organisations. The following sections will answer the research question given below:

5.1 What impedes the information flow in the teacher posting process of the Gambia?

From the literature review, it can be suggested that information can be tangible, such as forms, documents, and Microsoft Excel sheets, as well as intangible, such as knowledge of how many teachers are required to be promoted during a particular year or regional demands for the number of teachers. The existing literature also suggests information flow in an organisation can occur through formal and informal methods. The findings from this study reveal five information flow activities (Information collection, information processing, information delivery across units, communication through formal and informal channels, and information sharing). To identify and understand the information flow impediments in the teacher posting, it is crucial to map the information flows occurring in the teacher posting process. By using the organisational macro model presented in Figure 2.2 by (Petrauskas, 2006), the following

examples of activities on three organisational levels have been deduced from this study, along with the identified impediments affecting these layers in the teacher posting.

Table 6.1: Three-layered view of teacher posting in MoBSE.

	Examples of activities	Affecting impediments
Material flow layer	Movement of the Transfer request forms	Inaccessibility Human Resource Capacity Strain Non-compliance
	Movement of latest information e.g. Teacher's level upgrade, Teachers notices of leaving from the system	
	Movement of information and hard copies of teachers' files, documents	
Information flow layer	Data collection	Inadequate stream of information Inconsistent information and data formats Human resource capacity strain Non-compliance
	Data consolidation	
	Data processing	
	Removal of duplicates	
	Information sharing	
	Data standardization	
Decision layer	National Postings, promotion of teachers by HRM	Unreliability Inadequate stream of information Human resource capacity strain Non-compliance
	Intra-regional, inter-regional teacher's transfers	

Looking through the (Petrauskas, 2006) organisation macro model, it can be suggested that to be able to make timely and accurate decisions on teacher postings; the HRM needs to receive quality information on time. To ensure that happens, the middle layer (information flow layer) needs to be efficient, and the material flows need to be complete and on time. From this perspective, the information flow supports the material flows, such as the movement of transfer requests forms teachers' data from schools to the regional RED offices and central MoBSE office through Cluster Monitors and connects these material flows with decision makers (HRM and HRFPs at RED offices). It can be argued that the information flow layer is connected to the other two layers. If there are obstacles to one of these three layers, it can influence the other layer, thus hindering the efficient information flow.

Table 6.1 provides a cross-sectional overview that indicates the impediments identified from this study affecting the three layers of the organisational macro model presented by (Petrauskas, 2006) with relevant examples of teacher posting activities from the findings. The findings from this study suggest impediments such as unreliability affect the decision-making layer directly, as it was indicated that the HRM at MoBSE found it difficult to base their decisions of teacher posting on the available data when they believe it is not 100% reliable. It also suggests impediments such as inaccessibility affect the material flow layer directly as the necessary documents, such as transfer request forms and hard copies of memos, do not move as efficiently as MoBSE require it to conduct various stages of teacher posting. As a result, they impede the information flow of data required for teacher posting as well as decisions made by HRM towards the regions and schools through the material flow layers. Similarly, impediments such as an inadequate stream of information and inconsistent information and data formats were found to be affecting the information flow layer directly as these impede activities like information processing, data consolidation, and data standardisation by widening the time required to complete these activities followed by the decision-making process of the teacher posting. Other impediments: Human Resource capacity strain and Non-compliance suggest that they affect all three layers directly and indirectly. When there is an HR capacity strain, the information flow layer gets affected as there is less data handling and data processing abilities due to overload. Subsequently, it impacts the material flows as the availability/capacity of HR to move the materials becomes limited. The decision-making layer gets affected due to incomplete information.

According to the integrated complexity–information flow impediment framework presented by (Altay and Labonte, 2014) in the context of humanitarian information management and exchange, the decision-making aspect of a system is affected by inaccessibility, inconsistent formats, inadequate information stream, and unreliability. Similarly, the coordination aspect is affected by inconsistent information and data formats and unwillingness. Although the study was done in a different context, the findings from this study conducted in the teacher posting context show similarities in the influencing aspect of the known impediments. For instance, the unreliability and inconsistent formats and data formats influenced both the decision-making and coordination aspects of the teacher posting process. Similarly, the inadequate stream of information affected decision-making, as indicated by (Altay and Labonte, 2014), as well as coordination between the stakeholders of teacher posting, namely decision-makers and the teachers. The inaccessibility impeded information flow similarly in the teacher posting by

affecting its decision-making aspect. If the two new impediments that emerged from the findings, i.e. human resource capacity strain and non-compliance, are looked upon similarly in the two dimensions (decision-making and coordination), arguably, non-compliance affected both aspects. In contrast, the human resource capacity strain mostly affected the decision-making aspect of the teacher posting.

1. Unreliability

When discussing the impediments that hinder information flow in the teacher posting, unreliability is identified as the most indicated impediment. Lack of full confidence in the validity of the data the MoBSE has in terms of teacher postings can hinder data-driven informed decision-making and indicate the need for keeping the data verified, which often involves additional HR operations. This can, as a result, create delays in the information processing as it takes time and effort to make unreliable data reliable. Additionally, if the decisions are taken based on unreliable data, it has been found that the decisions are error-prone, causing additional HR operations overload to rectify them. (Day, Junglas and Silva, 2009) presented examples where organisations had been expected to have reliable information. Still, due to their low confidence in their data quality, the more valuable information was prioritised to mitigate the impediment somehow. (Altay and Labonte, 2014) further found that the unreliability in the information flow impedes the decision-making dimension of the system. Even if the context of that information flow conducted was different from the teacher posting context of this study, this correlation of data unreliability can be seen in the teacher posting information flow as well. To improve the teacher posting process from an information systems perspective, it is crucial to ensure data reliability within the Ministry of Basic and Secondary Education (MoBSE). Unreliable information in teacher postings can hinder operational HR processes and undermine decision-making. By reinforcing data quality and reliability, inefficiencies can be reduced, and human resource operations can be more effective.

2. Inaccessibility

In teacher posting, inaccessibility is the second most common impediment to the flow of information. According to the model proposed by (Petrauskas, 2006), this issue directly affects the material flow layer by preventing the flow of essential information contained in files and documents. Inaccessibility can hinder the decision-making process for teacher posting, as essential information may exist but not be accessible due to factors such as poor network

connectivity, misplaced hard copies, and slow document transfer processes. For instance, urgent information may not be available, and time-sensitive information may expire before it can be communicated, such as notifications of meetings. Additionally, HR operations can be disrupted due to the unavailability of crucial information. (Day, Junglas and Silva, 2009) suggest that one way to mitigate inaccessibility is to use alternative sources of similar information, such as sending a person in the field physically or relying on a secondary source of information.

In contrast, the informal means of sending and receiving information by using internet-based messaging platforms like WhatsApp were being used as an alternate means of information flow that were found in addition to the formal methods (using official emails/memos). (Altay and Labonte, 2014) later revealed the decision-making aspect of the system gets affected due to inaccessibility. To compare this revelation with the findings of this study, the HR operations have been impacted due to a lack of access to the data that was necessary to take actions and decisions on the national and regional levels during the teacher posting process. The authors also further provide examples of inaccessibility affecting the data collection from remote locations outside the capital city. (Abrahamson and Goodman-Delahunty, 2014) also indicated the same by saying that the locations of organisational units can impact the transfer of knowledge or information either positively or negatively. A similar correlation was found to be present in the context of teacher posting as well. Rural regions in the Gambia were indicated to have limited network connectivity, causing essential information to not be transmittable or receivable within a reasonable time. As a result, important decisions relevant to those locations are hindered. This is also something that (Altay and Labonte, 2014) presented in one of the examples where they further revealed the use of uniform assessment standards while compiling the data in an effort to mitigate inaccessibility. In Teacher postings, however, due to the sensitive nature of decisions to be taken, it was indicated that a more viable option to mitigate inaccessibility would be to verify/acknowledge once the inaccessible information becomes accessible, for example, by reading the "sent" status of messages being sent through WhatsApp or by calling the relevant individual on the telephone.

3. *Inconsistent information and data formats*

The inconsistency in information and data formats majorly impedes the information flow by affecting data collection, data consolidation, data processing and data sharing between organisations. It adds to the HR workload as the need for data verification and data

standardisation arises due to inconsistency. In addition to this, it increases the chances of misinformed decision-making in the context of teacher posting. In such cases, it follows with additional HR operations to rectify them. Considering this, inconsistency is closely related to unreliability, as both impediments affect decision-making in a similar fashion. Having multiple sources of similar data can cause inconsistent information and data formats. The findings from this study indicated that HRFP kept separate databases of teachers' information in individual regions, and MoBSE also kept separate copies of similar information at its premises in the central office. EMIS, on the other hand, also contained not much but some relevant information that contributes to the teacher postings. This is one of the factors that highlights the need for consolidating the data and removing inconsistencies. These findings corroborate the findings of (Day, Junglas and Silva, 2009) that having multiple sources of similar data can cause inconsistent information and data formats. The authors also highlight that the aggregation of data is better than having no data at all in terms of system effectiveness. However, in contrast to this, the study of a teacher posting information flow indicates that the data inconsistency leads to the need for data verification and bearing additional load to the HR operations to mitigate the inconsistencies, arguably because the quality of the data is more sensitive for the decision-making than the urgency of responsiveness within the context the (Day, Junglas and Silva, 2009) conducted the study. (Altay and Labonte, 2014) further demonstrates that inconsistent information and data formats hinder coordination among humanitarian agencies. From the information flow perspective, results from this study support this argument because, for example, in the teacher posting processes, it was highlighted that the coordination could be improved between MoBSE and institutions like the Gambia College in knowing the supply and the demands for the number of teachers by improving the cross-referencing capabilities between the data each entity have.

4. *Human resource capacity strain*

The impediment of human resource capacity strain when it comes to teacher postings is a challenge that affects both the material and the informational flow layers. This strain is evident in the difficulties faced in manual HR operations, such as moving and collecting documents and transferring information from one point to another, particularly when the HR capacity is strained due to an increasing number of manual operations and workload. In addition, the capacity to process information from the HR that is understaffed is reduced, which makes the process inefficient. The increased workload can lead to the unavailability of HR officials and

cluster monitors at times when their involvement is crucial for the efficient dissemination of information or during the data-gathering processes. Without enough resources to be dedicated towards information gathering, information retrieval, and information processing, MoBSE can struggle with inefficiencies and impediments that hinder the teacher posting processes and its aspects, like decision-making. (Abrahamson and Goodman-Delahunty, 2014) suggest that when people are occupied with things to do, it stifles the capacity to deal with the information and additional workload. There is evidence to support this in the context of information flow in teacher posting as well. When asked during the study, it was indicated that cluster monitors, due to their mobility on the field, were tasked with data-gathering data collection activities by not only MoBSE but by others as well. This can impede the essential information flow in the context of teacher posting stakeholders, not necessarily only cluster monitors when they are overloaded with tasks. The authors revealed an issue of absorptive capacity at individual and organisational levels. Absorptive capacity refers to the ability to fully value, assimilate, and apply new knowledge. This also aligns with the context of teacher posting as some teachers were indicated to have less absorptive capacity relative to others, which can impede the data-gathering process of the information flow.

5. *Inadequate stream of information*

The inadequate stream of information impedes the information flow layer directly. The shortage of data or incomplete information impedes the flow of crucial information required for data processing, followed by decision-making within the teacher posting. The partially missing information makes it difficult to make data-driven and informed decisions and determine the postings (including promotions and teacher transfers) accurately. (Day, Junglas and Silva, 2009) mention examples of inadequate stream of information where simple improvisations were found to exist based on whatever data was available, enabling operations to continue by making assumptions and remaining flexible. In contrast to this example, to accurately conduct the teacher posting, it relies on accurate and complete information, thus, low information availability was found to be mitigated by data gathering and verification operations through the stakeholders instead of making assumptions. (Altay and Labonte, 2014) later highlights that an inadequate stream of information can negatively impact decision-making. For example, when a source that is supposed to transmit essential information, such as through the cellular network, goes into "sleep" mode, ambiguity and equivocality can arise, making the decision-making process difficult. Similarly, in the context of teacher posting,

partial information can hinder information processing in the HR operations related to teacher posting. As a result, the information flow layer and the decision-making layer are directly affected. The inadequate stream of information is also related to the "processes/technology" impediment presented by the (Abrahamson and Goodman-Delahunty, 2014). The authors note that systems fail to communicate with each other due to diverse encryption methods and restrictive policies among organisations. This can arguably lower the stream of information in the system. In the teacher posting process, the system used to collect data on potential graduates from the Gambia College is not connected to the system used for teacher posting at MoBSE through portals. It was also indicated that synchronised ways of communicating information between these systems, if achieved, could facilitate the efficient flow of information, such as prospective graduates with their biodata to be used for the teacher posting. Moreover, regional offices maintain their separate record-keeping systems, which do not necessarily communicate directly with the database and record systems at MoBSE, requiring manual consolidation of the data.

6. *Non-compliance*

The non-compliance factor impedes the efficient functioning of the teacher posting process indirectly by increasing the HR operations overload. The material layer gets impeded as the crucial information, such as teachers' arrival at the schools after the national posting, can sometimes go unnoticed by the MoBSE if the teachers are reluctant to accept their teacher postings or not accept the postings and leave the system momentarily without notifying the MoBSE. In this essence, non-compliance can impede information flow for the tracking of the teachers in the regular processes of the teacher posting who leave the system unnoticed. Any deviation in taking actions, particularly when it is not notified, from the expected process structure for teacher postings can impede information flow, leading to HR capacity strain or negatively affecting decision-making. This impediment loosely correlates to the "unwillingness" impediment identified by (Day, Junglas and Silva, 2009), where entities within and across each other are unwilling to share information, raising the need for an alternative way of gathering that information. Similarly, findings from this study show that teachers are unwilling to actively notify MoBSE about not accepting the national teacher posting and not attending the schools they are posted to due to reasons such as switching to private tutoring or other professions. That, as a result, creates a gap in the information flow for essential teacher posting replacements. (Altay and Labonte, 2014) further highlights that this factor hinders the

coordination between organisations in sharing information by illustrating how a simple lack of willingness by other organisations to prioritise reporting on activities can contribute to information delays. Expanding this factor from coordination between organisations to that between the stakeholders in the teacher posting supports the notion that when teachers simply do not notify MoBSE regarding unacceptance of their teacher posting and not reporting to the schools, the information flow hindrances do not necessarily stem only from unwillingness but also arguably from the non-compliance of the established structure and processes of the teacher posting.

5.2 Contributions

The literature suggests that information flow plays a critical role in the efficient functioning of organisational operations, particularly within the context of supply chain management and humanitarian response operations. This study provides empirical evidence to support the notion that information flow is integral to the efficient functioning of organisational operations. The study also identifies four known impediments (Unreliability, Inaccessibility, Inconsistent information and data formats, and Inadequate stream of Information) to information flow impacting decision-making and coordination, which are in line with existing literature. Additionally, this study presents two new impediments (Human resource capacity strain and Non-compliance) hindering information flow and impacting information flow activities, decision-making and coordination within the context of the teacher posting process at the Ministry of Basic and Secondary Education (MoBSE). These impediments, as indicated by stakeholders within the system, extend the current understanding of information flow impediments in organisational settings. As teacher posting process discussed in this study being a crucial HR operation in the Gambia's education sector, under the supervision of MoBSE, the study also extends the understanding of information flow impediments in a public sector organisation. By doing so, this study extends the literature with empirical findings into how specific impediments can hinder information flow, thereby impacting the operational efficacy of an organisation. The findings of this study are not only relevant to theoretical research but also have practical implications for improving teacher posting at MoBSE from an information systems perspective and other fields. Future research can build on the newly identified impediments and explore ways to mitigate them to improve operational efficiency in organisations. Moreover, the developers can further study these impediments identified from this study to address when designing information systems to support MoBSE in the Gambia.

5.3 Limitations

Throughout this study, mainly semi-structured interviews have been utilised as a means of gathering data for the qualitative study. Although the semi-structured interviews provide reliable data and allow in-depth exploration of responses with a pre-set thematic framework to maintain focus and open-ended questions to gather rich information, the study's findings rely on the interview participant's recall and perspectives, which can be affected by memory lapses, personal biases, or a desire to present one thing more than the other in a certain way (social desirability bias). Moreover, as a researcher, it is challenging to avoid the bias completely while conducting interviews and interpreting data.

While gathering the data, it is difficult to determine when data saturation has been reached and collected data are exhaustive. This judgement is subjective and can impact the comprehensiveness of the data collected. The collected data and the analysis also focus majorly on the organisational aspect of MoBSE, looking through the lens of an information systems perspective. There is a relatively smaller number of teachers than other stakeholders who were interviewed for the data collection. A more exhaustive participation of the teachers can positively contribute to the identification of impediments in the information flow. The known studies of information flow impediments within different contexts than the teacher posting were chosen as a reference to identify impediments in this study due to the similar study of information flow. Thus, a more thorough analysis can reveal other impediments to the information flow in the context of teacher posting.

Chapter 7

Conclusion

The current research aimed to identify impediments to the information flow in the context of teacher posting in the Gambia. The central question for this research was:

What impedes the information flow in the teacher posting process of the Gambia?

Based on the qualitative research conducted utilising the data from twenty-two interviews, three discussion sessions participated by different stakeholders (mainly HRD education officers, the Permanent Secretary, Regional Directors, HR Focal Points, cluster monitors, and teachers) involved during the national teacher posting process, the unreliability impeded information flow the most. It was followed closely by inaccessibility, inconsistent information and data formats, human resource capacity strain, inadequate stream of information and non-compliance, respectively.

The research has shown that unreliable information made it difficult to make data-driven informed decisions in the national teacher postings, causing delays and adding possibilities of error-prone decisions. Moreover, inaccessible information was preventing essential and urgent information from being available at different levels and to the relevant stakeholders, consequently hindering HR operations and affecting information processing. The results also showed that data management is affected by discrepancies in data formats and information. When information sources are not standardised and synchronised, it can cause an increase in HR workload and the potential for errors in processes driven by data. The insufficient information flow was found to have similar impacts. The key factors include missing teacher records, incomplete lists of teaching graduates, unmonitored payment of salaries to teachers who are no longer working as a teacher, and the absence of complete data on teachers' preferences for different regions. This shortage of information was impeding effective decision-making and necessitating additional data collection. The study results have also shown how knowledge, skills and capacity disparities across the stakeholders can impact efficient information flow, especially when they are understaffed or overloaded. The study found that teachers' reluctance to accept their postings delayed communication and strained human resource capacity in MoBSE's teacher posting process. This type of non-compliance

activity, such as not officially notifying essential information, also impedes necessary information flow, leading to delays in the system. Thus, the study highlights that unreliability, inaccessibility, inconsistent information and data formats, human resource capacity strain, inadequate stream of information, and non-compliance hinder the information flow in the teacher posting process, undermining the MoBSE's decision-making and efficiency of Human Resource operations.

By utilising the integrated knowledge of known information flow impediments in the organisational settings, it can be concluded that these impediments affected different aspects of information flow directly or indirectly, including but not limited to decision-making and coordination within and across organisations. Impediments affected information flow activities in MoBSE, including collection, processing, delivery, communication, and sharing with external institutions.

This study has made significant contributions to our understanding of information flow impediments within organisational settings, specifically in the context of the teacher posting process at MoBSE in Gambia. Identifying both known and new impediments to information flow has extended the current literature and provided valuable insights for practical improvements in organisational operations. It also has practical implications for improving teacher posting at MoBSE from an information systems perspective.

However, the study also recognises its limitations, primarily stemming from its reliance on semi-structured interviews and potentially underrepresented certain stakeholder perspectives, particularly those of teachers. These limitations highlight the importance of diverse data sources and stakeholder involvement in future research to ensure a more comprehensive understanding of information flow and its impediments in various organisational contexts.

Despite these challenges, the study's findings offer an understanding of information flow impediments for further exploration and, for example, support MoBSE to improve teacher posting from an information systems perspective, similarly, with potential implications for enhancing operational efficiency and decision-making processes in educational and other organisational settings.

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