

Teaching and Learning in Fragile Contexts (TLFC) Research Paper



Leveraging Telecommunication Models and Policy Frameworks to Enhance Literacy and Learning Outcomes in Refugee Camps in Rwanda

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Executive Summary

This report presents the findings of the project entitled *“Leveraging Telecommunication Models and Policy Frameworks to Enhance Literacy and Learning Outcomes in Refugee Camps in Rwanda.”* The project was undertaken in response to persistent educational challenges affecting refugee learners and aimed to investigate how telecommunication technologies, digital learning platforms, and innovative pedagogical approaches could be harnessed to improve literacy and foundational learning outcomes. The study further sought to assess existing educational barriers, identify opportunities for technology-enhanced learning, develop an appropriate intervention, and evaluate its effectiveness in promoting positive educational and behavioural outcomes.

The study was conducted in five refugee camps in Rwanda, namely Mahama, Kiziba, Nyabiheke, Mugombwa, and Kigeme. A mixed-methods research design was adopted, integrating quantitative and qualitative approaches to provide both statistical evidence and contextual understanding. Baseline data were collected from a total of 334 participants comprising students, teachers, parents, headteachers, district and sector education officers, camp managers, and representatives of partner organizations. Data collection methods included structured questionnaires, key informant interviews, focus group discussions, observations, and document reviews. Following implementation of the intervention, an impact assessment involving 44 respondents who had been directly exposed to the intervention was conducted to assess audience perceptions and the perceived effects of the intervention on knowledge, attitudes, and educational aspirations.

The baseline study revealed that refugee learners continue to face numerous challenges that negatively affect educational participation and achievement. These include overcrowded classrooms, shortages of qualified teachers, language barriers, inadequate learning materials, poverty and food insecurity, early pregnancies, learner absenteeism, and limited access to information and communication technologies. Stakeholders also highlighted weaknesses in teacher capacity, insufficient opportunities for professional development, and constraints related to internet connectivity, electricity supply, and availability of digital devices. Despite these challenges, the baseline findings indicated considerable opportunities for improving learning through the use of telecommunication technologies, digital learning resources, mobile devices, and greater community participation.

Drawing on the baseline findings and stakeholder consultations, the project designed an innovative intervention that combined drama-based pedagogy with telecommunication technologies and digital dissemination mechanisms. The intervention focused on addressing issues that significantly affect educational participation, particularly adolescent pregnancy, school dropout, learner protection, and responsible behaviour. Refugee

students from Mahama Refugee Camp actively participated in the development and performance of an educational drama designed to communicate key messages through creative and participatory approaches. The recorded drama was subsequently digitized and disseminated through online platforms managed by the Rwanda Basic Education Board and INES-Ruhengeri to enhance accessibility and increase the potential reach of the educational content.

The findings from the intervention assessment indicated that the educational drama was well received by participants and generated positive perceptions regarding its relevance and effectiveness. Respondents reported improved awareness of the causes and consequences of adolescent pregnancy, greater appreciation of the importance of remaining in school, and increased understanding of responsible decision-making and learner protection. Participants further indicated that the intervention stimulated discussions among learners, teachers, and parents and encouraged stronger engagement with issues affecting children's education and wellbeing. These findings suggest that creative and participatory approaches can complement conventional teaching methods and contribute to behaviour change and educational improvement.

The study demonstrates that telecommunication technologies and digital learning platforms offer significant opportunities for enhancing literacy and expanding access to educational resources in refugee contexts. When combined with creative pedagogical approaches and strong community involvement, such technologies can strengthen learner engagement, support positive behaviour change, and promote more inclusive educational practices. However, the study also highlights the importance of addressing persistent challenges related to infrastructure, teacher capacity, connectivity, and sustainability if the full potential of technology-enhanced learning is to be realized.

Although the intervention produced encouraging results, several limitations should be acknowledged. The implementation period was relatively short, the impact assessment involved only 44 participants, and no long-term follow-up was conducted to determine the sustainability of observed changes. Furthermore, much of the evidence relied on self-reported perceptions. Nevertheless, the findings provide valuable preliminary evidence regarding the potential of integrating telecommunication models, digital learning technologies, and creative pedagogical approaches to improve educational outcomes among refugee learners.

The report recommends strengthening investments in digital infrastructure, expanding access to ICT resources, enhancing teacher professional development, promoting community engagement, and strengthening partnerships among government institutions, humanitarian agencies, and development partners. It further recommends scaling up innovative approaches that combine telecommunications and creative pedagogies and

undertaking longer-term studies involving larger samples to generate stronger evidence on impact and sustainability. Overall, the project demonstrates that telecommunication-supported educational interventions can contribute meaningfully to improving literacy and learning outcomes among refugee learners in Rwanda and can serve as a model for similar contexts facing educational vulnerability.

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List of Acronyms and Abbreviations

CBC:	Competence-Based Curriculum
CODE:	Canadian Organization for Development through Education
CRRF:	Comprehensive Refugee Response Framework
DEO:	District Education Officer
ESSP:	Education Sector Strategic Plan
FGD:	Focus Group Discussion
Gt:	Transmitting Gain
Gr:	Receiving Gain
ICT:	Information and Communication Technology
INES-Ruhengeri:	Institut d'Enseignement Supérieur de Ruhengeri
KII:	Key Informant Interview
LMS:	Learning Management System
MINEDUC:	Ministry of Education
MINEMA:	Ministry in Charge of Emergency Management
MOOC:	Massive Open Online Course
NCST:	National Council for Science and Technology
NESA:	National Examination and School Inspection Authority
NGO:	Non-Governmental Organization
NST:	National Strategy for Transformation
OER:	Open Educational Resources
OLPC:	One Laptop per Child
Pr:	Received Power
Pt:	Transmitted Power
REB:	Rwanda Basic Education Board
SDG:	Sustainable Development Goal
SEO:	Sector Education Officer
SPSS:	Statistical Package for the Social Sciences
UN:	United Nations
UNHCR:	United Nations High Commissioner for Refugees
UNESCO:	United Nations Educational, Scientific and Cultural Organization
USAID:	United States Agency for International Development
WFP:	World Food Programme
λ :	Wavelength
R:	Distance between Transmitter and Receiver

CHAPTER ONE: INTRODUCTION AND PROJECT OVERVIEW

1.1 Background of the Study

Education is widely recognized as a fundamental human right and a critical driver of social, economic, and human development. For refugee populations, education plays an even more significant role, serving not only as a pathway to knowledge and skills acquisition but also as a source of protection, resilience, psychosocial support, and hope for a better future. However, access to quality education remains a major challenge for millions of displaced children worldwide. According to international reports, refugee learners are more likely than their non-refugee peers to experience interrupted schooling, limited access to qualified teachers, inadequate learning resources, overcrowded classrooms, and poor educational outcomes.

Rwanda has earned international recognition for its progressive refugee policies and commitment to inclusive education. The country currently hosts more than 130,000 refugees and asylum seekers, mainly from the Democratic Republic of Congo and Burundi, who are accommodated in several refugee camps and urban settlements. In line with the Comprehensive Refugee Response Framework (CRRF) and national development priorities, refugee children are integrated into the national education system and follow the same curriculum as host community learners. Despite these efforts, significant challenges continue to affect teaching and learning in refugee settings, including high student-teacher ratios, language barriers, limited infrastructure, insufficient learning materials, poverty, and psychosocial difficulties associated with displacement.

At the same time, Rwanda has positioned itself as a regional leader in digital transformation and technology-enabled education. National policies such as Vision 2050, the National Strategy for Transformation (NST), the Education Sector Strategic Plan (ESSP), and the ICT in Education Policy emphasize the use of technology to improve access, quality, and equity in education. Telecommunication technologies, including mobile learning platforms, internet-based learning systems, educational media, and digital content delivery mechanisms, offer opportunities to address some of the educational challenges faced by refugee learners.

Against this background, the project entitled *Leveraging Telecommunication Models and Policy Frameworks to Enhance Literacy and Learning Outcomes in Refugee Camps in Rwanda* was initiated under the theme of Teaching and Learning in Fragile Contexts. The project sought to investigate how telecommunication-based approaches and policy frameworks could be harnessed to improve literacy and learning outcomes among refugee learners. Following a comprehensive baseline study conducted across Rwanda's refugee camps, the project designed and implemented an innovative educational intervention based on drama

and digital learning. Refugee students from Mahama Refugee Camp developed and performed an educational drama addressing issues affecting learners, particularly early pregnancy and its implications for education. The drama was subsequently digitized and made accessible through online learning platforms managed by the Rwanda Education Board (REB) and INES-Ruhengeri, allowing learners from refugee and non-refugee communities to access the content. An impact assessment was later conducted to evaluate the effectiveness of the intervention and generate evidence for future policy and practice.

The project therefore contributes to the growing body of knowledge on technology-enhanced learning, innovative pedagogical approaches, and inclusive education in fragile contexts while providing practical solutions for improving educational outcomes among refugee learners.

1.2 Refugee Education Context in Rwanda

Rwanda hosts refugees primarily from the Democratic Republic of Congo and Burundi who reside in Mahama, Kigeme, Kiziba, Mugombwa, and Nyabiheke refugee camps. Over the years, the Government of Rwanda, in collaboration with development and humanitarian partners, has implemented policies aimed at ensuring that refugee children have access to quality education alongside host community learners.

Unlike many refugee-hosting countries where parallel education systems are established, Rwanda follows an inclusion model in which refugee learners are integrated into the national education system. Refugee children attend public schools, follow the national curriculum, and sit for the same national examinations as their peers. This approach promotes social cohesion, equity, and access to nationally recognized qualifications.

Despite these achievements, educational challenges remain substantial. Schools serving refugee populations frequently experience overcrowded classrooms, shortages of qualified teachers, inadequate teaching and learning materials, insufficient digital infrastructure, and limited opportunities for teacher professional development. Language barriers remain a significant challenge, particularly for learners originating from French-speaking and Arabic-speaking backgrounds who must adapt to Rwanda's English-medium curriculum.

Socio-economic constraints further affect educational participation and achievement. Many refugee families face poverty, food insecurity, limited parental literacy, and restricted access to educational support resources. Girls often face additional risks related to early pregnancy, gender-based violence, and social pressures that can negatively affect school attendance and completion.

While several partners have introduced Information and Communication Technology (ICT) initiatives, including smart classrooms, digital learning resources, and teacher training

programmes, implementation remains uneven across camps. Consequently, significant disparities persist in access to technology-enhanced learning opportunities.

These realities highlight the need for innovative, scalable, and context-sensitive interventions capable of addressing both educational and social barriers while leveraging existing policy frameworks and technological opportunities. This project was designed to respond directly to these needs.

1.3 Problem Statement

Despite Rwanda's strong commitment to inclusive education and refugee integration, refugee learners continue to experience significant educational disadvantages that undermine literacy development, learning outcomes, and future opportunities. Educational challenges such as overcrowded classrooms, inadequate infrastructure, shortages of qualified teachers, limited access to digital learning resources, language barriers, and socio-economic vulnerabilities negatively affect the quality of teaching and learning within refugee camps.

Although national policies support technology-enhanced education and refugee inclusion, the practical implementation of these policies remains constrained by resource limitations and contextual challenges. Furthermore, many existing interventions focus primarily on access to education while paying insufficient attention to innovative approaches that simultaneously address learning outcomes, behavioural challenges, and community engagement.

One of the emerging challenges identified during the baseline study was the influence of social and behavioural factors, including early pregnancy, on educational participation and achievement. Such challenges disproportionately affect vulnerable learners, particularly girls, and contribute to school dropout, reduced motivation, and poor academic performance.

At the same time, opportunities offered by telecommunication technologies and digital learning platforms remain underutilized in refugee education contexts. There is limited evidence on how technology-enabled interventions can be combined with participatory, learner-centred approaches to improve literacy, support positive behavioural change, and strengthen educational outcomes among refugee learners.

This project therefore sought to address the absence of evidence-based, policy-aligned, and scalable models that integrate telecommunication technologies, creative educational approaches, and community engagement strategies to enhance literacy and learning outcomes in refugee camps in Rwanda.

1.4 Rationale and Significance of the Project

The project was motivated by the need to improve educational quality and learning outcomes among refugee learners while supporting Rwanda's commitment to inclusive and equitable education. Although access to schooling has improved significantly, learning outcomes remain below desired levels due to multiple interconnected challenges affecting learners, teachers, schools, and communities.

The project recognized that improving learning outcomes requires interventions that go beyond traditional classroom instruction. By integrating telecommunication technologies, digital learning platforms, creative pedagogical approaches, and community engagement, the project aimed to develop a more holistic response to educational challenges in refugee settings.

The significance of the project is reflected at several levels.

At the learner level, the project sought to improve literacy, learning motivation, educational participation, and positive behaviour among refugee children and youth.

At the teacher and school level, it provided insights into innovative teaching approaches that can complement existing instructional practices and strengthen learner engagement.

At the policy level, the project generated evidence to support the implementation of national education and digital transformation policies within refugee contexts.

At the community level, it promoted greater awareness of factors affecting education, strengthened dialogue between learners, families, and educators, and encouraged collective responsibility for supporting children's education.

At the national and international levels, the project contributes to broader discussions on Teaching and Learning in Fragile Contexts, technology-enhanced education, refugee inclusion, and the achievement of Sustainable Development Goal 4 on quality education.

1.5 Research Objectives

1.5.1 General Objective

To explore how telecommunication models, digital learning approaches, and policy frameworks can be leveraged to enhance literacy and learning outcomes among refugee learners in Rwanda.

1.5.2 Specific Objectives

The project pursued the following specific objectives:

- i. To assess the key educational barriers affecting literacy and learning outcomes in refugee camps in Rwanda.
- ii. To examine the extent to which telecommunication-based learning approaches can be aligned with national education policy frameworks.
- iii. To design and implement an innovative educational intervention integrating drama-based learning and digital dissemination mechanisms.
- iv. To evaluate the effectiveness of the intervention in promoting knowledge acquisition, positive behaviour change, learner engagement, and educational outcomes.
- v. To formulate evidence-based recommendations for scaling and sustaining technology-enhanced educational interventions in refugee contexts.

1.6 Research Questions

The project was guided by the following research questions:

- i. What are the major educational barriers affecting literacy and learning outcomes among refugee learners in Rwanda?
- ii. How can telecommunication models and digital learning approaches contribute to addressing these barriers?
- iii. How can innovative educational interventions be aligned with existing national education and ICT policy frameworks?
- iv. What effects do drama-based and digitally disseminated educational interventions have on learners, teachers, parents, and communities?
- v. What strategies can support the sustainability and scaling of successful interventions within refugee education systems?

1.7 Theoretical and Conceptual Framework

1.7.1 Telecommunication Models and Learning

Communication lies at the heart of all educational processes. Effective teaching and learning depend on the successful transmission, reception, interpretation, and application of knowledge between educators and learners. Telecommunication theories provide useful perspectives for understanding how information is transmitted across systems and how various factors influence communication effectiveness.

Educational technology researchers have increasingly drawn upon communication and telecommunication models to explain learning processes, particularly in technology-

mediated environments. These models emphasize the importance of message transmission, feedback mechanisms, interaction, accessibility, and the reduction of barriers that interfere with learning.

Within this project, telecommunication models provided a conceptual lens for understanding how knowledge flows from educational content creators and teachers to learners and how digital technologies can strengthen that process. The framework helped identify factors that enhance or weaken learning effectiveness and informed the design of interventions intended to improve educational outcomes.

1.7.2 The Friis Transmission Analogy in Education

The project adopted the Friis Transmission Equation as a conceptual analogy for understanding the teaching-learning process. In telecommunications, the Friis equation explains how signals are transmitted from a source to a receiver and how various factors influence the strength of the received signal.

In the educational context, the model was adapted as follows:

- Transmitted Power (P_t) represents the teacher's knowledge, competence, and preparedness.
- Transmitting Gain (G_t) represents pedagogical approaches and instructional quality.
- Receiving Gain (G_r) represents learner motivation, readiness, and engagement.
- Wavelength (λ) represents the learning environment, including technology, infrastructure, and resources.
- Distance (R) represents barriers such as large class sizes, limited interaction, language challenges, and socio-economic constraints.
- Received Power (P_r) represents learning outcomes and knowledge acquisition.

The framework assumes that stronger teaching capacity, effective pedagogy, supportive learning environments, and reduced educational barriers lead to stronger learning outcomes. Telecommunication technologies and innovative educational interventions serve as mechanisms for reducing educational "noise" and strengthening the transmission of knowledge.

1.8 Overview of the Project Phases

Phase I: Baseline Research and Needs Assessment

The first phase focused on understanding the educational realities of refugee learners across Rwanda's refugee camps. Data were collected from students, teachers, parents, school leaders, camp administrators, and policymakers. The phase identified major educational barriers, examined existing ICT initiatives, assessed policy implementation, and generated evidence to guide intervention design.

Phase II: Intervention Design and Development

Based on the findings of the baseline study, an educational intervention was developed using a participatory approach. The intervention centred on the creation of an educational drama addressing challenges affecting learners, particularly early pregnancy and its impact on education. Refugee students actively participated in script development, acting, and production, ensuring contextual relevance and learner ownership.

Phase III: Implementation and Dissemination

The developed drama was performed in Mahama Refugee Camp and shared with learners, teachers, parents, and community members. To expand accessibility and sustainability, the drama was digitized and integrated into online learning platforms hosted by REB and INES-Ruhengeri. This enabled broader dissemination beyond the camp environment and provided opportunities for wider educational use.

Phase IV: Impact Assessment and Evaluation

The final phase involved assessing the effectiveness of the intervention. Data were collected from students, teachers, parents, school leaders, and community stakeholders to evaluate audience reception, knowledge acquisition, behavioural outcomes, educational effects, and community engagement. The findings provided evidence regarding the effectiveness of the intervention and informed recommendations for future implementation and scaling.

1.9 Structure of the Report

This report is organized into ten chapters.

Chapter One presents the introduction, background, objectives, research questions, theoretical framework, and overview of the project.

Chapter Two reviews relevant literature and policy frameworks related to refugee education, telecommunication-based learning, digital education, and creative pedagogies.

Chapter Three describes the research and implementation methodology used throughout the project.

Chapter Four presents the baseline findings and identifies key educational needs and challenges.

Chapter Five describes the design and development of the educational intervention.

Chapter Six presents the implementation process and dissemination activities.

Chapter Seven reports the findings of the impact assessment.

Chapter Eight discusses the findings in relation to existing literature, policy frameworks, and theoretical perspectives.

Chapter Nine highlights project achievements, innovations, outputs, and knowledge products.

Chapter Ten presents conclusions, recommendations, sustainability considerations, and future directions for research and practice.

CHAPTER TWO: LITERATURE REVIEW AND POLICY CONTEXT

2.1 Introduction

Education is widely recognized as a fundamental human right and a critical instrument for promoting social inclusion, economic development, and sustainable peace. For refugee populations, education serves not only as a means of acquiring knowledge and skills but also as a protective mechanism that fosters resilience, psychosocial wellbeing, and future livelihood opportunities (UNHCR, 2023). Despite increasing global commitments to inclusive education, refugee learners continue to experience significant barriers that affect educational access, participation, retention, and achievement (UNESCO, 2024).

Recent advances in information and communication technologies (ICTs) have created new opportunities to address educational challenges in fragile and displacement contexts. Telecommunication technologies, digital learning platforms, and open educational resources have emerged as promising tools for expanding access to quality education and supporting learner engagement beyond traditional classroom environments (UNESCO, 2018; World Bank, 2020).

This chapter reviews literature related to educational barriers in refugee settings, telecommunication-based approaches to learning, creative and drama-based pedagogies, digital learning platforms, and policy frameworks that support refugee education. The chapter concludes by presenting the conceptual relationship between telecommunications, digital learning, and behaviour change, which informed the design and implementation of this project.

2.2 Educational Barriers in Refugee Camps

Access to quality education remains one of the greatest challenges facing refugee populations worldwide. Although enrolment rates among refugee children have improved over the past decade, substantial disparities persist in access to quality learning opportunities and educational outcomes (UNHCR, 2023).

One of the most common barriers is inadequate educational infrastructure. Refugee-hosting schools frequently experience overcrowded classrooms, shortages of qualified teachers, inadequate learning materials, and insufficient physical facilities. Such conditions reduce opportunities for individualized instruction and negatively affect learning outcomes (UNESCO, 2024).

Language barriers also present significant challenges. Refugee learners often come from diverse linguistic backgrounds and may be required to learn in a language different from

their mother tongue. Research has shown that language transitions can negatively affect comprehension, participation, and academic performance, particularly among younger learners (Dryden-Peterson, 2016).

The psychosocial effects of displacement further influence educational attainment. Many refugee children have experienced conflict, violence, family separation, interrupted schooling, and prolonged uncertainty. Such experiences may contribute to trauma, anxiety, depression, and reduced motivation to learn, all of which can negatively affect attendance and academic achievement (Mendenhall et al., 2017).

Economic hardship is another major constraint. Refugee households often face poverty, food insecurity, and limited access to educational resources. Children may be required to engage in domestic work or income-generating activities, reducing the time available for schooling and increasing the risk of dropout (UNESCO, 2024).

Gender-related barriers continue to affect educational participation, particularly among adolescent girls. Early marriage, early pregnancy, gender-based violence, and cultural expectations frequently limit girls' educational opportunities and contribute to school dropout (UNHCR, 2023).

Access to technology represents an additional challenge. While digital technologies have the potential to improve educational access and quality, refugee learners often face limitations related to internet connectivity, electricity supply, device availability, and digital literacy (UNESCO, 2018).

These barriers are interconnected and require integrated interventions that address educational, social, economic, and psychological dimensions simultaneously.

2.3 Telecommunication-Based Approaches to Learning in Fragile Contexts

Telecommunication technologies have transformed educational delivery worldwide by enabling learning beyond conventional classroom settings. Telecommunication-based learning refers to the use of communication technologies such as radio, television, mobile phones, internet services, satellite communications, and digital platforms to support teaching and learning processes (UNESCO, 2018).

In fragile contexts, telecommunications play an essential role in overcoming geographical, infrastructural, and security-related barriers that often limit educational access. During emergencies, conflicts, and public health crises, telecommunication technologies provide alternative pathways for educational continuity (World Bank, 2020).

Educational broadcasting through radio and television has been widely used in humanitarian settings due to its affordability and broad reach. Radio-based educational programmes have supported literacy development, language learning, and curriculum delivery in numerous low-resource environments (UNESCO, 2018).

Mobile learning has emerged as another important strategy. The increasing availability of mobile phones enables learners to access educational content, communicate with instructors, participate in assessments, and engage in self-directed learning regardless of geographical location (Tauson & Stannard, 2018).

Internet-enabled learning environments further expand educational opportunities by providing access to multimedia content, virtual classrooms, collaborative learning activities, and digital repositories. Such platforms can support both formal and informal education while enabling scalable delivery of educational resources (World Bank, 2020).

Theoretical perspectives on technology-mediated learning emphasize the importance of interaction and communication. Schramm's communication model and later developments in online learning theory suggest that effective learning occurs when communication processes enable feedback, engagement, and collaborative knowledge construction (Moore & Kearsley, 2012).

However, successful implementation depends on more than technology alone. Infrastructure, affordability, teacher preparedness, digital literacy, and supportive policy frameworks are critical factors influencing the effectiveness of telecommunication-based educational interventions (UNESCO, 2018).

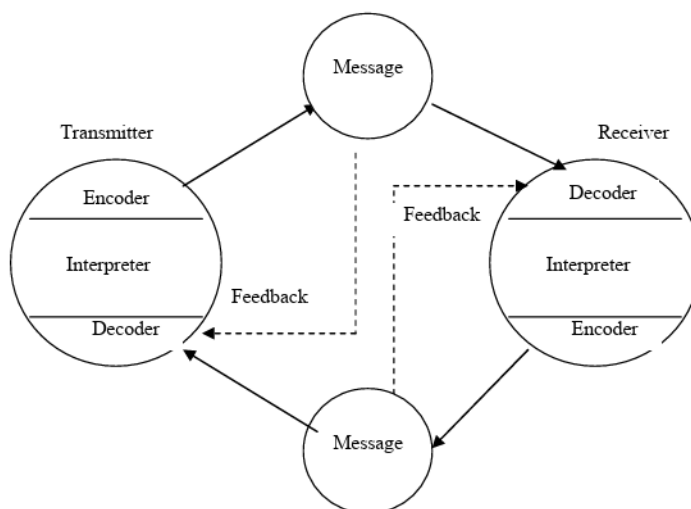


Figure 2.1: The Circular Model of Inter-human Communication (Schramm and Osgood) cited by Moise (2008)

2.4 Creative and Drama-Based Pedagogies for Behaviour and Learning Change

Creative pedagogies promote active participation, experiential learning, reflection, and learner engagement. Among these approaches, drama-based education has gained recognition as a powerful strategy for supporting both academic learning and social change (O'Toole, 1992).

Drama-based learning involves role-play, storytelling, simulation, performance, and dialogue as tools for exploring educational concepts and real-life situations. Unlike traditional teacher-centred approaches, drama encourages learners to actively construct knowledge through participation and reflection (Heathcote & Bolton, 1995).

Research has shown that drama contributes to literacy development by strengthening listening, speaking, reading, and writing skills. Through script creation, rehearsal, and performance, learners engage with language in meaningful and authentic contexts, thereby enhancing communication and comprehension skills (O'Toole, 1992).

Drama also supports the development of critical thinking, creativity, collaboration, empathy, and self-confidence. By encouraging learners to examine different perspectives and consequences of actions, drama facilitates deeper understanding and reflective learning (Heathcote & Bolton, 1995).

Beyond academic benefits, drama has been widely used in health education, peacebuilding, human rights education, and community development programmes. Social learning theory suggests that individuals learn behaviours by observing others and reflecting on the consequences of actions (Bandura, 1986). Drama provides opportunities for such observational learning through characters, narratives, and role modelling.

Within refugee settings, drama can create safe spaces for discussing sensitive issues such as early pregnancy, school dropout, gender inequality, and child protection. It also promotes psychosocial wellbeing by encouraging self-expression and community participation (UNESCO, 2024).

The intervention developed under this project therefore drew upon drama-based educational principles to communicate important messages while simultaneously promoting literacy and learner engagement.

2.5 Digital Learning Platforms and Open Educational Resources

Digital learning platforms have become increasingly important tools for expanding educational access and supporting flexible learning. These platforms provide online

environments through which educational content can be created, stored, managed, and accessed by learners and educators (World Bank, 2020).

Examples include Learning Management Systems (LMS), educational websites, mobile learning applications, digital repositories, and Massive Open Online Courses (MOOCs). Such systems facilitate self-paced learning and allow learners to access educational materials regardless of geographical location.

Closely related to digital learning platforms is the concept of Open Educational Resources (OERs). UNESCO (2019) defines OERs as teaching, learning, and research materials that are freely available and openly licensed for use, adaptation, and redistribution. OERs contribute to educational equity by reducing costs and increasing access to quality educational resources.

Digital learning platforms and OERs are particularly valuable in refugee contexts because they can overcome barriers associated with limited physical infrastructure and resource shortages. Educational content can be accessed repeatedly, adapted to local contexts, translated into different languages, and distributed at relatively low cost (Hilton, 2016).

Research indicates that OERs can support improved learner performance while reducing barriers to educational participation (Hilton, 2016; Wiley & Hilton, 2018). Furthermore, multimedia resources such as educational videos can enhance engagement and reinforce learning outcomes.

The publication of the educational drama developed under this project on the Rwanda Education Board and INES-Ruhengeri learning platforms illustrates how digital technologies can extend the reach and sustainability of educational interventions beyond their original implementation sites.

2.6 National Education Policies and Refugee Education Frameworks

Rwanda has established a comprehensive policy framework that supports inclusive education, digital transformation, and refugee integration. These policies provide an enabling environment for educational innovations that leverage technology to improve learning outcomes.

Vision 2050 identifies human capital development, knowledge-based economic growth, and technological advancement as key priorities for national development (Government of Rwanda, 2020). Similarly, the National Strategy for Transformation emphasizes digital innovation and equitable access to quality education.

The Education Sector Strategic Plan (ESSP 2024–2029) prioritizes improvements in educational quality, equity, teacher development, and ICT integration within teaching and learning processes (Ministry of Education, 2024).

The ICT in Education Policy further promotes the use of digital technologies to improve access, quality, relevance, and efficiency within the education sector (Ministry of Education, 2016).

Rwanda's refugee response framework adopts an inclusion-based approach whereby refugee learners are integrated into the national education system. Refugee children follow the national curriculum, attend public schools, and participate in national assessment and certification processes (UNHCR, 2023).

Internationally, refugee education is guided by the 1951 Refugee Convention, the Global Compact on Refugees, the Comprehensive Refugee Response Framework (CRRF), Sustainable Development Goal 4, and the Education 2030 Framework for Action (United Nations, 2018; UNESCO, 2024).

Together, these national and international frameworks provide strong policy support for interventions that combine technology, innovative pedagogy, and community engagement to improve educational outcomes among refugee learners.

2.7 Conceptual Link Between Telecommunications, Digital Learning and Behaviour Change

This study is founded on the premise that effective educational outcomes depend on both knowledge transmission and behavioural transformation. Telecommunication technologies, digital learning platforms, and behaviour change interventions are therefore viewed as interconnected components of a comprehensive educational model.

Telecommunication technologies facilitate access to educational content by reducing geographical and infrastructural barriers. Digital learning platforms serve as channels through which educational materials can be delivered, stored, and shared efficiently (UNESCO, 2018).

However, access to information alone does not automatically result in improved educational outcomes. Learner motivation, attitudes, self-efficacy, parental support, and social norms significantly influence educational participation and achievement (Bandura, 1986).

The present study therefore integrates insights from Social Learning Theory, which emphasizes learning through observation and modelling (Bandura, 1986), and

Constructivist Learning Theory, which views learning as an active process of knowledge construction through interaction and experience (Vygotsky, 1978).

Within this framework, drama-based learning acts as a mechanism for behaviour change by encouraging reflection, emotional engagement, discussion, and critical thinking. Educational messages delivered through digital platforms can reach broader audiences and reinforce desired behaviours.

The conceptual model underpinning the project can therefore be summarized as follows:

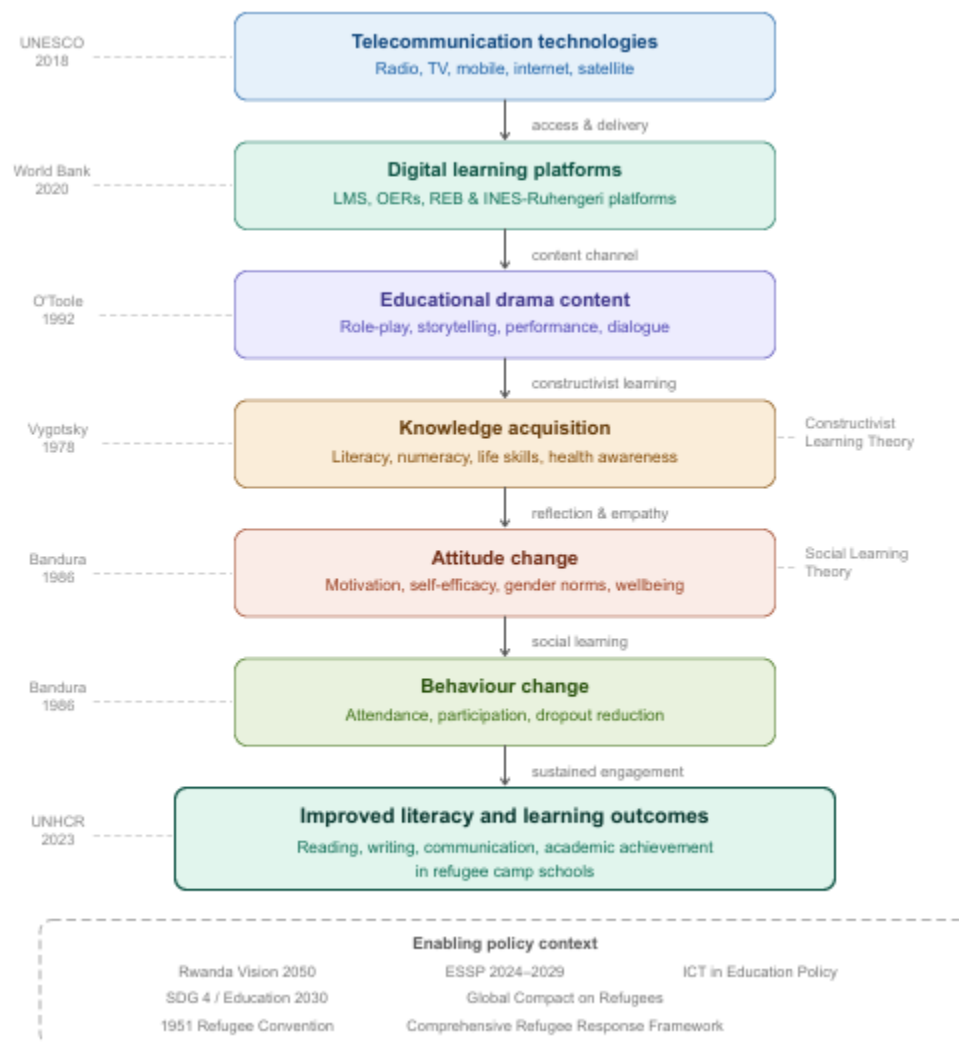


Figure 2.2: Conceptual model: Telecommunications to Improved Literacy and Learning Outcomes.

This integrated approach formed the basis for the intervention implemented and evaluated in this study.

2.8 Summary of Literature Review

The literature reviewed demonstrates that refugee learners face numerous barriers that extend beyond access to schooling. Challenges related to infrastructure, language, psychosocial wellbeing, gender inequality, poverty, and limited technological access continue to affect educational participation and learning outcomes.

Evidence suggests that telecommunication technologies, digital learning platforms, and open educational resources offer promising opportunities for expanding access to education and supporting learning continuity in fragile contexts. Similarly, drama-based pedagogies have been shown to promote literacy development, learner engagement, critical thinking, and positive behaviour change.

National and international policy frameworks increasingly support the integration of technology and innovative pedagogical approaches within refugee education systems. However, relatively few studies have examined how telecommunication models, digital dissemination platforms, and drama-based interventions can be combined to improve literacy and learning outcomes among refugee learners.

This gap provided the rationale for the present project, which sought to design, implement, and evaluate an integrated educational intervention that leverages telecommunications, digital learning, and creative pedagogy to enhance educational outcomes in refugee camps in Rwanda.

CHAPTER THREE: RESEARCH AND IMPLEMENTATION METHODOLOGY

3.1 Introduction

This chapter presents a comprehensive account of the methodological approach adopted to investigate how telecommunication models, technologies, and policy frameworks can enhance literacy and foundational learning outcomes among refugee learners in Rwanda. It outlines the research design, theoretical and conceptual framework, study area, target population, sampling procedures, data collection methods, data quality control measures, ethical considerations, data analysis techniques, and study limitations. The methodological framework integrates engineering concepts—specifically – the Friis Transmission Model was adapted as a conceptual metaphor for analysing communication barriers affecting educational delivery.

This design was chosen to generate holistic evidence by triangulating statistical data with contextual insights from multiple stakeholders. It also ensured alignment with Rwanda's education policy frameworks and ethical standards for research involving vulnerable populations such as refugees.

3.2 Research Design

3.2.1 Overall Approach

The study employed a mixed-methods exploratory and evaluative design, integrating quantitative measurements with qualitative exploration. Quantitative data captured measurable indicators of literacy, digital competency, and learning outcomes, while qualitative data provided deeper insight into contextual factors, policy alignment, and stakeholder perceptions. This combination addressed both “what” questions—such as the magnitude of telecommunication technology's impact on literacy—and “how” and “why” questions—explaining mechanisms and challenges of implementation (Creswell & Plano Clark, 2018).

A sequential mixed-methods model was adopted, beginning with baseline quantitative data collection, followed by qualitative investigation of enablers and barriers, then intervention piloting and combined analysis. The sequencing allowed iterative refinement of instruments and deeper contextual interpretation of quantitative results.

3.2.2 Quantitative Component

The quantitative strand employed a exploratory mixed-methods implementation evaluation design, cross-sectional survey with pre- and post-intervention measurements. This design allowed

statistical comparison of literacy outcomes and assessment of technology adoption patterns while recognizing the ethical and logistical limitations of random assignment in refugee settings. Quantitative instruments included structured questionnaires for teachers, students, and headteachers, focusing on literacy performance, digital readiness, and pedagogical practices.

This component sought to:

- Establish measurable relationships between telecommunication infrastructure and literacy outcomes.
- Quantify levels of technology adoption and digital skill among learners and teachers.
- Assess changes in teaching practices and learning performance following technology interventions.

3.2.3 Qualitative Component

The qualitative strand adopted descriptive and phenomenological approaches to explore lived experiences, attitudes, and policy perceptions among key stakeholders. Data were collected through Key Informant Interviews (KIIs) and Focus Group Discussions (FGDs). These methods provided insights into:

- Policy implementation challenges and opportunities.
- Barriers to technology adoption and learning.
- Stakeholder perspectives on telecommunication-based educational interventions.
- Community attitudes toward technology-enhanced learning in refugee contexts.

3.2.4 Justification for the Mixed-Methods Design

The mixed-methods design was appropriate because it enabled triangulation between different data sources, enhancing both validity and reliability. It provided breadth through quantitative surveys and depth through qualitative interviews, thereby integrating statistical findings with contextual interpretation (Greene, 2007; Denzin, 1978). This integrative approach was particularly suited to the complexity of education systems in refugee contexts, ensuring that both human and systemic dimensions were captured.

3.3 Theoretical and Conceptual Framework

The study was guided by a telecommunication model analogy inspired by the Friis Transmission Equation, which explains how signals are transmitted between antennas and the factors affecting received power. In this study, the model served as a metaphor for the teaching-learning process, highlighting how knowledge transmission depends on teacher quality, student receptivity, environmental conditions, and systemic barriers.

The Friis equation is expressed as:

$$P_r = P_t \times G_t \times G_r \times \left(\frac{\lambda}{4\pi R} \right)^2$$

Where:

- P_r** = Received power
- P_t** = Transmitted power
- G_t** = Transmitting antenna gain
- G_r** = Receiving antenna gain
- λ** = Wavelength
- R** = Distance between transmitter and receiver

3.3.1 Analogy to the Teaching–Learning Process

The equation was mapped onto educational components as follows:

Table 3. 1: Comparison of Teaching & Learning Process and Telecommunication Systems

Telecommunication Element	Educational Equivalent	Description
Transmitted Power (P _t)	Teacher's knowledge and competency	Quality and preparedness of teaching
Transmitting Antenna Gain (G _t)	Pedagogical methods	Teaching strategies and engagement techniques
Receiving Antenna Gain (G _r)	Learner receptiveness	Motivation, prior knowledge, and learning capacity
Wavelength (λ)	Learning environment	Infrastructure, teaching materials, and technology
Distance (R)	Teacher–student interaction	Class size and individualized attention
Received Power (P _r)	Learning outcomes	Student understanding and achievement

3.3.2 Educational Noise and Interference

In telecommunications, **noise** reduces signal clarity. Similarly, in education, “noise” refers to barriers that hinder effective knowledge transmission, such as:

- Inadequate infrastructure and resources
- Overcrowded classrooms
- Teacher shortages or low capacity
- Psychosocial challenges and displacement trauma
- Language barriers and inconsistent instruction

This analogy helped conceptualize interventions—telecommunication tools such as mobile learning, radio instruction, and satellite connectivity—as mechanisms to reduce educational “noise.” The Friis equation was used as a conceptual analogy rather than a mathematical predictive model.

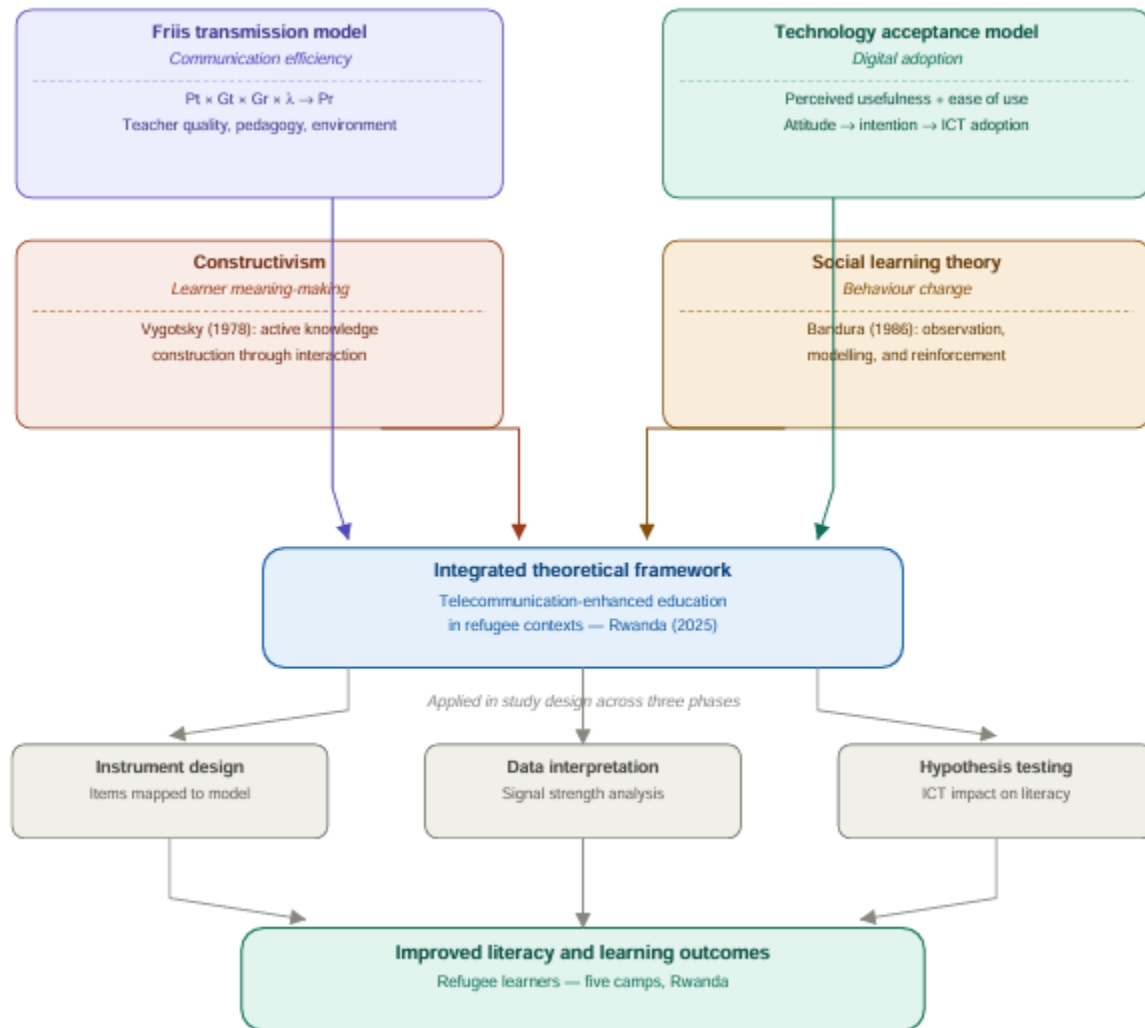


Figure 3.1: Integrated theoretical framework

3.3.3 Application of the Framework

The Friis analogy informed all phases of the study:

- **Conceptualization:** Understanding how knowledge flow parallels signal transmission.
- **Instrument Design:** Questionnaire items were aligned to model components (e.g., teacher capacity, student motivation).

- **Data Interpretation:** Identifying where the “signal” weakened and how technology could enhance transmission.
- **Analytical interpretation:** Identifying barriers and opportunities influencing educational delivery

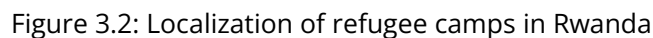
The guiding assumption of the project was that strengthening telecommunication-supported learning would contribute to improved literacy outcomes.

3.4 Study Area

The research was conducted in five refugee camps in Rwanda, chosen for their diversity in geography, demographics, and telecommunication infrastructure:

1. Mahama Camp (Kirehe District, Eastern Province) – largest and most connected, hosting over 60,000 refugees.
2. Kiziba Camp (Karongi District, Western Province) – oldest camp (est. 1996), selected as the pilot site due to established education programs.
3. Nyabiheke Camp (Gatsibo District, Eastern Province) – moderate connectivity and active NGO involvement.
4. Mugombwa Camp (Gisagara District, Southern Province) – smaller camp with manageable scale for intervention testing.
5. Kigeme Camp (Nyamagabe District, Southern Province) – moderate infrastructure and recent integration initiatives.

All camps follow the Rwandan national curriculum, with Kinyarwanda as the medium of instruction in lower primary and English in upper primary. Class sizes often exceed 50 learners, and schools face chronic shortages of teaching materials, trained teachers, and digital tools.



The target population included stakeholders at camp, district, and national levels:

- Primary beneficiaries: P6 students and their teachers in examinable subjects (Kinyarwanda, English, Mathematics, Science, Social Studies).
- Parents/Guardians: Refugee caregivers with children in P6.
- Headteachers and Camp Education Coordinators: School administrators managing refugee education.
- District and Sector Officials: DEOs and SEOs overseeing education quality.
- Humanitarian partners: Camp managers, UNHCR, WFP, World Vision, and NGOs engaged in education.
- National institutions: Rwanda Education Board (REB) and National Examination and School Inspection Authority (NESA).

3.6 Sampling Strategy and Sample Size

A **stratified random sampling** approach combined with purposive sampling was used to ensure representation across stakeholder groups. A **98% confidence level** and **5% margin of error** guided sample size determination. Using the standard formula:

$$n = \frac{Z^2 P(1 - P)}{E^2}$$

where:

$$Z=2.33,$$

$$P=0.5,$$

$$E=0.05$$

This produced a base sample of **approximately 304 participants**, distributed as follows:

Table 3.2: Sample composition

Category	Participants
Students (P6)	240
Teachers	25
Parents (FGDs)	25
Headteachers	10
DEOs/SEOs	10
Camp Managers & NGO Officers	20
REB/NESA Officials	4
Total	334

Sampling was proportional to camp size, with larger camps like Mahama contributing more participants. Kiziba served as the pilot for instrument validation.

For the impact assessment phase, specific attention was given to participants who had watched the educational drama and could provide informed perspectives regarding its influence on knowledge, attitudes, behaviour, and educational aspirations.

The impact assessment employed purposive sampling. Participants were selected based on their exposure to the educational drama and their ability to provide relevant feedback regarding its effectiveness.

The sample consisted of 44 respondents who represented learners, educators, parents, school administrators, and community leadership structures.

This approach was appropriate because the objective was to evaluate perceptions and experiences among individuals directly exposed to the intervention. The impact assessment involved 44 respondents comprising:

Table 3.3: Impact assessment sample.

Category	Number	Percentage
Students	27	61.40%
Teachers	8	18.20%
Parents	5	11.40%
School Leaders	3	6.80%
Local Authority Representative (DEO)	1	2.30%
Total	44	100%

The inclusion of multiple respondent categories enabled triangulation of findings and enhanced the credibility of the assessment results.

3.7 Data Collection Methods and Procedures

3.7.1 Instruments and Tools

Data were collected using multiple instruments designed for triangulation:

- Structured Questionnaires (students, teachers, headteachers) administered via Google Forms.
- Key Informant Interview Guides (for officials, camp managers, and NGO officers).
- Focus Group Discussion Guides (for parents/guardians).
- Observation Checklists (for classroom interactions and digital tool use, online lesson).
- Document Review Templates (for education policies, ESSP reports, and NGO documents).

All instruments were pre-tested in Kiziba Camp to ensure clarity, reliability, and contextual appropriateness.

The impact assessment utilized a structured evaluation instrument consisting of five major dimensions:

1. Audience reception
2. Knowledge acquisition
3. Behaviour change potential
4. Educational outcomes
5. Community and family engagement

Each dimension included multiple indicators measured using a five-point rating scale such as:

- Understanding of the drama message
- Knowledge about early pregnancy prevention

- Motivation to continue education
- Communication with parents and teachers
- Community responsibility toward child protection

The instrument also included open-ended questions that enabled respondents to provide qualitative feedback regarding the strengths, weaknesses, and improvement opportunities associated with the intervention.

The combination of quantitative ratings and qualitative reflections enhanced the depth and reliability of the impact assessment findings.

3.7.2 Fieldwork Process

Each camp was visited for one full day. The procedure followed a consistent structure:

1. Pre-field Engagement: Courtesy visits to district offices and camp managers for clearance and coordination.
2. Briefing Meeting: Introduction of objectives and consent requirements.
3. Quantitative Data Collection: Questionnaires for students and teachers.
4. Qualitative Data Collection: KIIs and FGDs conducted concurrently.
5. Debrief and Logistics: End-of-day review and data verification.

Kiziba's pilot phase enabled refinement of instruments, consent processes, and data collection sequencing before full deployment.

3.8 Data Management and Analysis

3.8.1 Quantitative Analysis

Quantitative data were processed using SPSS (Version 26). Descriptive statistics (means, frequencies, and percentages) summarized responses, and thematic analysis.

3.8.2 Qualitative Analysis

Qualitative data from KIIs and FGDs were transcribed, translated, coded, and analyzed thematically using NVivo 12. Coding followed Braun and Clarke's (2019) framework:

1. Familiarization with transcripts.
2. Generation of initial codes.
3. Theme identification and refinement.
4. Triangulation across stakeholder groups.

Themes reflected categories such as infrastructure barriers, teacher capacity, technology readiness, and policy alignment.

3.8.3 Integration of Findings

Mixed-methods integration involved parallel analysis of quantitative and qualitative data, followed by joint interpretation. Quantitative trends were contextualized with qualitative narratives to build a coherent understanding of how telecommunication interventions affected literacy and learning.

3.9 Validity, Reliability, and Data Quality Assurance

Instrument validity was verified through expert review and pilot testing. Reliability was assessed using Cronbach's Alpha (≥ 0.7). Triangulation across multiple sources enhanced credibility, while consistent procedures ensured dependability. To minimize bias, coding was performed independently by multiple researchers, with discrepancies resolved by consensus.

3.10 Ethical Considerations

Ethical approval was obtained from INES-Ruhengeri Institutional Review Board and the Rwanda National Council for Science and Technology (NCST). Participation was voluntary, based on informed consent (and parental consent for minors). Confidentiality, anonymity, and data protection were strictly maintained through coding, secure storage, and encryption.

Given participants' refugee status, special attention was paid to cultural sensitivity, trauma awareness, and non-interference with essential camp services. No incentives were provided, and all data collection adhered to UNHCR ethical standards for humanitarian research.

3.11 Fieldwork Coordination and Logistics

Field visits followed this schedule:

- **Kiziba (Pilot):** Full research team.
- **Mahama, Mugombwa, Nyabiheke, Kigeme:** Two researchers and one assistant each.
Each visit lasted a full day, involving meetings, questionnaire administration, and interviews coordinated through district and camp authorities.
- For the impact assessment, all the 4 researchers participated actively at Mahama Refugee Camp.

3.12 Limitations of the Methodology

The study faced several limitations:

- Restricted access to some respondents due to camp scheduling.

- Connectivity issues during digital data collection.
- Language translation challenges, mitigated through bilingual facilitators.
- Limited generalizability due to Rwanda-specific context.
- Potential self-report bias among respondents.

Despite these, triangulation across data sources ensured methodological rigor and validity.

3.13 Summary of chapter three

This chapter has detailed the methodological framework guiding the investigation into how telecommunication models and technologies can enhance literacy among refugee learners in Rwanda. By integrating the Friis transmission model with a mixed-methods design, the study achieved both empirical rigor and contextual depth. The use of multiple instruments, robust sampling, and strict ethical standards ensured the credibility, reliability, and policy relevance of findings presented in subsequent chapters.

CHAPTER FOUR: BASELINE FINDINGS AND IDENTIFICATION OF EDUCATIONAL NEEDS

4.1 Introduction

This chapter presents the findings of the baseline study conducted across the five refugee camps in Rwanda, namely Mahama, Kiziba, Nyabiheke, Mugombwa, and Kigeme. The baseline assessment constituted the first phase of the research project and aimed to identify educational challenges, opportunities, and contextual factors influencing literacy and learning outcomes among refugee learners.

Data were collected through interviews, focus group discussions, observations, policy reviews, and stakeholder consultations involving education officers, teachers, parents, refugee leaders, district education officials, and representatives of partner organizations. The findings informed the design of the educational intervention subsequently developed and implemented under this project.

The chapter presents the major educational barriers identified, literacy and teacher capacity challenges, access to ICT and telecommunication resources, policy implementation gaps, and opportunities for technology-enhanced learning.

4.2 Educational Barriers Affecting Refugee Learners

The baseline study revealed that refugee learners face multiple barriers that negatively affect educational participation and achievement. These barriers are structural, economic, linguistic, technological, and social in nature, and often reinforce one another.

4.2.1 Overview of Educational Barriers

Table 4.1 summarizes the principal barriers identified across the five refugee camps.

Table 4.1: Summary of Educational Barriers Identified Across Refugee Camps

Educational Barrier	Evidence from Study	Effects on Learning Outcomes
Overcrowded classrooms	Classes exceeding 60 learners, some above 100	Reduced individual support and classroom interaction
Teacher shortages	Student-teacher ratio approximately 75:1	Reduced instructional quality
Language barriers	Transition from French and Arabic to English	Low comprehension and achievement
Poverty and food insecurity	Lack of learning materials and basic needs	Absenteeism and dropout

Early pregnancy and child marriage	Mainly affecting adolescent girls	Interrupted schooling
Disability-related exclusion	Limited specialized support services	Educational marginalization
Limited ICT access	Inadequate devices and connectivity	Reduced digital learning opportunities
Teacher attrition	Frequent departure of qualified teachers	Reduced instructional continuity

Table 4.1 demonstrates that educational barriers extend beyond the classroom and include broader socio-economic and social protection concerns. These barriers collectively undermine literacy acquisition and educational progression.

A majority of teachers and school leaders interviewed identified language transition from French and Arabic to English as a major contributor to weak reading comprehension and reduced classroom participation.

4.2.2 Camp-Specific Educational Challenges

Although several challenges were common across all camps, some issues were particularly pronounced in specific locations.

Table 4.2: Camp-Specific Educational Challenges

Refugee Camp	Major Educational Challenges
Mahama	Severe overcrowding, language barriers, exclusion of learners with disabilities, limited electricity. <i>"Reading English textbooks remains difficult."</i>
Kiziba	Teacher attrition, weak English proficiency, inadequate remedial support <i>"Some learners understand concepts in Kinyarwanda but struggle when lessons shift to English."</i>
Nyabiheke	Limited ICT resources, inadequate learning materials, poverty-related absenteeism
Mugombwa	Unqualified teachers, overcrowding, staff instability
Kigeme	Poverty, food insecurity, early pregnancies, parental illiteracy

The findings indicate that while educational barriers are widespread, intervention strategies must remain sensitive to local contexts and camp-specific realities.

4.2.3 Interaction of Educational Barriers

The baseline findings further revealed that educational challenges rarely occur in isolation. Rather, they form a cycle of disadvantage.

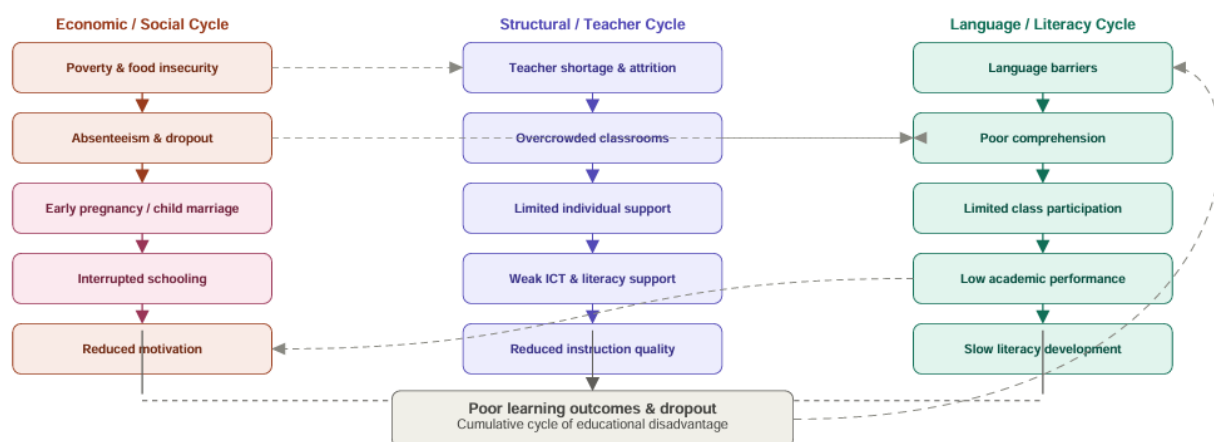


Figure 4.1: Interaction of Educational Barriers

The cumulative effect of these challenges creates significant obstacles to educational success and highlights the need for integrated interventions.

4.3 Literacy and Foundational Learning Challenges

Literacy development emerged as one of the most critical educational concerns identified during the baseline assessment.

Stakeholders reported that many learners experience difficulties in reading, writing, oral communication, and comprehension, particularly in English.

Table 4.3 summarizes the major literacy-related challenges identified.

Table 4.3: Literacy and Foundational Learning Challenges

Challenge	Evidence from Stakeholders	Implications
Weak reading comprehension	Learners struggle to understand English texts	Reduced academic achievement
Poor oral communication	Difficulty communicating in English	Limited classroom participation
Interrupted schooling	Frequent displacement and mobility	Learning gaps
Limited reading culture	Few books and reading materials	Slow literacy development
Inadequate remedial support	Large class sizes limit support	Persistent learning difficulties

Teacher (Kiziba Camp): “Many learners can express themselves in Kinyarwanda, but they struggle to read and understand English texts, especially in Science and Social Studies.”

Student (Mahama Camp): “Reading English textbooks remains difficult because some words are unfamiliar and we do not always have someone to explain them.”

Headteacher (Nyabiheke Camp): “Interrupted schooling and limited access to reading materials have created learning gaps that require continuous remedial support.”

The evidence suggests that foundational literacy deficits constitute a major obstacle to educational progression and require targeted interventions.

4.4 Teacher Capacity and Instructional Challenges

Teacher effectiveness is a key determinant of learning outcomes. However, the study identified several challenges affecting teacher capacity.

Table 4.4: Teacher Capacity Challenges

Capacity Area	Findings	Educational Implications
Professional qualifications	Presence of unqualified teachers	Reduced instructional quality
English proficiency	Limited language competence	Weak curriculum delivery
ICT integration skills	Limited digital teaching competencies	Underutilization of technology
Professional development	Few training opportunities	Slow capacity improvement
Teacher retention	High turnover rates	Reduced continuity

Teacher (Mugombwa Camp): “Large class sizes make it difficult to provide individual support to learners who require additional attention.”

District Education Officer: “Teachers are committed, but opportunities for continuous professional development and digital pedagogy training remain limited.”

Headteacher (Kigeme Camp): “Frequent staff turnover affects continuity in teaching and slows the implementation of new instructional approaches.”

These findings indicate that strengthening teacher competencies must form a central component of any effort to improve educational outcomes in refugee camps.

4.5 Access to ICT and Telecommunication Resources

The findings indicate that the potential contribution of ICT to refugee education is influenced by several interrelated factors, including connectivity, availability of digital devices, digital literacy, and teacher preparedness. Therefore, the effectiveness of technology-enhanced learning depends not only on access to digital tools but also on the existence of supportive institutional and pedagogical environments capable of translating technological opportunities into meaningful learning experiences.

4.5.1 Existing ICT Initiatives

Several ICT interventions were already operating in refugee camps.

Table 4.5: Existing ICT and Telecommunication Resources

ICT Initiative	Camps Implemented	Key Benefits	Main Challenges
Profuturo	Mahama, Nyabiheke	Interactive learning and digital content	Device shortages
Smart Classrooms	Mahama, Mugombwa, Kiziba	Improved lesson delivery	Limited coverage
Smartphone Learning	All camps	Self-directed learning opportunities	Data costs
UNHCR ICT Training	All camps	Improved digital awareness	Skills gaps
OLPC Initiative	Host schools	ICT exposure	Limited refugee access

Student (Mahama Camp): "Sometimes we hear about online learning resources, but many of us do not have smartphones or enough internet bundles to use them regularly."

Teacher (Nyabiheke Camp): "Digital tools can improve learning, but unreliable internet connectivity and shortages of devices limit their effective use in classrooms."

Camp Education Coordinator: "Technology offers significant opportunities for refugee education, but investment in connectivity, equipment, and digital skills is necessary for these benefits to be fully realized."

The results indicate that digital technologies already play an important role in refugee education, although their impact remains constrained by resource limitations.

4.5.2 ICT Access Constraints

The baseline assessment also identified several barriers affecting effective use of technology.

Table 4.6: ICT Access Constraints

Constraint	Description	Impact
Limited devices	Few computers and tablets	Restricted access
Weak connectivity	Unreliable internet services	Interrupted learning
Lack of electricity	Limited household power supply	Reduced technology use
High data costs	Expensive internet bundles	Reduced online access
Maintenance challenges	Equipment breakdowns	Sustainability concerns

Despite these challenges, stakeholders consistently viewed technology as a promising avenue for educational improvement.

4.6 Policy and Implementation Gaps

The study reviewed Rwanda's education policies and examined their implementation within refugee settings.

Table 4.7: Policy Implementation Gaps Identified During Baseline Study

Policy Area	Existing Provision	Gap Identified
ICT Integration	National ICT in Education Policy	Limited camp-level implementation
Inclusive Education	Support for vulnerable learners	Weak disability support
Language Transition	Equal curriculum access	Lack of bridging programmes
Gender Mainstreaming	Girls' support facilities	Continued early pregnancies
Teacher Development	National training programmes	Limited refugee-school coverage

The findings reveal that policy intentions are generally progressive but require greater contextualization and resourcing to meet refugee-specific needs.

4.7 Opportunities for Technology-Enhanced Learning

Despite significant challenges, the baseline assessment identified several opportunities that could be leveraged to improve literacy and learning outcomes.

Table 4.8: Opportunities for Technology-Enhanced Learning

Opportunity Area	Potential Contribution
Educational videos	Improve engagement and concept understanding

Mobile learning	Extend learning beyond classrooms
Online learning platforms	Increase access to educational resources
Teacher digital training	Strengthen instructional quality
Community ICT centres	Improve equitable access
Open Educational Resources	Reduce learning material shortages
Behaviour-change communication	Address social barriers affecting education

The strong interest expressed by learners, teachers, and parents suggested that digital interventions would be welcomed and could complement existing educational efforts.

4.8 Synthesis of Baseline Findings

The baseline study revealed a complex educational environment characterized by significant challenges but also considerable opportunities for innovation.

To facilitate intervention planning, the research team synthesized the key findings and their implications.

Table 4.9: Key Baseline Findings and Their Implications for Intervention Design

Baseline Finding	Implication for Intervention
Weak literacy outcomes	Develop literacy-focused educational content
Early pregnancies and dropout	Incorporate behaviour-change messages
Limited learner engagement	Use creative and interactive pedagogies
Growing smartphone access	Utilize digital dissemination strategies
Teacher capacity constraints	Design user-friendly learning materials
Stakeholder interest in ICT	Integrate technology-enhanced learning
Need for community involvement	Engage families and local leaders

Overall, the baseline findings confirmed the need for an intervention that would simultaneously address literacy challenges, social issues affecting education, and limitations in access to quality learning resources.

4.9 Implications for Intervention Design

The baseline findings directly informed the design of the intervention developed under this project.

The findings indicated that the intervention should:

1. Focus on literacy enhancement and behaviour change.
2. Utilize creative pedagogies capable of engaging learners and communities.
3. Address social issues contributing to dropout and poor learning outcomes.
4. Leverage telecommunications and digital technologies to increase reach and sustainability.
5. Promote stakeholder participation and community ownership.
6. Be scalable through digital learning platforms.

Consequently, an educational drama addressing issues affecting learners in refugee settings was developed, performed by refugee students in Mahama Camp, and subsequently disseminated through REB and INES-Ruhengeri digital learning platforms. The next chapter presents the intervention development and implementation process.

CHAPTER FIVE: DESIGN AND DEVELOPMENT OF THE INTERVENTION

5.1 Introduction

Following the baseline study conducted across the five refugee camps in Rwanda, the research team identified several educational challenges affecting refugee learners, including low literacy levels, high dropout rates, limited parental engagement, language barriers, teacher shortages, and social challenges such as adolescent pregnancy. The baseline findings further revealed that although Information and Communication Technology (ICT) initiatives had improved access to learning resources, educational outcomes continued to be constrained by behavioural and social factors that negatively affected learner participation and retention.

To address these challenges, the project adopted an innovative intervention that combined drama-based pedagogy, telecommunication technologies, and digital learning platforms. The intervention sought to demonstrate how educational messages could be effectively communicated through creative and participatory approaches while leveraging telecommunication infrastructures for wider dissemination and accessibility.

The intervention consisted of the development and production of an educational drama (sketch) performed by students from Mahama Refugee Camp. The drama focused on prevention of school dropout associated with adolescent pregnancy and other protection-related vulnerabilities, positive behaviour, learner protection, and the importance of remaining in school. After production, the learning resource was digitized and uploaded onto the Rwanda Basic Education Board (REB) and INES-Ruhengeri online learning platforms, making it accessible to learners, teachers, and communities beyond Mahama Camp. This chapter describes the processes followed in selecting the educational theme, developing the script, producing the drama, engaging stakeholders, and ensuring alignment with Rwanda's Competence-Based Curriculum (CBC).

5.2 Selection of the Educational Theme

The selection of the educational theme was informed by evidence generated during the baseline study and consultations with stakeholders from the five refugee camps. The study established that adolescent pregnancy was among the most critical factors contributing to school dropout, especially among girls.

Findings from interviews with education officers, teachers, parents, and learners revealed that:

- Early pregnancy contributed significantly to girls' dropout rates;

- Many adolescents lacked adequate information on reproductive health and responsible decision-making;
- Parents and teachers often experienced difficulties discussing sensitive issues with adolescents;
- Communities required practical approaches to raise awareness and stimulate dialogue.

These findings were consistent with broader literature indicating that adolescent pregnancy remains one of the leading causes of educational discontinuity among vulnerable populations (UNESCO, 2024; UNHCR, 2023).

Based on these findings, stakeholders agreed that the intervention should focus on:

1. Prevention of adolescent pregnancy;
2. Promotion of responsible behaviour among youth;
3. Encouragement of school retention and completion;
4. Strengthening communication between learners, parents, and teachers;
5. Supporting literacy and learning outcomes through positive behaviour change.

The selected theme therefore addressed both educational and social dimensions affecting refugee learners.

Table 5.1: Factors Influencing Selection of the Educational Theme

Factor Identified During Baseline Study	Influence on Theme Selection
High rates of adolescent pregnancy	Focus on prevention and awareness
School dropout among girls	Emphasis on education continuation
Weak parent-child communication	Promotion of family dialogue
Risky adolescent behaviours	Positive behaviour change messages
Need for learner protection	Child protection awareness
Literacy and learning challenges	Retention and engagement in education

Baseline findings and stakeholder consultations indicated that adolescent pregnancy should be understood within a broader context of educational, social, economic, and protection-related vulnerabilities affecting girls' educational participation and retention. Poverty, limited access to accurate information, weak family and community support systems, school-related challenges, and prevailing gender norms were identified as interrelated factors that increase vulnerability to school dropout. Consequently, the intervention was designed not as a behaviour correction mechanism targeting individual learners, but rather as a protection and empowerment strategy aimed at promoting

awareness, strengthening support systems, encouraging positive decision-making, and fostering educational continuity among vulnerable adolescents.

5.3 Rationale for Using Drama-Based Learning

Drama was selected as the primary pedagogical approach because of its ability to communicate complex social issues through relatable stories and experiential learning. Drama-based education allows learners to actively participate in constructing knowledge rather than passively receiving information.

Educational research demonstrates that drama enhances:

- learner engagement;
- communication skills;
- critical thinking;
- empathy and emotional understanding;
- retention of educational messages.

According to UNESCO (2021), participatory approaches such as drama are particularly effective in refugee and crisis contexts because they create safe spaces for dialogue and reflection.

The decision to use drama was further informed by the theoretical framework adopted in this project. Drawing from telecommunication theory, effective learning can be viewed as a communication process where educational messages must be transmitted clearly from the sender to the receiver while minimizing interference (Shannon & Weaver, 1949). Figure 5.1 illustrates the communication model underlying the intervention.

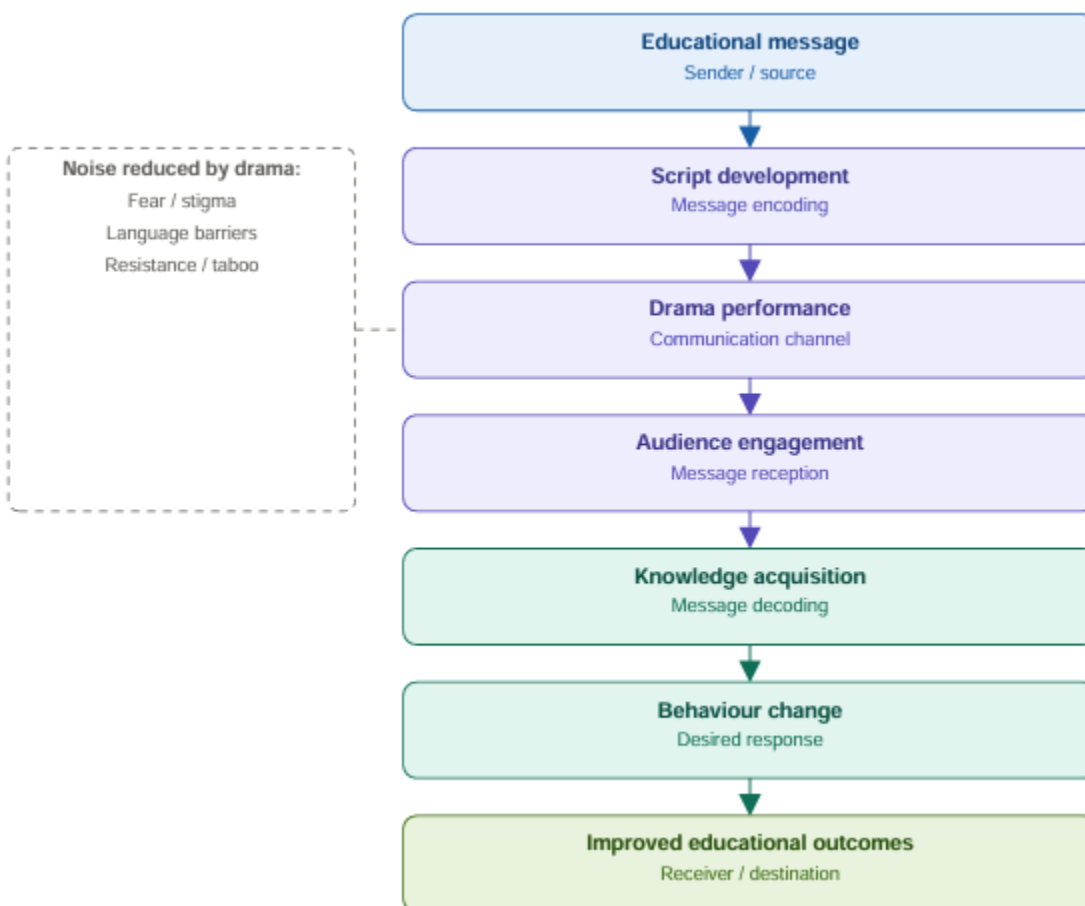


Figure 5.1: Drama as an Educational Communication Channel

Drama therefore served as a communication channel capable of reducing educational "noise" such as fear, stigma, and resistance when discussing sensitive topics.

5.4 Development of the Educational Script

The script development process followed a participatory and evidence-based approach. The storyline was derived from real challenges documented during the baseline assessment and from experiences shared by students, teachers, parents, and education stakeholders.

The script-writing process involved the following stages:

Stage 1: Review of Baseline Findings

Researchers reviewed:

- Baseline survey results;
- Focus group discussions;

- Key informant interviews;
- Existing literature on adolescent pregnancy and refugee education.

Stage 2: Identification of Key Messages

The project team identified critical messages including:

- Causes of adolescent pregnancy;
- Consequences of early pregnancy on education;
- Importance of responsible decision-making;
- Role of parents and teachers in learner protection;
- Importance of remaining in school.

Stage 3: Story Development

A storyline was designed around realistic situations encountered by adolescents in refugee settings.

The script included:

- Peer pressure;
- Family challenges;
- School experiences;
- Consequences of poor decisions;
- Positive alternatives and support systems.

Stage 4: Script Validation

Draft scripts were reviewed by:

- Education experts;
- REB representatives;
- Teachers;
- School leaders;
- Researchers.

Feedback was incorporated before production.

Table 5.2: Major Educational Messages Embedded in the Script

Educational Message	Intended Learning Outcome
Consequences of early pregnancy	Increased awareness
Importance of education	Improved retention
Responsible decision-making	Positive behaviour
Communication with parents	Family support
Peer influence management	Improved life skills
Learner protection	Child safeguarding

The messages incorporated into the drama emphasized learner protection, informed decision-making, parental engagement, gender-sensitive support, and the collective responsibility of schools, families, and communities in creating enabling environments for educational success. The intervention therefore adopted a holistic perspective that recognizes adolescent pregnancy as one manifestation of broader vulnerabilities rather than solely an individual behavioural issue.

5.5 Stakeholder Participation in Content Development

The intervention was developed through extensive stakeholder engagement. Several institutions contributed to the content development process:

- Rwanda Basic Education Board (REB);
- Ministry in Charge of Emergency Management (MINEMA);
- Kirehe District authorities;
- INES-Ruhengeri;
- School leaders;
- Teachers;
- Parents;
- Students;
- Community representatives.

Stakeholder consultations ensured that:

- The content was culturally appropriate;
- Messages were relevant to refugee realities;
- Educational objectives were aligned with national priorities;
- Community ownership was promoted.

The participatory approach increased the credibility and acceptance of the intervention among beneficiaries.

Table 5.3: Stakeholder Contributions

Stakeholder	Contribution
REB	Curriculum alignment
MINEMA	Camp coordination
INES-Ruhengeri	Technical guidance
Teachers	Educational content review
Students	Story adaptation
Parents	Community perspectives
School leaders	Validation and implementation support

5.6 Student Involvement in Script Adaptation and Production

A unique aspect of the intervention was the active involvement of refugee students. Students from GS Paysanat L in Mahama Refugee Camp participated in:

- Reviewing the script;
- Adapting dialogue;
- Selecting characters;
- Rehearsals;
- Acting and performance.

This participation transformed learners from passive beneficiaries into active co-creators of educational content. Student involvement contributed to:

- Greater authenticity of the storyline;
- Enhanced ownership;
- Improved confidence and communication skills;
- Increased relevance of messages to adolescent audiences.

Through repeated rehearsals, learners also strengthened literacy-related competencies such as reading, speaking, listening, and interpretation.

5.7 Production of the Educational Drama

Following script finalization, the drama entered the production phase. Production activities included:

Pre-production

- Casting of student actors;
- Script refinement;
- Scheduling rehearsals;
- Technical planning.

Rehearsal Phase

Multiple rehearsal sessions were organized to:

- Improve delivery;
- Strengthen character interpretation;
- Ensure clarity of educational messages.

Filming and Recording

The performance was professionally recorded to enable dissemination beyond the physical audience.

Editing

Editing focused on:

- Improving visual quality;
- Enhancing audio clarity;
- Ensuring message consistency;
- Preparing versions suitable for online platforms.

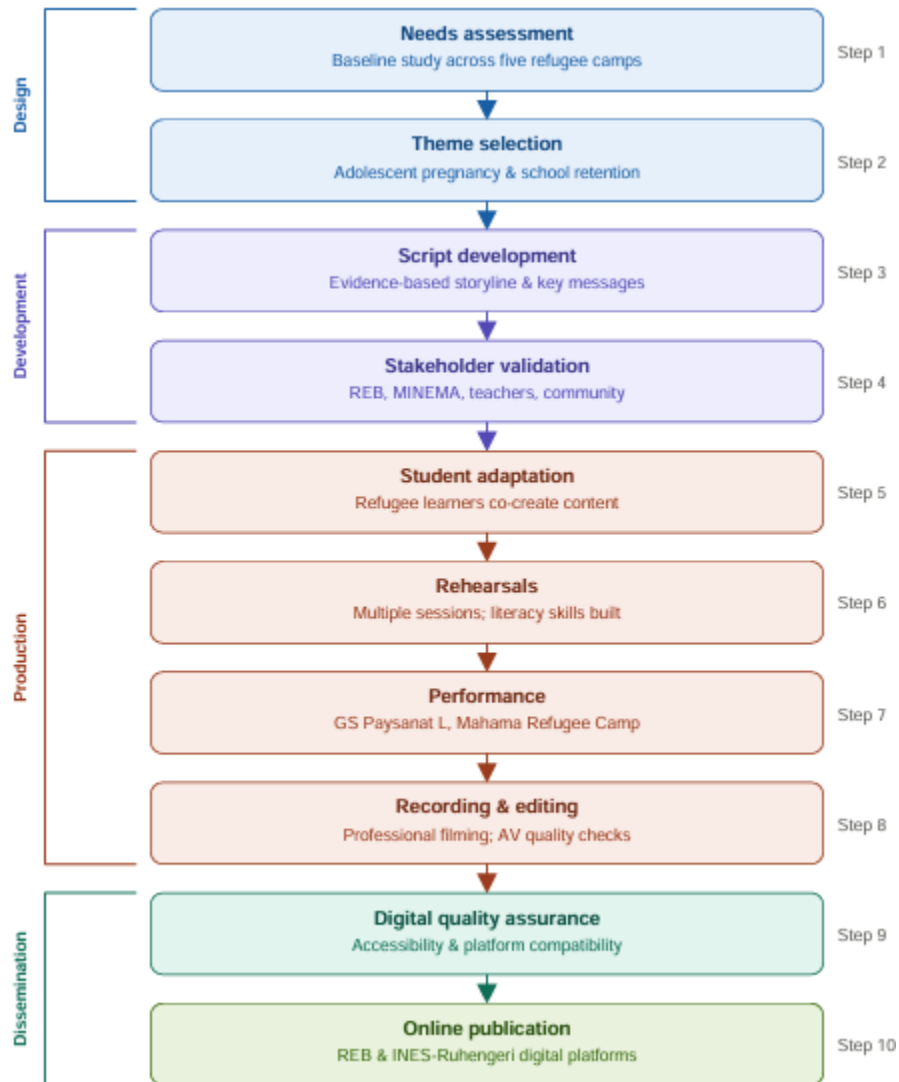


Figure 5.2: Educational Drama Production Process

5.8 Alignment with Rwanda Competence-Based Curriculum

The intervention was deliberately aligned with the Rwanda Competence-Based Curriculum (CBC), which emphasizes learner-centred approaches and competency development (REB, 2022). The drama promoted several CBC competencies including:

Communication Skills. Students developed:

- Speaking skills;
- Listening skills;
- Presentation skills.

Critical Thinking. The storyline encouraged learners to:

- Analyze consequences;
- Evaluate choices;
- Make informed decisions.

Personal and Social Responsibility. The intervention promoted:

- Respect;
- Self-control;
- Responsible behaviour.

Lifelong Learning. The drama reinforced the value of education as a pathway to personal and community development.

Table 5.4: Alignment with CBC Competencies

CBC Competency	Contribution of Drama
Communication	Dialogue and performance
Critical Thinking	Reflection on consequences
Creativity	Acting and script adaptation
Problem Solving	Decision-making scenarios
Cooperation	Team rehearsals
Lifelong Learning	Education continuation messages

5.9 Integration of Literacy, Behaviour Change and Life Skills

The intervention was intentionally designed to integrate literacy development, behaviour change communication, and life-skills education.

Literacy Development. Students improved:

- Reading fluency;
- Oral communication;

- Vocabulary development;
- Listening comprehension.

Behaviour Change. The intervention applied principles of social and behaviour change communication by:

- Raising awareness;
- Challenging misconceptions;
- Encouraging reflection;
- Promoting positive decisions.

Life Skills Development. Key life skills promoted included:

- Decision making;
- Self-awareness;
- Goal setting;
- Communication;
- Resilience.

Figure 5.3 illustrates the integrated intervention model.

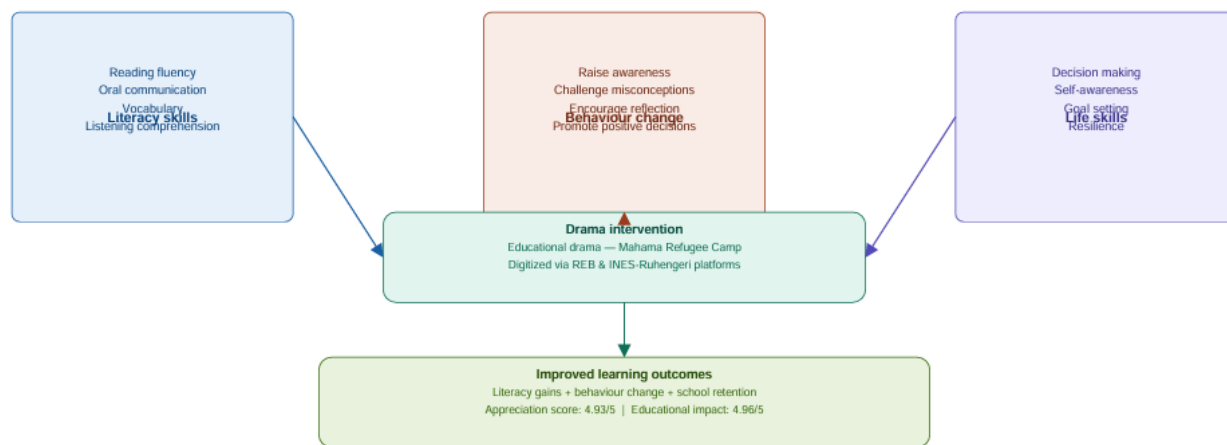


Figure 5.3: Integrated intervention model.

The integration of these three dimensions strengthened the intervention's potential to influence both educational participation and learning achievement.

5.10 Validation and Quality Assurance of the Learning Content

Quality assurance was undertaken throughout the intervention development process to ensure educational accuracy, relevance, and effectiveness. Validation involved multiple stages:

Technical Review. Experts reviewed:

- Educational accuracy;
- Behaviour change messages;
- Curriculum alignment.

Stakeholder Validation. Teachers, school leaders, REB representatives, and community stakeholders assessed:

- Relevance;
- Cultural appropriateness;
- Clarity of messages.

Pilot Observation. The drama was observed before final publication, allowing refinements to:

- Dialogue;
- Timing;
- Message delivery.

Digital Quality Assurance. Before uploading to REB and INES platforms, technical checks ensured:

- Audio quality;
- Video quality;
- Accessibility;
- Compatibility with online learning systems.

The impact assessment findings later confirmed the effectiveness of this quality assurance process. The drama achieved an overall audience appreciation score of 4.93/5, knowledge acquisition score of 4.92/5, behaviour change score of 4.94/5, educational impact score of 4.96/5, and community engagement score of 4.98/5, demonstrating very high acceptance and perceived effectiveness among learners, teachers, parents, and community stakeholders.

Table 5.5: Validation and Quality Assurance Measures

Quality Assurance Activity	Purpose
Expert review	Educational accuracy
Stakeholder consultation	Context relevance
Script validation	Message clarity
Pilot observation	Performance improvement
Technical editing	Audio-visual quality
Platform testing	Digital accessibility

5.11 Chapter Summary

This chapter has described the design and development of the educational intervention implemented under the project. Guided by baseline findings, the project selected adolescent pregnancy prevention and education continuation as its central educational theme. A participatory drama-based approach was adopted because of its strong potential to communicate sensitive issues, stimulate reflection, and encourage behaviour change. Students, teachers, education authorities, and community stakeholders actively participated in script development, adaptation, validation, and production.

The resulting educational drama successfully integrated literacy development, life skills education, and behaviour change communication while remaining aligned with Rwanda's Competence-Based Curriculum. Through digitization and publication on REB and INES learning platforms, the intervention also demonstrated how telecommunication technologies can expand the reach and sustainability of educational innovations beyond refugee camps. The next chapter presents the implementation, dissemination, and impact assessment findings of the intervention across refugee education communities in Rwanda.

CHAPTER SIX: IMPLEMENTATION AND DISSEMINATION OF THE INTERVENTION

6.1 Introduction

Following the baseline study that identified major educational barriers affecting refugee learners in Rwanda, including low literacy levels, limited learner engagement, inadequate parental involvement, early pregnancies, and insufficient use of technology-enhanced learning approaches, the project proceeded to the implementation stage. This phase focused on translating research findings into an educational intervention capable of addressing identified challenges while leveraging telecommunication and digital learning opportunities.

The intervention consisted of the development, production, performance, digitalization, and dissemination of an educational drama designed and performed by students from Mahama Refugee Camp. The drama addressed one of the most critical social and educational challenges identified during the baseline assessment—early pregnancy and its effects on education continuation, literacy development, and future opportunities for refugee learners.

The implementation phase was guided by the principles of participatory learning, learner-centred pedagogy, community engagement, and technology-enhanced dissemination. Beyond live performances, the intervention was transformed into digital learning content and published on online educational platforms to ensure broader accessibility and sustainability.

This chapter presents the implementation process, student and community participation, dissemination mechanisms, challenges encountered, and lessons learned.

6.2 Implementation in Mahama Refugee Camp

Mahama Refugee Camp was selected as the pilot implementation site due to its large learner population and the educational challenges identified during the baseline study. The camp hosts thousands of school-aged children enrolled in primary, secondary, and TVET education institutions.

Implementation activities were conducted through close collaboration among several stakeholders, including:

- Rwanda Education Board (REB);
- Ministry in Charge of Emergency Management (MINEMA);
- UNHCR;

- Kirehe District authorities;
- INES-Ruhengeri;
- School leadership of Groupe Scolaire Paysannat L;
- Teachers and students;
- Parents and community leaders.

The implementation process followed five major stages:

Table 6.1: Major Stages of Intervention Implementation

Stage	Key Activities
Stage 1	Identification of educational theme
Stage 2	Script development and validation
Stage 3	Student training and rehearsal
Stage 4	Live drama performance
Stage 5	Digitalization and online dissemination

The intervention was implemented during the 2025–2026 academic year and involved extensive consultation with educational stakeholders to ensure relevance and contextual appropriateness.

The live performance was organized within Mahama Refugee Camp and attended by learners, teachers, parents, school leaders, community representatives, and project partners.

6.3 Student Participation and Performance

A defining characteristic of the intervention was the active involvement of refugee learners throughout the implementation process.

Rather than serving merely as recipients of educational messages, students became co-creators and agents of change.

Their participation included:

- Reviewing the draft script;
- Adapting dialogue to local realities;
- Developing characters;
- Acting in the drama;
- Participating in rehearsals;
- Supporting awareness activities.

Student involvement aligned with Rwanda's Competence-Based Curriculum, which promotes active learning, communication, creativity, collaboration, and problem-solving skills.

Table 6.2: Areas of Student Participation

Activity	Student Contribution
Script review	Contextualizing messages
Character development	Creating realistic roles
Acting	Delivering educational messages
Rehearsals	Improving performance quality
Peer engagement	Encouraging discussions among learners

The participatory approach increased student ownership of the intervention and strengthened the credibility of the educational messages delivered.

Observations during rehearsals and performances indicated high levels of learner motivation, confidence, teamwork, and communication skills.

Several teachers reported that participation in the drama improved learners' self-expression and public-speaking abilities.

6.4 Community Engagement Activities

Recognizing that educational challenges such as early pregnancy requires collective action, the intervention deliberately incorporated community engagement activities. Community participation included:

- Attendance at drama performances;
- Post-performance discussions;
- Parent-teacher dialogue sessions;
- Awareness meetings;
- Feedback collection exercises.

The impact assessment revealed strong community appreciation of the intervention. Participants reported that the drama:

- Stimulated discussion about adolescent pregnancy;
- Encouraged communication between parents and children;
- Increased awareness of educational responsibilities;
- Promoted positive behaviour change.

Table 6.3: Community Stakeholders Engaged

Stakeholder Group	Role in Intervention
Parents	Audience and discussion participants
Teachers	Mentors and facilitators
School leaders	Coordination and supervision
Local authorities	Mobilization and support
Community leaders	Awareness creation
Students	Performers and peer educators

The community-centred approach strengthened local ownership and enhanced the likelihood of sustained impact beyond the project period.

6.5 Digitalization of the Educational Content

A major innovation of the project was the transformation of the live drama into a digital educational resource. After the performance, the drama was professionally recorded, edited, and converted into digital learning material. The digitalization process involved:

1. Video recording of the complete performance;
2. Audio enhancement and editing;
3. Integration of educational captions;
4. Quality assurance review;
5. Conversion into online learning formats;
6. Uploading to educational platforms.

Figure 6.1 illustrates the digitalization workflow.

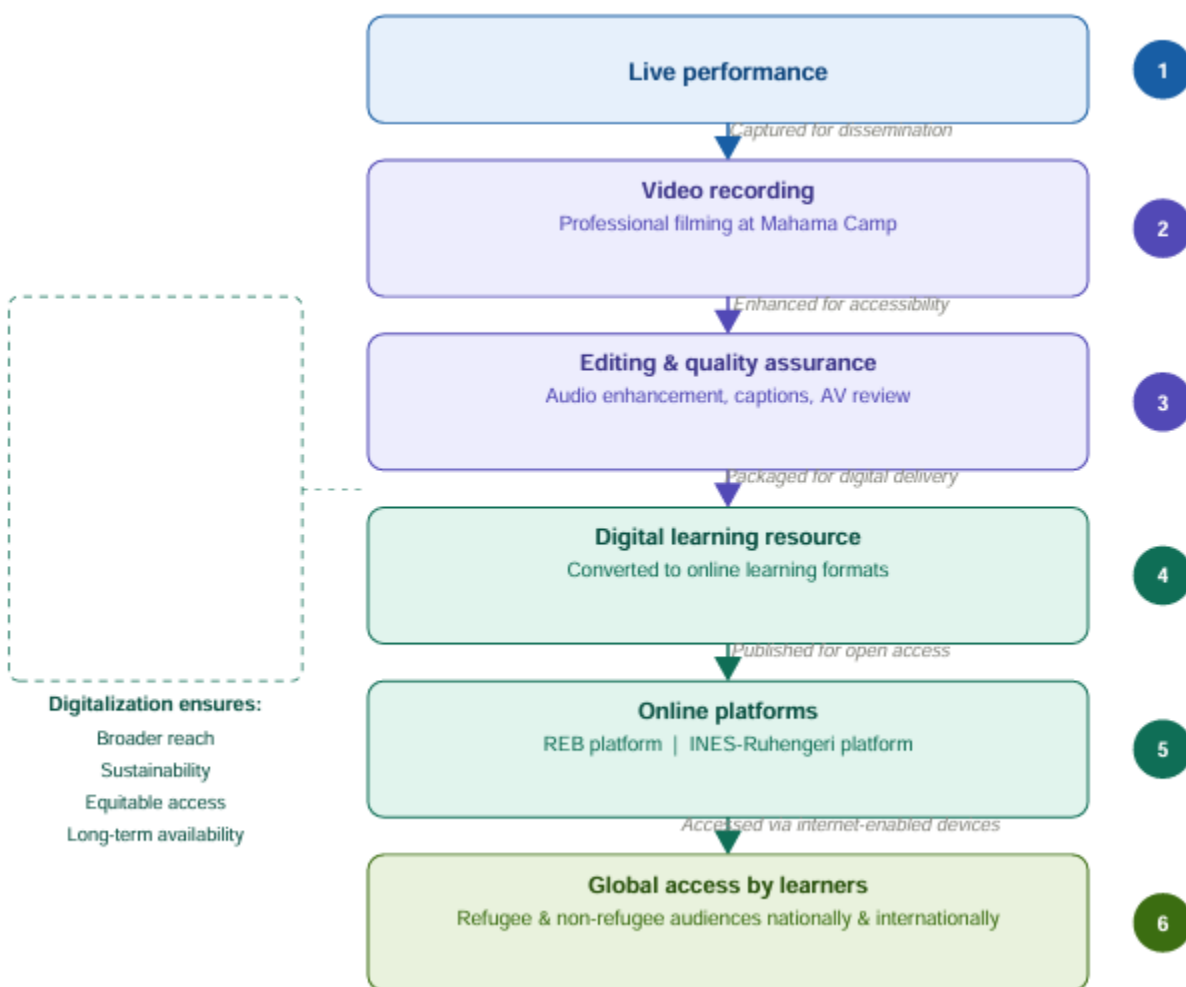


Figure 6.1: Digitalization Process of the Educational Drama

The digitalization process ensured that the educational content could continue reaching learners beyond the initial performance.

It also demonstrated how telecommunication technologies can amplify educational interventions developed in refugee settings.

6.6 Publication on Educational Platforms

To maximize reach and sustainability, the educational drama was uploaded to two major educational platforms.

6.6.1 Rwanda Education Board (REB) Platform

The first dissemination channel was the Rwanda Education Board digital learning platform. Publishing the drama on the REB platform provided several advantages:

- National visibility;
- Integration into educational resources;
- Access by teachers and learners;
- Alignment with Rwanda's digital learning strategy;
- Long-term availability of the content.

The platform enabled schools across Rwanda to access the educational resource and use it in guidance, counselling, life-skills education, and learner protection activities.

The publication further aligned with Rwanda's national efforts to expand digital learning opportunities through ICT integration in education.

6.6.2 INES-Ruhengeri Learning Platform

The second dissemination channel was the INES-Ruhengeri online learning platform. The platform provided:

- Open online access;
- Remote learning opportunities;
- International visibility;
- Integration into university outreach activities.

Publishing the resource on the INES platform enabled wider dissemination beyond formal school settings and increased accessibility for refugee learners, researchers, teachers, and development partners. The platform also created opportunities for future adaptation into online courses and digital learning modules.

6.7 Accessibility for Refugee and Non-Refugee Learners

One of the major objectives of the dissemination strategy was to ensure equitable access to educational content. Unlike traditional interventions limited to a single camp or school, digital dissemination made the drama accessible to diverse learner populations.

Table 6.4: Accessibility Benefits of Digital Dissemination

Learner Group	Accessibility Benefit
Refugee learners in Rwanda	Direct access to educational content
Host-community learners	Shared learning opportunities
Refugees in other countries	Remote access through internet platforms
Teachers	Resource for classroom discussions
Parents	Awareness and guidance resource
Researchers	Reference material for future studies

The intervention therefore promoted inclusion by ensuring that educational messages reached both refugee and non-refugee audiences. Digital access significantly reduced geographical barriers that traditionally limit educational outreach in humanitarian settings. Although quantitative usage statistics such as downloads and viewing frequencies were not systematically monitored, participants perceived digital dissemination as increasing opportunities for accessing educational content beyond the original live performance. Accessibility remained constrained by internet connectivity, availability of digital devices, and varying levels of digital literacy

6.8 Reach and Dissemination Beyond Rwanda

A key contribution of the project lies in its ability to transcend local boundaries. Once uploaded to REB and INES-Ruhengeri platforms, the educational drama became potentially accessible to audiences beyond Rwanda through internet-enabled technologies. However, the study did not systematically monitor viewing statistics, downloads, or user analytics. Consequently, the extent of actual utilization beyond the initial audience requires further assessment.

This broader dissemination supports the project's overarching goal of leveraging telecommunication models to improve learning outcomes in refugee settings. Potential beneficiaries include:

- Refugee learners across Africa;
- Teachers working in humanitarian contexts;
- NGOs involved in refugee education;
- Universities and teacher-training institutions;
- Policymakers interested in innovative educational approaches.

Figure 6.2 summarizes the dissemination pathway.

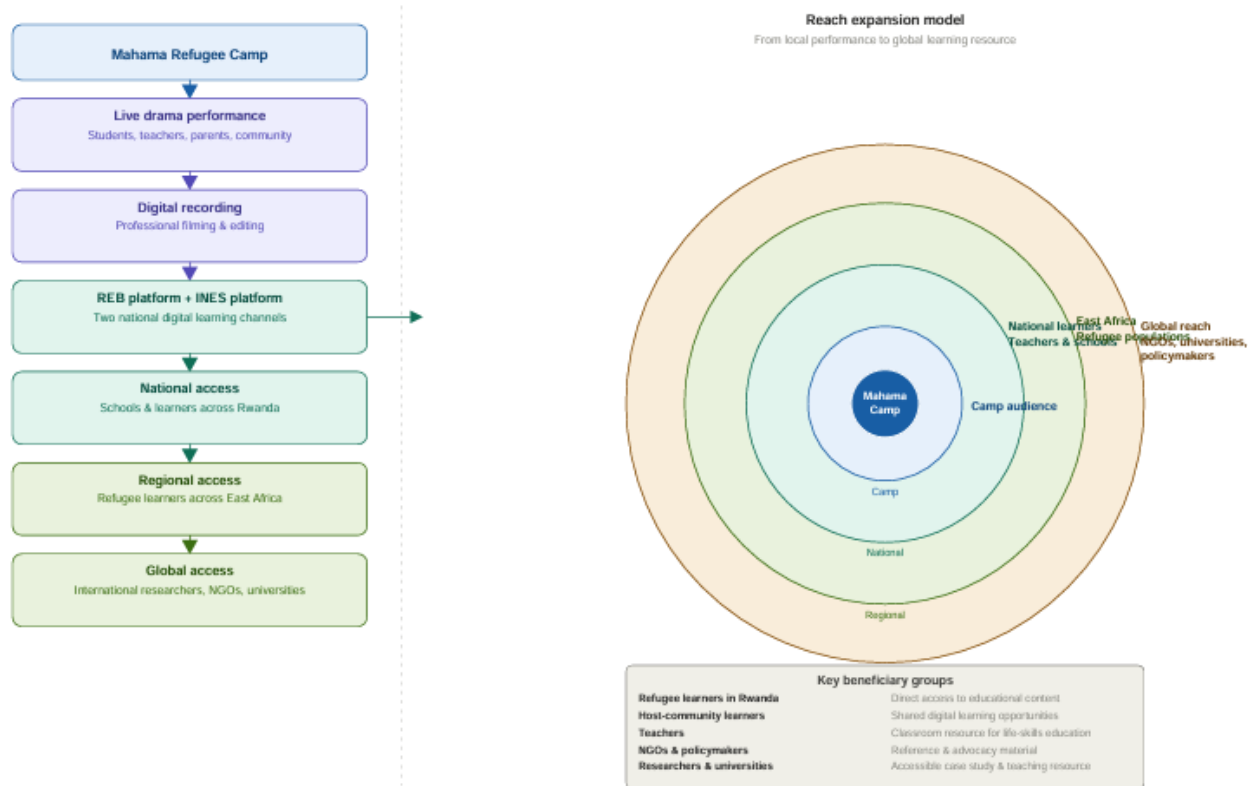


Figure 6.2: Expansion of Reach Through Telecommunication Technologies

The intervention therefore transformed a local educational activity into a globally accessible learning resource.

Digital Delivery Performance Assessment

An important innovation of the project was the integration of creative pedagogy with digital communication and telecommunication-enabled dissemination mechanisms. Beyond the live performance, the educational drama was digitised and uploaded to platforms managed by the Rwanda Basic Education Board (REB) and INES-Ruhengeri, thereby extending the accessibility and sustainability of educational messages beyond Mahama Refugee Camp. This approach demonstrated how digital technologies can complement face-to-face educational interventions and support the preservation and dissemination of locally developed learning resources.

Feedback obtained during the impact assessment indicated positive perceptions regarding the relevance, usefulness, and accessibility of the digital resource. Participants acknowledged the value of maintaining educational content in digital form for repeated use and wider dissemination. However, unequal access to digital devices, limited internet connectivity, and the absence of systematic monitoring mechanisms constrained the ability to quantify actual reach and platform utilisation. Consequently, user analytics, viewing

statistics, and download frequencies were not measured. Future interventions should integrate digital analytics and user feedback systems to strengthen evidence on reach, accessibility, and effectiveness.

Table 6.5: Digital Delivery Performance Assessment

Indicator	Evidence from the Intervention
Platform availability	Educational drama digitised and uploaded to REB and INES-Ruhengeri platforms
Accessibility	Educational content made available beyond live audiences
Stakeholders reached	Learners, teachers, parents, school leaders, and partners
User perceptions	Positive perceptions regarding usefulness and relevance
Connectivity challenges	Internet limitations and high data costs affected access
Device availability	Unequal access to smartphones and computers among learners
Usage analytics	Views and downloads were not systematically monitored
Sustainability potential	Digital archiving enables repeated use and adaptation
Scalability potential	Approach can be replicated in other refugee camps

6.9 Challenges Encountered During Implementation

Despite the successful implementation of the intervention, several challenges were experienced.

Table 6.6: Challenges Encountered During Implementation

Challenge	Description
Time constraints	Balancing rehearsals with school schedules
Limited technical resources	Recording and editing equipment constraints
Connectivity challenges	Internet access limitations during uploading
Coordination demands	Multiple stakeholder involvement
Financial limitations	Resource requirements for production and dissemination

Language diversity

Communicating messages to learners from different linguistic backgrounds

The project team addressed these challenges through collaboration among stakeholders, flexible scheduling, and technical support from partner institutions.

Additional challenges related to digital delivery included unequal access to smartphones and computers, inconsistent internet connectivity, data costs, and limited opportunities for monitoring user engagement and platform analytics. These constraints limited the ability to quantify the reach and utilization of the digital educational resource

6.10 Lessons Learned

Several important lessons emerged from the implementation and dissemination process.

Lesson 1: Students are Effective Change Agents

When learners actively participate in designing and delivering educational messages, interventions become more authentic, relevant, and impactful.

Lesson 2: Drama Enhances Learning and Behaviour Change

Drama provides a powerful mechanism for addressing sensitive educational and social issues through experiential learning and emotional engagement.

Lesson 3: Community Involvement Increases Sustainability

Engaging parents, teachers, and community leaders strengthens ownership and supports long-term behaviour change.

Lesson 4: Digital Technologies Extend Educational Impact

Telecommunication technologies significantly expand the reach of educational interventions beyond physical locations.

Lesson 5: Multi-Stakeholder Partnerships are Essential

Successful implementation required collaboration among educational institutions, government agencies, refugee authorities, development partners, and communities.

Lesson 6: Local Innovations Can Achieve Global Reach

The experience demonstrated that educational solutions developed within refugee camps can become valuable learning resources for broader national and international audiences when supported by appropriate digital dissemination mechanisms.

6.11 Chapter Summary

This chapter has presented the implementation and dissemination phase of the intervention. The educational drama was successfully implemented in Mahama Refugee Camp through a participatory process involving students, teachers, parents, community leaders, and institutional partners. The intervention addressed early pregnancy and education continuation while promoting literacy, behaviour change, and life skills development.

Through digitalization and publication on the REB and INES-Ruhengeri learning platforms, the intervention expanded beyond its original setting and became accessible to refugee and non-refugee learners nationally and internationally. The experience demonstrated the practical value of combining creative pedagogy with telecommunication technologies to enhance educational access, participation, and impact in refugee

CHAPTER SEVEN: IMPACT ASSESSMENT OF THE INTERVENTION

7.1 Introduction

This chapter presents the findings of the impact assessment conducted following the implementation of the drama-based educational intervention in Mahama Refugee Camp. The assessment was undertaken to determine the extent to which the intervention achieved its intended objectives of improving awareness about early pregnancy, promoting positive behavioural change, strengthening learner protection, and enhancing educational participation and learning outcomes among refugee learners.

The chapter analyses evidence collected from students, teachers, parents, school leaders, and community representatives who participated in or observed the intervention. The findings provide insights into how drama-based learning can contribute to addressing educational and social challenges in refugee settings while supporting literacy development, learner retention, and community engagement.

7.2 Purpose and Scope of the Impact Assessment

The impact assessment was designed to evaluate the effectiveness of the educational drama as a social and educational intervention. Specifically, the assessment sought to:

- Determine audience reception and understanding of the educational messages;
- Assess changes in knowledge regarding early pregnancy and education;
- Examine perceived behavioural changes among learners;
- Evaluate the contribution of the intervention to educational outcomes;
- Explore family and community responses to the intervention;
- Generate evidence to guide future scaling and sustainability efforts.

The assessment focused primarily on Mahama Refugee Camp, where the intervention was piloted and implemented. It examined both direct and indirect outcomes associated with learner behaviour, school participation, literacy development, parental engagement, and community support for education.

The assessment further explored participant perceptions regarding the accessibility, relevance, and usefulness of the digitally disseminated educational content and the role of online platforms in expanding access to educational messages

7.3 Characteristics of Assessment Participants

A total of 44 participants took part in the impact assessment. The participants represented key stakeholder groups within the refugee education ecosystem.

Table 7.1: Distribution of Assessment Participants

Category	Number	Percentage
Students	27	61.40%
Teachers	8	18.20%
Parents	5	11.40%
School Leaders	3	6.80%
Local Authority Representative	1	2.20%
Total	44	100%

Students constituted the majority of respondents because they represented the primary target beneficiaries of the intervention. The inclusion of teachers, parents, school leaders, and local authorities provided broader perspectives on the influence of the intervention within schools and communities.

Table 7.2: Gender Distribution of Participants

Gender	Number	Percentage
Male	23	52.30%
Female	21	47.70%
Total	44	100%

The balanced gender representation strengthened the reliability of findings concerning educational challenges affecting both boys and girls, particularly issues related to adolescent pregnancy and school retention.

7.4 Audience Reception and Perceptions of the Drama

One of the strongest findings emerging from the assessment relates to the positive reception of the educational drama. Participants consistently reported that the intervention was engaging, understandable, realistic, and relevant to their lived experiences.

Table 7.3: Audience Reception Indicators

Indicator	Mean Score (/5)
Ability to follow the drama	4.93
Understanding of messages	4.93
Effectiveness of actors	4.95
Reflection of real-life situations	4.95

Educational value	4.91
Overall Mean	4.93

The findings demonstrate that drama proved to be a highly effective communication medium. Participants appreciated its ability to present sensitive issues through relatable situations, allowing audiences to identify with characters and reflect on their own circumstances.

The realism of the storyline emerged as a critical success factor, enabling participants to connect educational messages with actual challenges faced by adolescents within refugee communities.

Participants acknowledged that addressing adolescent pregnancy requires coordinated efforts involving schools, parents, communities, and support institutions, reflecting the interconnected nature of educational and social vulnerabilities affecting learners.

7.5 Knowledge Acquired Through the Intervention

The intervention significantly enhanced participants' understanding of issues related to adolescent pregnancy, learner protection, educational continuity, and responsible behaviour.

Table 7.4: Knowledge Outcomes

Knowledge Area	Mean Score (/5)
Causes of early pregnancy	4.89
Consequences of early pregnancy	4.93
Effects on education	4.93
Prevention of risky behaviours	4.93
Importance of continuing education	4.93
Overall Mean	4.92

The findings suggest that the drama successfully transformed complex social and educational issues into understandable learning experiences. Participants reported improved awareness of the relationship between personal decisions, educational attainment, and future opportunities.

Knowledge gains were particularly evident among students, who demonstrated increased understanding of how early pregnancy can affect educational aspirations and long-term life outcomes.

7.6 Behaviour Change Outcomes

The intervention was designed not only to increase awareness but also to stimulate positive behavioural change. Assessment findings indicate strong perceptions that the drama can contribute to behavioural transformation among young people.

Table 7.5: Behaviour Change Outcomes

Outcome	Mean Score (/5)
Better decision-making	4.95
Avoidance of risky behaviours	4.93
Reduction of early pregnancy	4.98
Improved communication with adults	4.93
Development of positive values	4.95
Overall Mean	4.94

The results indicate that participants viewed the intervention as an important preventive strategy capable of influencing attitudes, choices, and behaviours among adolescents.

7.6.1 Early Pregnancy Awareness and Prevention

The strongest behavioural outcome related to awareness and prevention of early pregnancy. Respondents overwhelmingly agreed that the intervention effectively communicated the risks and consequences associated with adolescent pregnancy.

Participants reported that the drama encouraged learners to think critically about peer pressure, relationships, and future aspirations. Increased awareness was expected to contribute to reduced vulnerability and greater protection of educational opportunities for girls.

7.6.2 Responsible Decision-Making

The intervention promoted critical thinking and responsible decision-making among learners. Participants noted that the drama encouraged youth to evaluate the consequences of their actions before making important life choices.

The storyline demonstrated how decisions made during adolescence can influence educational trajectories and future opportunities, thereby fostering a stronger sense of personal responsibility.

7.6.3 Learner Protection and Wellbeing

Another significant outcome concerned learner protection and wellbeing. The intervention encouraged learners to seek guidance from parents, teachers, and trusted adults when facing challenges.

The drama also promoted safer learning environments by encouraging collective responsibility for protecting children from factors that could jeopardize their education and wellbeing.

7.7 Educational Outcomes

The assessment findings indicate that participants perceived a strong relationship between the intervention and positive educational outcomes. Respondents consistently reported that the drama reinforced the value of education, encouraged school participation, and motivated learners to remain focused on their studies. Educational outcomes received a high overall mean score of 4.96 out of 5, reflecting widespread confidence in the educational relevance of the intervention. However, these findings should be interpreted as participants' perceptions of potential educational benefits rather than direct evidence of improved academic achievement, since objective measures such as literacy assessments, attendance records, school retention records, or examination results were not collected during the assessment period.

Table 7.6: Participants' Perceptions of Educational Outcomes

Educational Outcome	Mean Score (/5)
Increased school retention	4.95
Improved attendance	4.95
Increased interest in learning	4.98
Improved reading and writing	4.95
Improved academic performance	4.98
Overall Mean	4.96

The high ratings across all indicators suggest that participants believed the intervention had the potential to contribute to improved educational engagement and school participation. In particular, respondents associated the prevention of early pregnancy and

promotion of responsible decision-making with better opportunities for learners to remain in school and pursue their educational goals.

7.7.1 School Retention

Participants perceived the intervention as a valuable contribution to school retention, particularly for girls who may be vulnerable to educational disruption. Rather than presenting early pregnancy as the sole cause of dropout, respondents recognized that school discontinuation often results from multiple interacting factors, including poverty, family circumstances, social pressures, and protection concerns. The drama reinforced the importance of completing education and encouraged collective responsibility among families, schools, and communities to support learners' continued participation in schooling.

7.7.2 Learner Motivation

Respondents reported that the intervention strengthened learners' motivation toward education. The storyline encouraged learners to focus on their studies, reflect on future aspirations, and recognize the long-term value of education. Participants believed that the messages delivered through the drama inspired greater commitment to learning and helped learners view education as a pathway toward personal development, self-reliance, and future opportunities.

7.7.3 Perceived Contributions to Learning and Educational Aspirations

Participants reported increased appreciation of education, stronger interest in learning, and greater commitment to continuing their studies. While respondents perceived positive effects on literacy development and academic performance, these outcomes were not directly measured through standardized assessments or school performance data. Therefore, the findings should be interpreted as perceptions of educational improvement rather than verified learning gains.

Table 7.7: Reported Major Educational Changes Following the Intervention

Reported Change	Percentage Reporting Major Change
Increased educational motivation	95.30%
Improved literacy development	95.30%
Improved school retention	95.20%

These findings suggest that the intervention successfully promoted positive attitudes toward education and learning. The results support the project's underlying theory that addressing social barriers affecting learners may create conditions that encourage stronger educational engagement and future academic success.

7.7.4 Academic Aspirations

The intervention also strengthened learners' educational and career aspirations. Participants reported increased awareness of the importance of long-term educational planning and a better understanding of how continued schooling can contribute to future opportunities. Learners expressed greater confidence in their ability to pursue higher levels of education and achieve personal goals through sustained participation in learning. These findings indicate that the intervention contributed positively to educational aspirations and future-oriented thinking among learners, even though longer-term educational outcomes will require further follow-up assessment to verify.

7.8 Family and Community Engagement Outcomes

One of the most significant achievements of the intervention was its ability to engage families and communities in supporting education.

Table 7.8: Family and Community Engagement Outcomes

Area	Mean Score (/5)
Discussion of adolescent pregnancy	4.98
Parental support for schooling	5
Community responsibility for protection	4.95
Awareness of education importance	5
Supportive environment for children	5
Overall Mean	4.98

The intervention stimulated dialogue between children, parents, teachers, and community leaders. Participants indicated that these discussions could contribute to stronger monitoring, guidance, and support for learners.

The findings suggest that the intervention extended beyond individual learners to influence broader community attitudes toward child protection and education.

7.9 Comparative Analysis Across Refugee Camps

Since the intervention was implemented and assessed primarily within Mahama Refugee Camp, a direct comparative analysis across refugee camps was beyond the scope of this assessment.

However, the findings provide important baseline evidence that can inform future replication in other refugee camps in Rwanda, including Kigeme, Nyabiheke, Mugombwa, and Kiziba. The positive outcomes observed in Mahama suggest that drama-based

educational interventions may be adaptable to other refugee contexts facing similar challenges related to adolescent pregnancy, school retention, learner protection, and literacy development.

Future implementation across multiple camps would enable comparative studies examining contextual factors that influence effectiveness and scalability.

7.10 Stakeholder Perspectives

Students

Students reported that the intervention was engaging, informative, and relevant to their daily experiences. Many highlighted improved understanding of early pregnancy risks and greater motivation to remain in school.

Teachers

Teachers emphasized the educational value of drama as a learner-centred pedagogical approach. They viewed the intervention as an effective complement to classroom-based guidance and counselling activities.

Parents

Parents appreciated the intervention's role in strengthening communication within families. They reported increased awareness of their responsibilities in guiding and supporting children.

School Leaders

School leaders recognized the intervention as an innovative strategy for addressing barriers to educational participation. They highlighted its potential contribution to attendance, retention, and learner wellbeing.

Education Authorities and Partners

Education authorities and project partners acknowledged the intervention as a promising model for integrating education, protection, and community engagement objectives within refugee education programmes.

7.11 Overall Effectiveness of the Intervention

The assessment findings indicate that the intervention achieved a very high level of effectiveness across all evaluated dimensions.

Classification of Intervention Results:

Output Indicators

- Educational drama produced;
- Refugee learners involved in production;
- Digital content uploaded;
- Dissemination through REB and INES-Ruhengeri platforms;
- Stakeholders engaged.

Outcome Indicators

- Increased awareness;
- Positive attitudes towards education;
- Motivation to remain in school;
- Improved communication among learners, teachers, and parents;
- Increased community engagement.

Impact Indicators

Long-term indicators such as:

- reduced dropout,
- improved attendance,
- improved literacy scores,
- improved academic performance

Table 7.9: Summary of Overall Effectiveness

Dimension	Mean Score (/5)
Audience Reception	4.93
Knowledge Acquisition	4.92
Behaviour Change	4.94
Educational Outcomes	4.96
Family and Community Engagement	4.98
Overall Intervention Effectiveness	4.95

The consistently high ratings demonstrate that the intervention successfully combined educational communication, behavioural influence, learner protection, and community mobilization within a single integrated approach.

The intervention contributed to increased awareness, learner engagement, and positive attitudes toward education. While preliminary findings suggest potential influence on learning outcomes, long-term academic impact requires further longitudinal assessment.

7.12 Classification of Intervention Results

The findings of the intervention assessment indicate that the educational drama generated a range of outputs and short-term outcomes among participants. However, because the assessment focused primarily on participant perceptions and experiences and did not include longitudinal measurements of academic performance, caution is required when interpreting broader educational impacts.

Output Indicators

The project successfully produced and implemented several tangible outputs, including:

- Development and production of an educational drama addressing adolescent pregnancy prevention and learner protection;
- Participation of refugee learners in the production process;
- Digitisation and online dissemination of the educational content;
- Use of REB and INES-Ruhengeri platforms to increase accessibility;
- Engagement of teachers, parents, school leaders, camp authorities, and education stakeholders.

Outcome Indicators

The intervention assessment revealed several positive short-term outcomes among participants, including:

- Increased awareness of the consequences of adolescent pregnancy and school dropout;
- More positive attitudes towards education and responsible behaviour;
- Increased motivation among learners to remain in school;
- Improved communication and dialogue among learners, parents, and teachers regarding issues affecting children's education and wellbeing;
- Greater appreciation of the importance of learner protection and community responsibility.

Impact Indicators

The present study did not directly measure long-term educational impacts such as changes in literacy scores, school attendance, dropout rates, or academic performance. Consequently, no definitive conclusions can be drawn regarding the effect of the intervention on these indicators. While preliminary findings suggest that the intervention has the potential to contribute to improved learning outcomes, long-term effects require further longitudinal assessment involving larger samples and objective educational indicators.

7.13 Summary of Impact Assessment Findings

The impact assessment findings indicate that the drama-based intervention successfully addressed important educational and social issues affecting refugee learners in Mahama Refugee Camp. The intervention generated strong audience engagement, increased awareness regarding adolescent pregnancy and the importance of education, promoted positive attitudes and behavioural intentions, and strengthened communication and support systems involving learners, parents, teachers, and the wider community.

The findings further demonstrate that drama can serve as an effective and context-responsive educational approach for enhancing learner engagement, promoting educational aspirations, supporting child protection, and stimulating dialogue on issues affecting children's wellbeing. The intervention also encouraged family and community participation, thereby contributing to a broader support environment for children and adolescents.

Overall, the assessment provides evidence that creative, participatory, and technology-supported educational approaches can contribute to increased awareness, learner engagement, and positive attitudes towards education in refugee settings. While the findings suggest the potential for beneficial effects on learner retention, literacy development, and broader educational outcomes, these impacts were not directly measured within the scope of the study. Consequently, longer-term and longitudinal assessments involving objective indicators such as literacy achievement, school attendance, and academic performance are required to establish the sustained educational impact of the intervention. Nevertheless, the positive reception of the intervention supports its further adaptation, digital dissemination, and scaling within refugee camps and other vulnerable communities in Rwanda and beyond.

CHAPTER EIGHT: DISCUSSION OF FINDINGS

8.1 Introduction

This chapter discusses the major findings emerging from the development, implementation, and assessment of the drama-based educational intervention implemented in Mahama Refugee Camp. The discussion focuses on how the intervention addressed educational barriers affecting refugee learners through the integration of telecommunications, digital learning resources, and participatory educational approaches. Particular attention is given to the effectiveness of drama as a pedagogical and behaviour change strategy, the role of online learning platforms in expanding access to educational content, and the implications of the intervention for refugee education policy and practice in Rwanda.

The chapter further examines how the findings relate to the theoretical framework underpinning the study, namely the Friis Transmission Framework, and compares the results with existing literature on educational innovation, refugee education, learner engagement, and digital inclusion in fragile contexts.

8.2 Addressing Educational Barriers Through Telecommunications and Digital Learning

The baseline assessment revealed that learners in Mahama Refugee Camp experience multiple educational barriers that extend beyond classroom instruction. These barriers include limited access to learning materials, inadequate ICT infrastructure, shortages of educational resources, low literacy achievement among vulnerable learners, and social challenges such as adolescent pregnancy that contribute to school dropout and disengagement from learning.

The intervention responded to these challenges by combining educational content development with digital dissemination mechanisms. Rather than relying exclusively on traditional face-to-face awareness campaigns, the project adopted a telecommunications-supported model through which educational messages could be recorded, digitized, and disseminated through online learning platforms.

This approach is significant because refugee education systems often struggle with resource limitations, teacher shortages, overcrowded classrooms, and restricted access to enrichment materials. Digital learning resources provide opportunities for repeated access to educational content without requiring continuous physical presence of facilitators.

The findings suggest that telecommunications technologies can serve as important enablers of educational equity by reducing geographical, institutional, and social barriers to

learning. Through digital dissemination, the educational drama became accessible not only to learners who attended the live performance but also to broader audiences beyond Mahama Refugee Camp.

The intervention therefore demonstrates how telecommunications can complement conventional educational delivery systems by extending learning opportunities to populations that are traditionally underserved.

8.3 Effectiveness of Drama as a Learning and Behaviour Change Tool

One of the most significant findings of the study is the demonstrated effectiveness of drama as a learner-centred educational strategy.

The impact assessment showed exceptionally high levels of audience engagement and message comprehension, with overall audience reception scoring 4.93 out of 5. Participants consistently reported that the drama was realistic, understandable, emotionally engaging, and relevant to their daily experiences.

Unlike traditional awareness campaigns that often rely on lectures and information delivery, drama creates opportunities for experiential learning. Through storytelling, role-playing, and character identification, learners are able to visualize the consequences of decisions and explore alternative behaviours within realistic social contexts.

The findings indicate that the drama succeeded in promoting:

- Awareness of adolescent pregnancy risks;
- Understanding of consequences of school dropout;
- Positive attitudes towards education;
- Responsible decision-making;
- Improved communication between learners and adults;
- Community responsibility for learner protection.

The effectiveness of the intervention can largely be attributed to the emotional and participatory nature of drama. Participants were not merely recipients of information but became active interpreters of the messages being conveyed.

This supports educational theories emphasizing active learning, social learning, and constructivist approaches, which argue that learners acquire deeper understanding when knowledge is linked to meaningful experiences.

The findings therefore confirm that drama can function simultaneously as:

- A teaching tool;
- A communication tool;
- A social mobilization tool;

- A behaviour change intervention.

This multidimensional role makes drama particularly suitable for addressing sensitive issues such as adolescent pregnancy, child protection, and educational retention in refugee settings.

8.4 Role of Online Learning Platforms in Expanding Access

An important innovation of the project was the integration of digital learning platforms into the dissemination strategy.

The intervention moved beyond the traditional limitation of one-time performances by ensuring that educational content could be uploaded and shared through institutional online learning systems. This digitalization process substantially increased the potential reach and sustainability of the intervention.

Online learning platforms provide several advantages:

Wider Reach

Educational resources become accessible to learners who may not have attended the live performances.

Reusability

Teachers can repeatedly use the content during classroom instruction, guidance sessions, and extracurricular activities.

Sustainability

The educational resource remains available long after project implementation.

Scalability

The intervention can be replicated across schools, refugee camps, and districts without requiring repeated production costs.

Flexibility

Learners can access content at different times and locations depending on connectivity and device availability.

The use of online platforms also aligns with Rwanda's ongoing efforts to strengthen digital transformation within education.

The findings therefore suggest that combining creative educational content with digital dissemination mechanisms significantly enhances the long-term impact of educational interventions.

8.5 Alignment with National Education Policies

The intervention demonstrates strong alignment with Rwanda's educational priorities and policy frameworks.

The Rwanda Competence-Based Curriculum emphasizes learner-centred teaching approaches, critical thinking, communication, problem-solving, creativity, and real-life application of learning. The drama-based intervention incorporated all these competencies. Specifically, the intervention promoted:

- Communication skills through dialogue and performance;
- Critical thinking through analysis of social situations;
- Problem-solving through exploration of alternatives to risky behaviours;
- Creativity through script adaptation and performance;
- Citizenship values through discussions on responsibility and protection.

Furthermore, Rwanda's education policies emphasize inclusive education and equitable learning opportunities for vulnerable populations, including refugee learners. The intervention directly supports these policy objectives by:

- Addressing barriers to educational participation;
- Promoting learner retention;
- Supporting girls' education;
- Enhancing community engagement;
- Expanding access through digital technologies.

The project also contributes to national priorities related to ICT integration in education and digital learning transformation. The findings therefore demonstrate that innovative educational interventions can simultaneously address local challenges while contributing to broader national education goals.

The findings suggest that adolescent pregnancy should be viewed through a multidimensional lens encompassing educational, socio-economic, cultural, and protection-related factors. Consistent with contemporary approaches to inclusive education and child protection, the intervention sought to strengthen awareness and supportive environments rather than attribute responsibility solely to individual learners. The educational drama therefore functioned as a tool for empowerment, dialogue, and community engagement, promoting shared responsibility for protecting and supporting vulnerable learners.

8.6 Implications for Refugee Education in Rwanda

The results of this study carry important implications for refugee education policy and practice.

First, the findings confirm that educational challenges in refugee settings cannot be addressed solely through infrastructure expansion or classroom provision. Social factors such as adolescent pregnancy, protection concerns, family engagement, and community attitudes significantly influence educational participation and learning outcomes.

Second, the intervention demonstrates the value of integrated approaches that combine:

- Education;
- Child protection;
- Community engagement;
- Behaviour change communication;
- Digital learning.

Third, the strong positive responses from students, teachers, parents, and school leaders suggest that refugee communities are receptive to participatory and culturally relevant educational approaches.

Fourth, the project highlights the importance of involving learners themselves in educational content development. Student participation in script adaptation and performance strengthened ownership, relevance, and authenticity of the intervention.

Finally, the digital dissemination component offers a practical model for scaling educational innovations across refugee camps in Rwanda:

The findings suggest that the educational value of digital technologies in refugee settings depends not merely on the availability of technological tools, but also on contextual factors such as infrastructure, connectivity, teacher competence, learner readiness, institutional support, and equitable access to devices. Consequently, technology should be understood as an enabling mechanism whose effectiveness is mediated by pedagogical practices and the broader educational environment. These findings reinforce the importance of combining digital resources with participatory and context-responsive approaches to maximize educational benefits in fragile settings.

8.7 Revisiting the Friis Transmission Framework

The study was guided by the Friis Transmission Framework, which conceptualizes communication as a process involving transmission, propagation, reception, and interpretation of signals.

Although originally developed within telecommunications engineering, the framework provided a useful lens for understanding how educational messages move from content creators to learners. Within the intervention:

Transmitter

The educational script, actors, teachers, and digital platforms functioned as message transmitters.

Transmission Channel

Drama performances, video recordings, telecommunications networks, and online learning platforms served as communication channels.

Receiver

Students, teachers, parents, and community members represented the receivers of educational messages.

Signal Quality

Audience engagement, comprehension, and message retention reflected the quality of transmission.

Output

Knowledge acquisition, behaviour change intentions, and educational aspirations represented the outcomes of successful communication.

The findings demonstrate that effective educational communication requires not only the transmission of information but also the reduction of “noise” that interferes with message reception. In refugee settings, such noise may include:

- Language barriers;
- Limited literacy;
- Cultural misconceptions;
- Restricted access to information;
- Social stigma surrounding sensitive topics.

The drama-based approach reduced these barriers by presenting messages in a relatable, culturally understandable, and emotionally engaging format.

The study therefore extends the application of the Friis framework beyond telecommunications engineering into educational communication and digital learning.

8.8 Contribution to Teaching and Learning in Fragile Contexts

The intervention contributes significantly to emerging knowledge on teaching and learning in fragile and displacement-affected contexts. Several key contributions can be identified.

Enhancing Learner Engagement

The intervention demonstrated that creative pedagogies can increase learner interest and participation in educational activities.

Strengthening Foundational Learning

Participants consistently linked educational continuation with improvements in literacy, reading habits, and academic achievement.

Promoting Inclusive Education

The intervention addressed barriers affecting vulnerable learners, particularly girls at risk of school dropout.

Supporting Social-Emotional Learning

The drama encouraged empathy, reflection, self-awareness, and responsible decision-making.

Bridging School and Community Learning

The intervention strengthened collaboration among learners, parents, teachers, and community leaders. These contributions are particularly important in refugee contexts where educational systems often face significant resource constraints and social challenges.

The findings suggest that educational interventions combining creative pedagogy, digital technologies, and community engagement can contribute to increased learner engagement, awareness, and positive attitudes towards education. While participants perceived beneficial effects on educational participation and motivation, the study did not directly assess literacy achievement or academic performance. Consequently, long-term educational impacts require further longitudinal investigation.

8.9 Comparison with Existing Literature

The findings of this study are consistent with a growing body of international research highlighting the effectiveness of drama-based education and digital learning interventions.

Previous studies have demonstrated that drama enhances learner engagement, improves communication skills, promotes critical thinking, and facilitates behaviour change.

Researchers have also shown that educational drama is particularly effective when addressing sensitive social issues because it allows learners to explore complex situations without direct personal exposure.

Similarly, studies on refugee education emphasize that social barriers such as early pregnancy, protection concerns, poverty, and limited parental support significantly affect educational outcomes. The present findings reinforce these observations by demonstrating how a drama-based intervention can address such barriers while promoting educational participation.

The study also aligns with literature on digital learning, which identifies online educational platforms as important mechanisms for increasing access, flexibility, and scalability of learning opportunities. The successful digitalization of the drama supports evidence suggesting that technology can expand educational reach even in resource-constrained environments.

Furthermore, the findings support research on competence-based education, which emphasizes active participation, real-world problem solving, collaboration, and learner agency. Through script adaptation, performance, reflection, and discussion, learners engaged in exactly the types of competencies promoted by contemporary educational reforms.

Overall, the findings suggest that combining drama, digital learning technologies, and community engagement constitutes a promising strategy for enhancing learner engagement, educational participation, and positive attitudes towards education. While preliminary evidence indicates potential contributions to learning outcomes, sustained academic impacts require longer-term assessment.

CHAPTER NINE: PROJECT ACHIEVEMENTS, INNOVATIONS AND KNOWLEDGE PRODUCTS

9.1 Introduction

This chapter presents the major achievements, innovations, outputs, and knowledge products generated through the implementation of the project entitled “Leveraging Telecommunication Models and Policy Frameworks to Enhance Literacy and Learning Outcomes in Refugee Camps in Rwanda.”

The project sought to explore how telecommunications infrastructure, digital learning technologies, educational policies, and innovative pedagogical approaches can be leveraged to improve literacy development, learner engagement, educational participation, and learning outcomes among refugee learners. Through a combination of baseline research, educational content development, digital dissemination, stakeholder engagement, and impact assessment, the project generated evidence and practical solutions for addressing educational challenges within refugee settings.

The chapter highlights the extent to which project objectives were achieved, identifies key innovations introduced, and discusses the project's contribution to educational policy, practice, research, and knowledge generation.

9.2 Achievement of Project Objectives

The project successfully achieved its overall objective of investigating and demonstrating how telecommunications models and supportive policy frameworks can be utilized to enhance learner engagement, educational participation, and access to learning opportunities among refugee learners in Rwanda. The project further demonstrated the potential contribution of telecommunication-supported interventions to improved learning outcomes, although long-term academic impacts were not directly measured.

Objective 1: To assess educational barriers affecting refugee learners

This objective was achieved through a comprehensive baseline assessment conducted in Mahama Refugee Camp. The study identified critical barriers affecting educational participation and learning outcomes, including:

- Limited access to ICT and telecommunication resources;
- Inadequate digital learning opportunities;
- Literacy and foundational learning challenges;
- Early pregnancy and school dropout;
- Limited parental engagement;

- Insufficient access to educational support services.

Given the duration of the intervention, literacy outcomes were assessed through learner engagement, educational motivation, and perceived learning benefits rather than long-term academic achievement. The findings provided evidence for designing context-specific interventions.

Objective 2: To examine the role of telecommunications in supporting learning

The project successfully documented existing telecommunication infrastructure, digital learning opportunities, and ICT-related challenges within the refugee education environment. The findings demonstrated the potential of telecommunications technologies to expand educational access and support literacy development.

Objective 3: To develop innovative educational content addressing identified needs

The project designed and produced an educational drama addressing issues affecting learner retention, literacy development, educational aspirations, and adolescent wellbeing. The educational content was subsequently digitized to increase accessibility and scalability.

Objective 4: To promote digital access to educational resources

The project successfully integrated learning content into digital learning environments, enabling educational materials to be accessed beyond the immediate implementation site.

Objective 5: To generate evidence for policy and educational practice

The impact assessment generated empirical evidence on the effectiveness of innovative educational interventions and their potential contribution to refugee education policies and programmes.

9.3 Key Outputs Delivered

The project generated several outputs across research, educational innovation, digital learning, policy engagement, and knowledge dissemination.

Table 9.1: Major Project Outputs

Output Area	Key Deliverables
Baseline Research	Educational needs assessment report
Telecommunications Assessment	ICT and telecommunication mapping report
Educational Content Development	Educational drama and learning resources

Student Capacity Building	Learner training and participation activities
Digital Learning Resources	Online educational content and multimedia resources
Impact Assessment	Intervention evaluation report
Knowledge Products	Reports, conference papers, and publications

i. Baseline Research

One of the project's major achievements was the successful completion of a comprehensive baseline study that investigated the educational situation of refugee learners. The study generated evidence on:

- Literacy and foundational learning challenges;
- School attendance and retention barriers;
- Access to telecommunication technologies;
- Availability of digital learning opportunities;
- Teacher capacity needs;
- Educational policy implementation challenges.

The baseline report became a key reference document guiding project implementation.

ii. Educational Drama Development

The project developed a learner-centred educational drama as an innovative pedagogical tool for addressing social and educational challenges affecting refugee learners. The drama incorporated messages related to:

- Educational aspirations;
- Learner protection;
- Early pregnancy prevention;
- Positive behaviour;
- Literacy development;
- School retention.

The drama was produced, validated, performed, and subsequently transformed into a digital educational resource.

iii. Student Capacity Building

The project actively involved students in content development, adaptation, performance, and dissemination. As a result, participating learners strengthened competencies in:

- Communication;
- Critical thinking;
- Collaboration;

- Leadership;
- Creativity;
- Problem solving;
- Public speaking.

The intervention transformed students from passive recipients of information into active contributors to educational innovation.

iv. Online Learning Resources

A major achievement of the project was the conversion of educational content into digital learning resources.

Outputs included:

- Educational drama digitized;
- Upload completed on REB platform;
- Upload completed on INES-Ruhengeri platform;
- Digital learning resource made available for future use;
- Accessibility pathways created for teachers, learners, parents, and researchers.

These resources increased opportunities for continuous learning within and beyond refugee camps.

v. Impact Assessment

A comprehensive impact assessment was conducted to evaluate the effectiveness of the intervention. The assessment generated evidence demonstrating improvements in:

- Educational awareness;
- Behavioural intentions;
- Learner motivation;
- School retention aspirations;
- Family engagement;
- Community support for education.

The findings validated the effectiveness of integrating creative educational approaches with digital dissemination strategies.

An important innovation of the intervention was its adoption of a protection-oriented and participatory approach that framed adolescent pregnancy within broader social and educational vulnerabilities, thereby promoting learner empowerment and collective responsibility rather than individual blame.

9.4 Innovations Generated by the Project

The project generated several innovations that contribute to refugee education and digital learning.

i. Digital Communication and Online Educational Dissemination Model

The project demonstrated how digital communication technologies and online educational platforms can support the dissemination of locally developed learning resources beyond the physical boundaries of refugee camps. The model combines:

- Educational content creation;
- Digital recording;
- Online publication;
- Remote access;
- Community engagement.

ii. Integration of Literacy Promotion and Behaviour Change Communication

The project demonstrated that literacy development interventions can be integrated with behaviour change objectives to address both educational and social challenges simultaneously.

iii. Community-Based Digital Content Development

The project introduced a participatory approach in which learners, teachers, and community members contributed to the development of educational resources subsequently disseminated through digital platforms.

iv. Application of the Friis Transmission Framework in Education

The project successfully adapted a telecommunications theory to explain educational communication processes, thereby creating an innovative interdisciplinary framework linking telecommunications and education.

v. Scalable Refugee Education Innovation Model

The project produced a model that can be replicated across refugee camps and vulnerable communities in Rwanda and other countries facing similar educational challenges.

9.5 Contribution to Refugee Education Policy and Practice

The project generated practical and policy-relevant evidence for strengthening refugee education systems.

Key contributions include:

i. Evidence for ICT Integration

The findings support national efforts aimed at increasing ICT integration within education systems serving vulnerable populations.

ii. Support for Digital Learning Policies

The project demonstrates the feasibility of expanding access to educational resources through digital platforms and telecommunications technologies.

iii. Promotion of Inclusive Education

The intervention contributed to national goals related to equitable access to quality education for marginalized learners.

iv. Strengthening Education–Protection Linkages

The project highlights the importance of addressing social barriers such as adolescent pregnancy and learner vulnerability as part of broader educational improvement efforts.

v. Informing Refugee Education Programming

The findings provide evidence that can guide future interventions implemented by government institutions, humanitarian agencies, and development partners working in refugee education.

9.6 Research Publications and Knowledge Dissemination

Knowledge generation and dissemination formed an important component of the project.

i. Published Outputs

The project produced several technical and knowledge dissemination documents.

Table 9.2: Project Knowledge Products

Knowledge Product	Status
Baseline Assessment Report	Completed
Telecommunications and Education Analysis Report	Completed
Educational Drama Script	Completed
Impact Assessment Report	Completed
Final Technical Report	Completed
Internal and Webinar Presentations	Completed

ii. Papers Under Review / In Preparation

The project has generated several research themes suitable for publication in peer-reviewed journals. Potential papers include:

- From Emergency Innovation to Systemic Change: Technology, Teacher Agency, and the Humanitarian–Development Nexus in Refugee Education in Rwanda.
- Digital Learning Opportunities and Educational Inclusion among Refugee Learners.
- Enhancing Literacy Development through Technology-Enabled Educational Interventions in Refugee Camps.

These publications are expected to contribute to regional and international scholarship on refugee education, digital learning, and educational innovation.

9.7 Institutional Partnerships and Collaboration

The successful implementation of the project was made possible through strong collaboration among government institutions, academic partners, schools, refugee communities, and development organizations.

i. Government and Regulatory Institutions

Key support was provided by:

- Ministry in Charge of Emergency Management (MINEMA);
- National Council for Science and Technology (NCST);
- Rwanda Basic Education Board (REB);
- Kirehe, Gatsibo, Karongi, Huye, Nyamagabe Districts.

ii. Academic Institutions

The project benefited significantly from the research leadership and technical expertise of INES Ruhengeri, which coordinated research activities, quality assurance processes, digital learning initiatives, and dissemination efforts.

iii. Schools and Refugee Communities

The participation of learners, teachers, school leaders, parents, and refugee community representatives ensured local ownership and relevance of project activities.

iv. Development and Research Partners

The CODE Project provided financial and institutional support that enabled implementation, monitoring, evaluation, and dissemination activities.

These partnerships established a strong foundation for future collaborative initiatives aimed at leveraging telecommunications, digital learning, and educational innovation to improve literacy and learning outcomes among refugee learners in Rwanda and beyond.

CHAPTER TEN: CONCLUSIONS, RECOMMENDATIONS AND SUSTAINABILITY FRAMEWORK

10.1 Conclusions

This project set out to examine how telecommunication models, digital learning technologies, and education policy frameworks can be leveraged to improve literacy and learning outcomes among refugee learners in Rwanda. Conducted across refugee camps and culminating in the implementation and assessment of an innovative educational drama intervention in Mahama Refugee Camp, the project generated valuable evidence on both the challenges and opportunities associated with improving learning in fragile contexts.

The findings demonstrate that refugee education in Rwanda has made important progress through the integration of national education policies, digital learning initiatives, and inclusive education approaches. However, significant barriers continue to affect learning outcomes, including overcrowded classrooms, limited teaching resources, language transition challenges, inadequate ICT infrastructure, socio-economic vulnerabilities, and insufficient access to contextualized learning materials.

The project further demonstrated that digital learning approaches and creative pedagogies can enhance educational participation, awareness, and learner engagement when supported by appropriate infrastructure, trained teachers, and enabling policies. The successful development, digitalization, dissemination, and assessment of the educational drama provided practical evidence that creative and technology-supported interventions can effectively address both educational and social challenges affecting refugee learners.

The impact assessment revealed that participants perceived drama-based educational approaches as contributing to knowledge acquisition, behavioural change, learner protection, motivation to remain in school, and community engagement. However, objective indicators of retention, literacy achievement, and academic performance were not measured and therefore require further longitudinal investigation. Participants overwhelmingly perceived the intervention as relevant, realistic, and effective in promoting positive attitudes toward education and preventing behaviours that may undermine learners' academic futures.

The study further demonstrated the importance of addressing adolescent pregnancy and school dropout within broader educational, social, and protection frameworks. The intervention highlighted the need for collaborative support involving schools, families, communities, and institutions in creating enabling environments that promote educational participation and learner wellbeing.

The project therefore concludes that improving literacy and learning outcomes in refugee settings requires an integrated approach that combines:

- Strong educational policies;
- Effective telecommunications and digital learning systems;
- Teacher professional development;
- Community engagement;
- Context-sensitive learning resources; and
- Sustainable multi-stakeholder partnerships.

Overall, the study demonstrates that digital communication technologies and creative pedagogical approaches can contribute to learner engagement, awareness, and educational participation when supported by appropriate infrastructure, teacher capacity, and enabling institutional frameworks. The findings further highlight that technology alone is insufficient to address educational challenges in refugee settings and should therefore be complemented by community participation, learner support systems, and context-sensitive pedagogical strategies.

10.2 Summary of Key Findings

The project generated several important findings.

i. Educational Barriers

Refugee learners continue to face multiple educational challenges including:

- Teacher shortages and high teacher turnover;
- Overcrowded classrooms;
- Language barriers among multilingual learners;
- Limited access to learning materials;
- Socio-economic hardships affecting attendance and retention;
- Inadequate ICT infrastructure and internet connectivity.

ii. ICT and Digital Learning

The study established that:

- ICT initiatives have improved learner engagement and motivation;
- Digital technologies support literacy and language learning;
- Online learning platforms extend access beyond physical classrooms;
- Connectivity and device shortages remain major constraints;
- Teacher digital competence significantly influences effectiveness.

iii. Educational Drama Intervention

The intervention demonstrated:

- Very high audience reception (overall mean score: 4.93/5);
- Significant knowledge gains regarding early pregnancy and education continuation (4.92/5);
- Strong perceived behaviour change outcomes (4.94/5);
- Positive perceptions regarding educational relevance and learner motivation (4.96/5);
- Enhanced family and community engagement (4.98/5).

iv. Digital Dissemination and Communication Achievements

The intervention successfully transformed a locally produced educational drama into a digital learning resource and disseminated it through the Rwanda Education Board and INES-Ruhengeri platforms. Participants reported positive perceptions regarding accessibility and usefulness. However, user analytics, download statistics, and platform utilization metrics were not systematically monitored and therefore warrant future investigation.

These findings represent short-term outcomes based on participant perceptions. Long-term impacts such as improvements in literacy scores, attendance, school retention, and academic performance were not directly measured. Consequently, the intervention should be interpreted as demonstrating promising potential rather than definitive evidence of sustained educational impact.

v. Policy Environment

The study found that Rwanda possesses a strong policy framework for inclusive and ICT-enabled education. Nevertheless, implementation challenges remain in refugee contexts, particularly regarding:

- Infrastructure investment;
- Language support;
- Refugee-specific educational planning;
- Monitoring and evaluation systems.

vi. Sustainability

The findings indicate that sustainable educational improvement requires:

- Community ownership;
- Institutional commitment;
- Continuous funding mechanisms;
- Strategic partnerships;
- Ongoing capacity development.

10.3 Policy Recommendations

i. Ministry of Education (MINEDUC)

MINEDUC should strengthen national leadership in refugee education by:

- Developing a comprehensive refugee education strategy aligned with Vision 2050 and SDG 4;
- Increasing investment in digital learning infrastructure within refugee camps;
- Integrating refugee education priorities into national planning and budgeting frameworks;
- Expanding teacher deployment and retention mechanisms in refugee schools;
- Supporting innovative approaches that combine technology, community engagement, and learner protection.

ii. Rwanda Basic Education Board (REB)

REB should:

- Scale up Smart Classroom and digital learning initiatives across all refugee camps;
- Develop multilingual digital content adapted to refugee learners;
- Institutionalize continuous teacher professional development in ICT integration;
- Expand educational resources available through national digital platforms;
- Promote creative educational approaches such as drama and storytelling.

iii. National Examination and School Inspection Authority (NESA)

NESA should:

- Develop literacy monitoring tools tailored to refugee contexts;
- Strengthen assessment systems for measuring digital learning outcomes;
- Integrate refugee education indicators into national monitoring frameworks;
- Support quality assurance of digital learning materials and interventions;
- Promote evidence-based decision-making through systematic educational data collection.

iv. Ministry in Charge of Emergency Management (MINEMA)

MINEMA should:

- Strengthen coordination among education, protection, and humanitarian actors;
- Facilitate the expansion of ICT infrastructure within refugee settlements;
- Support community-based educational initiatives;
- Promote learner protection programmes linked to educational continuity;
- Ensure refugee education remains a central component of camp development planning.

v. National Council for Science and Technology (NCST)

NCST should:

- Support further research on educational innovation in fragile contexts;
- Promote university-community partnerships addressing refugee education challenges;
- Encourage evidence generation on digital learning effectiveness;
- Fund longitudinal studies examining long-term educational outcomes.

vi. UNHCR and Development Partners

UNHCR and partner organizations should:

- Continue investing in digital learning infrastructure;
- Expand connectivity and device access programmes;
- Support teacher training and learner support initiatives;
- Promote inclusive education for girls, learners with disabilities, and other vulnerable groups;
- Strengthen sustainability mechanisms for educational interventions.

10.4 Practice Recommendations

i. Schools

Schools should:

- Institutionalize the use of digital learning resources;
- Integrate drama and other participatory approaches into school programmes;
- Establish literacy clubs and peer-learning initiatives;
- Strengthen guidance and counselling services;
- Promote inclusive and safe learning environments.

ii. Teachers

Teachers should:

- Continuously improve ICT and digital pedagogy skills;
- Use learner-centred teaching approaches;
- Incorporate digital resources into literacy instruction;
- Strengthen mentorship and learner support practices;
- Promote responsible decision-making and positive behaviour among learners.

iii. Parents and Communities

Parents and community leaders should:

- Strengthen communication with children regarding education and wellbeing;
- Support home-based literacy activities;
- Participate actively in school governance structures;
- Promote positive attitudes toward education, particularly for girls;
- Encourage responsible use of digital technologies.

iv. Refugee Camp Management

Camp management structures should:

- Facilitate access to educational technologies;
- Support establishment of community learning hubs;
- Promote partnerships among schools, NGOs, and community organizations;
- Strengthen learner protection systems;
- Encourage youth participation in educational innovation initiatives.

10.5 Sustainability and Scale-Up Framework

The long-term success of the project depends on ensuring that the digital learning, literacy, and capacity-building interventions continue beyond the project period. Sustainability requires institutional ownership, reliable financing, community participation, and strong coordination among stakeholders. The framework is organized around four pillars: national scale-up, digital learning sustainability, community ownership, and multi-stakeholder coordination.

10.5.1 National Scale-Up Strategy

The study demonstrates that ICT-supported learning interventions can improve literacy and educational participation in refugee settings when supported by appropriate infrastructure, teacher capacity, and policy implementation. To maximize impact, successful interventions should be progressively expanded to all refugee camps and integrated into national education planning. Key priorities include:

- Expansion of Smart Classrooms and ICT facilities in refugee schools.
- Integration of refugee education into national digital education programmes.
- Institutionalization of teacher professional development in ICT and multilingual instruction.
- Development of refugee-specific ICT-in-education implementation guidelines.
- Strengthening refugee education data collection and reporting through EMIS.

10.5.2 Digital Learning Sustainability

Sustaining digital learning requires continued investment in infrastructure, maintenance, content development, and capacity building. Priority actions include:

- Installation of solar-powered systems to ensure reliable electricity.
- Establishment of school-based ICT maintenance teams.
- Development of multilingual digital content in English, Kinyarwanda, French, and Arabic.
- Creation of offline learning repositories for low-connectivity environments.
- Continuous teacher training in digital pedagogy and ICT integration.
- Regular upgrading of digital learning platforms and equipment.

10.5.3 Community Ownership

Community participation is essential for sustaining educational interventions. Refugee parents, community leaders, youth groups, and school committees should be actively involved in supporting learning activities. Key actions include:

- Strengthening Parent-Teacher Associations (PTAs).
- Establishing community learning and ICT hubs.
- Supporting youth-led digital literacy and reading clubs.
- Promoting parental literacy and digital awareness programmes.
- Involving refugee leaders in educational planning and monitoring.

10.5.4 Multi-Stakeholder Coordination

Effective implementation requires collaboration among government institutions, humanitarian agencies, development partners, private sector actors, and higher education institutions.

Key stakeholders include MINEDUC, REB, NESA, MINEMA, UNHCR, NGOs, telecommunications companies, universities, and refugee community representatives.

Regular coordination meetings, joint planning, resource sharing, and harmonized monitoring systems should be institutionalized to ensure efficiency and sustainability.

10.5.5 Implementation Roadmap

The sustainability framework will be implemented through a phased roadmap covering policy development, infrastructure expansion, teacher capacity building, and monitoring activities.

Table 10.1: Sustainability and Scale-Up Implementation Roadmap

Strategic Action	Timeline	Lead Institution(s)	Supporting Partners	Indicative Cost (USD)

Establish National Refugee Education Coordination Platform	0–6 months	MINEDUC, MINEMA	REB, UNHCR, NCST	50,000
Conduct comprehensive ICT needs assessment across refugee camps	0–6 months	REB, MINEMA	UNHCR, Districts	80,000
Develop Refugee ICT-in-Education Strategy	6–12 months	MINEDUC, REB	NCST, UNHCR	120,000
Expand Smart Classrooms and Profuturo model to all camps	1–3 years	MINEDUC, REB	UNHCR, NGOs	#####
Establish at least one ICT laboratory per refugee school	1–3 years	REB	Development Partners	#####
Install solar energy systems and connectivity solutions	1–3 years	MINEMA	RURA, Telecom Companies	#####
Develop multilingual digital learning content (English, Kinyarwanda, French, Arabic)	1–2 years	REB	Universities, EdTech Firms	300,000
Implement continuous teacher ICT and English language training	Annual	REB, NESA	UR-CE, INES-Ruhengeri	250,000 annually
Establish community ICT and learning hubs	2–4 years	MINEMA	UNHCR, NGOs	750,000
Integrate refugee education data into EMIS	1–2 years	MINEDUC, NESA	REB	150,000
Scale literacy clubs and remedial learning programmes	Continuous	REB	Schools, NGOs	200,000 annually
Develop refugee teacher certification pathways	2–3 years	NESA	REB, Teacher Education Institutions	100,000

Estimated Total Indicative Cost (5 Years): USD 5.53 Million

The roadmap prioritizes policy and coordination mechanisms during the first year, infrastructure expansion during Years 1–4, and continuous capacity building and monitoring throughout the implementation period.

10.5.6 Monitoring and Evaluation Framework

A robust monitoring and evaluation (M&E) system is required to track progress, measure outcomes, and inform evidence-based decision-making. The framework focuses on five result areas: ICT access, teacher capacity, literacy outcomes, community engagement, and policy implementation.

Table 10.2: Monitoring and Evaluation Framework

Objective Area	Indicator	Baseline Status	Target (5 Years)	Data Source	Reporting Frequency	Responsible Institution
Access to ICT	Percentage of refugee schools with functional ICT laboratories	Limited	100%	School records	Annual	REB
Connectivity	Percentage of schools with reliable internet access	Low	90%	ICT audits	Annual	RURA, REB
Teacher Capacity	Percentage of teachers trained in ICT integration	Variable	90%	Training records	Biannual	REB, NESA
Teacher Language Proficiency	Percentage of teachers achieving required English proficiency standards	Low	85%	Assessment reports	Annual	NESA
Literacy Outcomes	Percentage of learners achieving grade-level literacy benchmarks	Approximately 30%	80%	Literacy assessments	Annual	NESA, REB
School Retention	Learner retention rate	Camp-specific	+20% improvement	School records	Annual	REB
Attendance	Average learner attendance rate	Variable	95%	Attendance registers	Termly	Schools
Digital Learning Use	Number of learners	Limited	75% of learners	Platform analytics	Quarterly	REB

	regularly using digital learning resources					
Inclusion	Percentage of learners with disabilities accessing ICT resources	Low	100% equitable access	School records	Annual	MINEDUC, REB
Community Engagement	Number of active community ICT hubs	Very limited	One hub per camp	Programme reports	Annual	MINEMA
Policy Implementation	Number of refugee education policy actions implemented	Partial	100% of planned actions	Policy reviews	Annual	MINEDUC
Partnerships	Number of active multi-stakeholder agreements supporting refugee education	Limited	At least 10 national partnerships	Partnership reports	Annual	MINEMA, UNHCR

Three major evaluations are recommended:

- Baseline Evaluation – establishes benchmark values before large-scale implementation.
- Mid-Term Evaluation (Year 3) – assesses implementation progress, challenges, and corrective measures.
- End-Line Evaluation (Year 5) – evaluates overall effectiveness, sustainability, and scale-up outcomes.

Monitoring results should be disseminated through annual performance reports, coordination forums, policy briefs, research publications, and digital dashboards linked to national education information systems. This framework will support accountability, continuous improvement, and evidence-based planning for refugee education in Rwanda.

10.6 Limitations of the Intervention

While the intervention demonstrated promising outcomes in enhancing awareness and learner engagement, several limitations should be acknowledged. The implementation and

follow-up periods were relatively short, and the impact assessment involved a small sample of 44 participants. The study did not include a control group, limiting the ability to attribute observed changes solely to the intervention. Evidence relied largely on self-reported perceptions, which may be subject to respondent bias. In addition, measurement of digital access, platform usage, and user analytics was limited. The intervention was implemented and assessed primarily in Mahama Refugee Camp, which constrains the external validity of the findings.

Although these limitations constrain the generalizability of the findings, they do not diminish the value of the intervention as a proof of concept. Future studies should employ larger samples, control groups, objective educational indicators, and longitudinal designs to determine sustained educational effects and provide stronger evidence regarding the contribution of telecommunication-supported interventions to literacy and learning outcomes.

10.7 Future Research Directions

Future studies should focus on:

i. Longitudinal Impact Studies

Examining long-term effects of digital learning and drama-based interventions on literacy, retention, academic achievement, and learner wellbeing.

ii. Comparative Camp Studies

Investigating differences in educational outcomes across refugee camps and identifying context-specific factors influencing success.

iii. ICT and Literacy Research

Exploring relationships between various forms of digital technology and literacy development among refugee learners.

iv. Inclusive Education Research

Assessing strategies that improve learning outcomes for girls, learners with disabilities, and other vulnerable groups.

v. Artificial Intelligence and Adaptive Learning

Investigating emerging technologies that can personalize learning experiences and support multilingual refugee education.

vi. Community-Based Educational Innovation

Studying locally developed solutions and their contribution to sustainable educational improvement.

10.7 Final Reflection

This project has demonstrated that meaningful improvements in refugee education can be achieved when technology, policy, pedagogy, and community engagement are brought together within a coherent and inclusive framework. The experience from Rwanda illustrates that refugee learners possess tremendous potential that can be unlocked through targeted investments in digital learning, teacher development, learner protection, and community participation.

The educational drama developed through this project represents more than a communication tool; it symbolizes the broader principle that learning becomes transformative when it connects knowledge with lived experiences, stimulates reflection, and inspires action. Similarly, telecommunications and digital learning technologies extend educational opportunities beyond the boundaries of the classroom, enabling learners in fragile contexts to access knowledge, develop skills, and build aspirations for the future.

The project reaffirms that refugee education should not be viewed solely as a humanitarian obligation but as a strategic investment in human development, social cohesion, and national progress. By continuing to strengthen partnerships, expand digital learning opportunities, and empower communities, Rwanda is well positioned to become a regional leader in inclusive, technology-enabled refugee education.

Ultimately, the voices of learners, teachers, parents, school leaders, and education stakeholders throughout this project convey a common message: when innovative technologies, supportive policies, and engaged communities work together, every learner—regardless of displacement status—can be given the opportunity to learn, thrive, and contribute meaningfully to society.

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Appendix A: Research Permits and Ethical Approvals

Research Permit

REPUBLIC OF RWANDA



NATIONAL COUNCIL FOR
SCIENCE AND TECHNOLOGY

Kigali, on 04th August 2025
N°: NCST/482/0270/2025



Dr. Theodore HABIMANA
National ID N°: 1197580006673020

Dear Dr. Theodore HABIMANA,

Subject: Approval to Conduct Research in Rwanda

Reference is made to your application to conduct research in Rwanda with your study project entitled "**Leveraging Telecommunication Models and Policy Frameworks to Enhance Literacy and Learning Outcomes in Refugee Camps in Rwanda**";

Reference is made to the Official Gazette n° Special of 12/11/2024 on Regulations of the Executive Secretary No: 001/NCST/2024 of 07/11/2024 Governing Research in Rwanda;

We are pleased to inform you that your request to conduct research in Rwanda has been approved under research permit **No: NCST/482/0270/2025**. This permission only covers research activities specifically related to the provided research project title, and project proposal submitted to the National Council for Science and Technology (NCST) for the period from **04th August 2025** to **03rd August 2026**.

The research will be carried out under the affiliation of the **Institut d'Enseignement Supérieur de Ruhengeri (INES-Ruhengeri)** under the supervision of **Dr. Charline UWILINGIYIMANA (+250788284814)**, Deputy Vice Chancellor for Academic and Research Affairs, INES-Ruhengeri, and will take place in Kigali City, and Eastern, Southern, Northern and Western Provinces.

As a requirement, you may be required to present the progress of your work at stakeholders' scientific conference, as well as provide a final report after completion of your research activities.

We wish you success in your research.

Dr. Eugene MUTIMURA
Executive Secretary



Digitally signed
by Eugene
Mutimura
Date: 2025.08.05
10:24:41 +02'00'

CC:

- Hon. Lord Mayor of Kigali City
- Hon. Governor of Provinces (All)
- Vice Chancellor, INES-Ruhengeri
- Dr. Charline UWILINGIYIMANA, Supervisor of the study

Grand Pension Plaza Building, 13th Floor, P.O. Box 2286 Kigali-Rwanda,
E-Mail: info@ncst.gov.rw Web Site: www.ncst.gov.rw

Authorization to conduct research activities in all refugee camps



Republic of Rwanda

Ministry in charge of Emergency Management

Kigali, 04.12.2025
Ref: 0734/MINEMA/SPIU/25

Dr. Theodore HABIMANA
INES Ruhengeri
Telephone: 0788301057
E-mail: 0788301057
KIGALI

Dear Dr. Theodore,

Re: Authorization to conduct research activities in all refugee camps.

I am pleased to inform you that the Ministry in charge of Emergency Management (MINEMA) has no objection for INES-Ruhengeri researchers to access Mahama, Nyabibike, Kigeme, Mugombwa and Kiziba refugee camps.

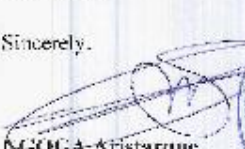
The authorization is granted in response to your letter, requesting the clearance for them to access the above-mentioned refugee camps and conduct research entitled "Leveraging telecommunication models and policy frameworks to enhance literacy and learning outcomes in refugee camps in Rwanda", which aims to explore and integrate telecommunication technologies into refugee education systems to improve literacy and foundational learning outcomes.

You will be allowed to conduct the research after the issuance of a research permit by the National Council for Science and Technology (NCST).

For any clarification or further assistance, please contact Mr. Mwisirwa Eric, Mahama Camp Manager on 0788358068; Mrs. Uwanurera Odette, Nyabibike Social Affairs Officer on 0788479156; Mr. Karayenzi Kevin, Kigeme Camp Manager on 0788657711, Mr. Vuganza André, Mugombwa Camp Manager on 0788547530 and Mr. Mutwycyezu Emmanuel, Kiziba Camp Manager on 0783316257.

Sincerely,

NGOMA Aristarque
Permanent Secretary




Cc:

- Honorable Minister in charge of Emergency Management
KIGALI

P.O.Box: 4386 Kigali | Toll Free: 170 | Email: info@minema.gov.rw | Web: www.minema.gov.rw

Appendix B: Data Collection Instruments

Key Informant Interview guide for Policy makers (REB and NESAs)

Title: *Leveraging Telecommunication Models and Policy Frameworks to Enhance Literacy and Learning Outcomes in Refugee Camps in Rwanda*

Target Group: Senior policymakers from the Ministry of Education and affiliated institutions.

Purpose: To gather insights on policy, infrastructure, regulatory frameworks, and strategic direction related to ICT and refugee education.

1. Introduction and Role

To begin, could you briefly describe your current role and responsibilities within your institution?

- How long have you been involved in education policy?
- Are you directly involved in refugee education initiatives? If so, in what capacity?

2. Current Policy and Strategic Environment

What national education policies or strategies currently guide the integration of ICT into basic education, especially for marginalized or displaced learners?

- Is there a policy framework specifically focused on refugee education in Rwanda? Please explain.
- How well do national strategies like ESSP or Vision 2050 align with the integration of telecommunication technologies in refugee education?

3. ICT and Infrastructure in Refugee Settings

From your perspective, how would you assess the current ICT infrastructure (e.g., mobile networks, radio, internet) in refugee camps?

- What are the main challenges in improving connectivity and access to digital learning tools in refugee-hosting or remote areas?
- Are there any government or partner-led initiatives addressing these challenges?

4. Technology Use and Policy Suitability

What is your opinion on the suitability of the following technologies in refugee education?

- Mobile learning applications
- Educational radio programs
- Satellite internet

(Prompt for pros, cons, or policy considerations for each.)

From a policy perspective, which of these technologies or models do you see as most feasible and impactful for refugee learning in Rwanda, and why?

5. Institutional and Regulatory Landscape

What regulatory or administrative barriers might hinder the use of telecommunication technologies in refugee education programs?

- How could these barriers be addressed through improved policy or institutional collaboration?
- Are there national-level strategies or inter-agency working groups that coordinate ICT in education, particularly for underserved populations?

6. Monitoring, Evidence, and Partnerships

How does your institution currently monitor and evaluate the impact of ICT-based interventions in education?

- What type of evidence would be most influential in scaling up a telecommunication-based literacy program from pilot to national level?
- What key partnerships (e.g., with NGOs, telecom companies, international donors) are essential to making this scale-up successful?

7. Future Vision and Strategic Recommendations

Looking ahead 5–10 years, what is your vision for the role of digital and telecommunication technologies in improving education for refugees and vulnerable populations?

- What top three policy actions would you recommend to promote inclusive, sustainable ICT-based education in refugee contexts?

8. Follow-Up Engagement

Would you be open to participating in future consultations, validation workshops, or policy dialogues related to this research?

- (If yes) Could you kindly share the best contact information for follow-up?

Key Informant Interview guide for Camp Managers, NGOs and Education Officers (DEO and SEO)

Title: *Leveraging Telecommunication Models and Policy Frameworks to Enhance Literacy and Learning Outcomes in Refugee Camps in Rwanda*

Target Informants: UNHCR, Education Officers and NGO Managers in Mahama, Kigeme, Mugombwa, Nyabiheke, and Kiziba Refugee Camps'

Purpose: To explore management perspectives on educational challenges, use of technology, policy alignment, and partnerships in literacy improvement.

Section A: Institutional Profile

1. Can you briefly introduce your organization and its involvement in refugee education in Rwanda?
 - Which camps does your organization support?
 - How many schools or learning centers are currently under your management or support?
2. What is your current role in the education program, and what are your key responsibilities?

Section B: Educational Challenges

3. From your perspective, what are the major challenges affecting the delivery of quality literacy education in the camps you support?
 - Probe: Teacher shortages, infrastructure issues, lack of materials, power, displacement effects, etc.
4. How would you describe the current literacy levels among students in the refugee schools your organization oversees?
 - Are these levels consistent across all camps, or do some stand out (positively or negatively)?
5. Are there specific programs focused on foundational literacy or remedial education currently in place?
 - If yes, could you describe how they work and who implements them?

Section C: Use of Technology in Education

6. Have any telecommunication or digital tools been integrated into teaching and learning activities in the camps?
 - Probe: Mobile apps, radio education, satellite internet, e-books, etc.
7. What benefits have you observed (or do you expect) from using telecommunication tools in camp education programs?

- Any examples of positive changes in student engagement, teacher performance, or access to learning?
- 8. What barriers or limitations have you encountered in deploying or scaling such technologies in refugee settings?
 - Probe: Connectivity, devices, skills, costs, power supply, or policy gaps.

Section D: Policy and Partnership Environment

- 9. To what extent are your technology-based education interventions aligned with national education policies like ESSP or Vision 2050?
 - If not fully aligned, what are the main gaps or areas needing improvement?
- 10. Does your organization partner with any institutions or stakeholders to support education technology initiatives in refugee camps?
 - Probe: Ministries (e.g., MINEDUC), REB, HEC, telecoms, donors, local NGOs, or others.
- 11. In your opinion, what types of partnerships are most critical to improving literacy through technology in refugee education?
 - Why do you see these partnerships as important?

Section E: Recommendations for Improvement

- 12. What kinds of telecommunication-based solutions do you think are most suitable or scalable for improving literacy in refugee settings?
- 13. What support would your organization need to implement or scale such solutions effectively?
 - Probe: Funding, teacher training, content access, technical support, policy alignment, or community engagement.
- 14. Finally, do you have any other recommendations or insights on how telecommunications can be better leveraged to support literacy and learning outcomes in refugee camps?

Focus Group Discussion guide for Parents

Title: *Leveraging Telecommunication Models and Policy Frameworks to Enhance Literacy and Learning Outcomes in Refugee Camps in Rwanda*

Target Group: Parents or guardians of primary school pupils in refugee camps (Mahama, Kigeme, Mugombwa, Nyabiheke, Kiziba)

Purpose: To gather parents' perspectives on children's learning experiences, challenges, and opportunities for improving literacy through telecommunication-based interventions.

1. Introduction and Background

- Could you please introduce yourself and tell us about your family (number of children, school attendance)?
- How long have you been living in this camp?

2. Children's Education and Learning

- How regularly do your children attend school? What challenges affect attendance?
- How would you describe your child's ability to read, write, and understand lessons in Kinyarwanda and English?

3. Support for Learning at Home

- Are you able to help your child with homework or studies? If not, why?
- What learning materials are available at home (books, pens, exercise books, digital devices)?
- Do your children have access to electricity or a safe place for studying?

4. Technology Use in Learning

- Have your children ever used radios, mobile phones, or other devices for learning? If yes, how?
- What is your opinion on using mobile learning apps, educational radio, or internet-based tools for your children's education?
- What challenges might prevent the use of such technologies at home or in the community?

5. Communication with Schools

- How do you receive information from the school about your child's learning or school activities?
- Are there ways this communication could be improved?

6. Perceptions and Recommendations

- In your opinion, what would most help improve your child's ability to read and write?
- How could telecommunication technologies best support children's learning in refugee camps?
- Would you be willing to participate in community programs that promote literacy and digital skills?

7. Follow-Up

- Would you be open to participating in future discussions or workshops about improving education in refugee camps?
- If yes, could you provide your preferred contact information?

Questionnaire for Head Teachers

Title: *Leveraging Telecommunication Models and Policy Frameworks to Enhance Literacy and Learning Outcomes in Refugee Camps in Rwanda*

Target group: Head Teachers / School Administrators in Mahama, Kigeme, Mugombwa, Nyabiheke, and Kiziba refugee camps

Purpose: To assess administrative perspectives on educational challenges, telecommunication readiness, and policy alignment.

Section A: Institutional Profile

1. Name of camp: _____
2. Location: District:----- Sector:-----
3. Name of school : _____
4. Number of enrolled students: _____
5. Number of teaching staff: _____
6. Number of qualified staff.....
7. Available levels of education (check all that apply):
☐ Nursery/Early childhood ☐ Primary ☐ Lower secondary ☐ Upper secondary ☐ Adult literacy
8. Availability of ICT infrastructure and facilities
 Computer lab/Smart classroom: ☐ Yes ☐ No
 Internet connectivity : ☐ Yes ☐ No
 Electricity : ☐ Yes ☐ No
9. Availability of enough books for students: ☐ Yes ☐ No
10. Availability of needed books for teachers: ☐ Yes ☐ No

Section B: Educational Challenges

11. What are the main challenges faced by your school in delivering literacy and foundational education? (Select all that apply)
☐ Shortage of qualified teachers
☐ Insufficient teaching and learning materials
☐ Overcrowded classrooms
☐ Constant new arrivals and departures of refugees

- ☐ Drop out
☐ Other: _____

9. 12. Based on your experience, how would you describe the overall reading and writing abilities of students in your school, compared to the expected grade-level standards?"

- ☐ Well above expected level
☐ Above expected level
☐ At expected level
☐ Below expected level
☐ Well below expected level

13. What is your strategy for (How do you)addressing literacy gaps among students?

- ☐ Remedial classes ☐ Peer learning ☐ Community learning groups ☐ Radio programs ☐ No formal measures

Section C: Use of Telecommunication Technologies

14. Does your school currently use any of the following technologies for teaching ? (Select all that apply)

- ☐ Radio-based education
☐ Mobile learning apps
☐ Satellite internet / digital resources
☐ Computers/laptops for teaching
☐ None

15. If technology is used, what are the main benefits you've observed since the time they were introduced ?

- ☐ Improved student engagement
☐ Easier access to teaching-learning materials/resources
☐ Better performance in literacy
☐ Enhanced teacher capacity
☐ No significant benefits yet

16. What are the major challenges in using technology for education in your school? (Select all that apply)

- ☐ Unreliable internet
☐ Inadequate teacher training
☐ Insufficient technical support
☐ Power supply issues
☐ Other: _____

Section D: Policy and Partnership Readiness

17. Are you aware of national policies supporting technology in education?

☐ Yes ☐ No

18. Have you received any government or NGO support for integrating technology into your school?

☐ Yes ☐ No

If yes, please describe: _____

19. In your view, what partnerships are most needed to improve literacy through technology in your camp?

☐ Government programs

☐ NGOs

☐ Private sector (telecom, tech firms)

☐ International organizations

☐ Other: _____

Section E: Recommendations

20. What telecommunication solutions do you believe would be most effective for improving literacy in your school?

21. What support would your school need to successfully implement telecommunication-based interventions for improving literacy ?

☐ Devices (computers, tablets, radios)

☐ Internet connectivity

☐ Teacher training

☐ Infrastructure (power, secure spaces)

☐ Educational content

☐ Other: _____

22. Please share any additional comments or suggestions about using technology to enhance literacy in refugee camps:

Thank you for your time!

Questionnaire for Teachers

Title of the research project: *Leveraging Telecommunication Models and Policy Frameworks to Enhance Literacy and Learning Outcomes in Refugee Camps in Rwanda*

Target Group: Teachers in refugee camps (Mahama, Kigeme, Mugombwa, Nyabiheke, Kiziba).

Purpose: To assess current existing challenges, technology use, training needs, and perceptions regarding telecommunication-based interventions in order to improve literacy in refugee's camps.

Section A: Personal and Professional Information

1. Gender: ☐ Male ☐ Female ☐ Prefer not to say
2. Age: ☐ <25 ☐ 25-34 ☐ 35-44 ☐ 45-54 ☐ 55+
3. Educational qualification:
☐ Certificate ☐ Diploma ☐ Bachelor's Degree ☐ Master's Degree ☐
 Other:.....
4. Years of teaching experience: ☐ <1 year ☐ 1-3 years ☐ 4-6 years ☐ 7-10 years: ☐ <1 year ☐ 1-3 years ☐ 4-6 years ☐ 7-10 years ☐ 10+ years
5. Education background (Field of study):
6. Subjects taught:

7. The subjects you teach match with your education background?
 • ☐ Yes ☐ No

Section B: Teaching Environment

1. Camp where you teach:
☐ Mahama,
☐ Kigeme,
☐ Mugombwa,
☐ Nyabiheke,
☐ Kiziba
2. Average number of students in your class(es)?
 • ☐ < 20-30 ☐ 30-40 ☐ 40-50 ☐ 50-60 ☐ 60-70 ☐ More than 70 pupils

3. How would you rate the availability of teaching materials for literacy and foundational learning?

☐ Very adequate ☐ Adequate ☐ Neutral ☐ Inadequate ☐ Very inadequate

4. Do you use ICT skills in preparing and teaching your lessons?

• ☐ Yes ☐ No

5. If Non, what is the driving reason?

• ☐ Lack of sufficient skills in ICT ☐ Lack of ICT facilities ☐ other reason (s)
(mention).....

6. **If your household uses any technology to support learning, please indicate how often each of the following is used:**

(Tick the most appropriate option for each item)

Technology	Regularly used	Occasionally used	Not used
Basic mobile phone (no internet)	☐	☐	☐
Smartphone (with internet access)	☐	☐	☐
Radio (for educational programs)	☐	☐	☐
Computer or laptop	☐	☐	☐
Satellite internet connection	☐	☐	☐

7. How confident are you in using digital tools (mobile apps, online resources) for teaching?

☐ Very confident ☐ Somewhat confident ☐ Neutral ☐ Not very confident ☐ Not confident at all

8. Have you received any formal training in the use of ICT for education purposes/educational technology?

☐ Yes ☐ No

If yes, please specify: _____

9. Have you received any training or support to improve your English language skills for teaching purposes?

☐ Yes ☐ No

If no, do you feel you would benefit from such training?

☐ Yes ☐ No

10. Are you confident in both writing and speaking the language you use to teach your learners?

☐ Yes, fully confident

☐ Somewhat confident

☐ Not confident – I need support

11. What are the main challenges you face in efficiently delivering literacy education in this camp? (Select all that apply)
- ☐ Lack of sufficient teaching materials
 - ☐ Overcrowded classrooms
 - ☐ Limited training opportunities
 - ☐ Language barriers
 - ☐ Disruptions due to constant refugees' movements (in and out)
 - ☐ Others (specify): _____
12. What teaching aids do you currently use? (Select all that apply)
- ☐ Printed books ☐ Chalkboard/whiteboard ☐ Mobile applications ☐ Radio programs ☐ Projectors/computers ☐ None
13. Do you feel that most of your pupils are at the right level to follow and understand your lessons effectively?
- ☐ Yes, most pupils can follow and understand
 - ☐ Some pupils struggle to keep up
 - ☐ No, many pupils are not at the required level

Section C: Perceptions of Telecommunication-based Interventions

14. In your experience, do you think mobile learning applications (used on phones or tablets) can help improve students' reading and writing skills?
- ☐ Strongly agree ☐ Agree ☐ Neutral ☐ Disagree ☐ Strongly disagree
15. Do you believe educational radio programs can be a useful tool to support what you teach in the classroom?
- ☐ Strongly agree ☐ Agree ☐ Neutral ☐ Disagree ☐ Strongly disagree
16. What challenges do you foresee in implementing telecommunication-based education solutions in the camp? (Select all that apply)
- ☐ Lack of devices
 - ☐ Poor internet connectivity
 - ☐ Insufficient training
 - ☐ Lack of power supply
 - ☐ Resistance to change
 - ☐ Language/cultural barriers
 - ☐ Other: _____
17. What support would you need to effectively use these technologies?
- ☐ Training/workshops
 - ☐ Better internet connectivity

- ☐ Access to devices
- ☐ Teaching guides
- ☐ Technical support
- ☐ Other: _____

Section D: Policy and Scalability

18. Are you aware of any national policies that support technology integration in education?
☐ Yes ☐ No
19. What role do you think the government and partners should play in supporting technology-driven education in refugee camps?

Section F: Open-Ended Feedback

20. In your view, what is the most important action needed to improve literacy and learning outcomes in refugee camps?.....
21. How do you think telecommunication tools (like mobile apps or radio programs) can be better used to support teaching and learning in your context?
22. What support or resources would help you better use technology in your teaching (e.g., training, content, devices, or connectivity)?
23. What should the government or education partners do to strengthen policies or systems that support technology use in refugee education?

Questionnaire for pupils

Title of the research project: *Leveraging Telecommunication Models and Policy Frameworks to Enhance Literacy and Learning Outcomes in Refugee Camps in Rwanda*

Target Group: 6th class pupils in refugee camps (Mahama, Kigeme, Mugombwa, Nyabiheke, Kiziba)

Purpose: To assess current existing challenges, technology use, training needs, and perceptions regarding telecommunication-based interventions in order to improve literacy in refugee's camps.

Section A: General Information (To be filled by the teacher or student helper)

1. Gender: ☐ Male ☐ Female ☐ Prefer not to say
2. Age:
3. Date:

Section B: Performance in class

1. Are you attending class every day?
☐ Yes ☐ No
2. If No, for why?
3. Are you able to read a text written in Kinyarwanda without problem?
☐ Yes ☐ No
If No, why?
4. Are you able to copy a text written in Kinyarwanda without problem?
☐ Yes ☐ No
If No, why?
5. Are you able to read a text written in English without problem?
☐ Yes ☐ No
If No, why?
6. Are you able to copy a text written in English without problem?
☐ Yes ☐ No
If No, why?
7. When the teacher is teaching in English, are you able to listen and understand him/her without problem?
☐ Yes ☐ No
If No, why?
8. When you are not understanding something during the teaching session, are you able to ask a question in English?
☐ Yes ☐ No

If No, why?

9. When the teacher asks you a question in English, are you able to respond to his/her question without problem?

☐ Yes ☐ No

If No, why?

Section C: Student support

10. Do you have books in all subjects?

☐ Yes ☐ No

11. When you are home, is it possible to revise your lessons?

☐ Yes ☐ No

If No, why?

12. When you are home, do you have someone to help you to understand your lessons or to teach you new concepts?

☐ Yes ☐ No

If No, why? Are you easily find materials to use at school (books, exercise books, pens, uniform, etc)?

☐ Yes ☐ No

If No, why?

Appendix C: Impact Assessment Tool

Research Project:

Leveraging Telecommunication Models and Policy Frameworks to Enhance Literacy and Learning Outcomes in Refugee Camps in Rwanda

SECTION I: INTRODUCTION

Purpose of the Tool

This tool is designed to comprehensively assess the effectiveness and impact of telecommunication-based educational interventions implemented in refugee camps in Rwanda. The interventions combined:

- Edutainment and behavioral change communication episodes,
- Radio-based educational broadcasting,
- Mobile and digital learning approaches,
- Technology-supported literacy promotion strategies,
- Educational awareness campaigns,
- Policy and institutional support mechanisms.

The intervention primarily aimed to improve:

- Literacy and learning outcomes,
- School attendance and learner engagement,
- Academic performance,
- Awareness and prevention of early pregnancy,
- Positive educational attitudes and behaviors,
- Teacher and community support for education,
- Access to educational information through telecommunication platforms.

The tool further evaluates:

- Accessibility and effectiveness of telecommunication models,
- Alignment with Rwanda's Vision 2050 and ESSP,
- Stakeholder perceptions regarding technology-driven refugee education,
- Sustainability and scalability of telecommunication-supported educational interventions.

SECTION II: INSTRUCTIONS TO RESPONDENTS

Please respond honestly based on your experience with the intervention.

For Sections A–K, use the following scale:

Scale	Meaning
1	Strongly Disagree
2	Disagree
3	Neutral/Undecided
4	Agree
5	Strongly Agree

All responses will remain confidential and will be used strictly for academic purposes.

SECTION III: RESPONDENT PROFILE

Item	Response
Refugee Camp	_____
Participant Code	_____
Gender	Male ☐ Female ☐
Age Group	Below 15 ☐ 15–18 ☐ 19–24 ☐ Above 24 ☐
Participant Category	Learner ☐ Teacher ☐ Parent ☐ Community Leader ☐ Camp Administrator ☐
Date	_____

SECTION A: ACCESSIBILITY AND UTILIZATION OF TELECOMMUNICATION INTERVENTIONS

A1. Accessibility of Edutainment and Telecommunication Platforms

Statement	1	2	3	4	5
The edutainment episodes were easily accessible in the refugee camp.	☐	☐	☐	☐	☐
Radio-based educational programs reached a large number of learners.	☐	☐	☐	☐	☐
Telecommunication platforms improved access to educational information.	☐	☐	☐	☐	☐
Learners regularly engaged with the educational broadcasts.	☐	☐	☐	☐	☐
The timing and scheduling of broadcasts were convenient.	☐	☐	☐	☐	☐

A2. Quality and Relevance of Educational Content

Statement	1	2	3	4	5
The educational messages were clear and understandable.	☐	☐	☐	☐	☐
The episodes addressed real educational challenges faced by refugee learners.	☐	☐	☐	☐	☐
The language used in the episodes was appropriate for the audience.	☐	☐	☐	☐	☐
Storytelling and dramatization improved understanding of educational issues.	☐	☐	☐	☐	☐

The intervention promoted meaningful educational awareness.	☐	☐	☐	☐	☐
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SECTION B: IMPACT ON SCHOOL ATTENDANCE AND LEARNER ENGAGEMENT

Statement	1	2	3	4	5
The intervention encouraged learners to attend school regularly.	☐	☐	☐	☐	☐
Learners demonstrate greater interest in attending school.	☐	☐	☐	☐	☐
Parents and community members now encourage school attendance more actively.	☐	☐	☐	☐	☐
Learner absenteeism has reduced after the intervention.	☐	☐	☐	☐	☐
The intervention strengthened positive attitudes toward education.	☐	☐	☐	☐	☐

SECTION C: IMPACT ON LITERACY AND LEARNING OUTCOMES

C1. Literacy Development

Statement	1	2	3	4	5
Learners demonstrate improved reading habits.	☐	☐	☐	☐	☐
Learners' reading abilities have improved.	☐	☐	☐	☐	☐
Learners show improved writing and communication skills.	☐	☐	☐	☐	☐
The intervention increased learners' interest in reading and learning activities.	☐	☐	☐	☐	☐
Educational broadcasts promoted literacy awareness in the community.	☐	☐	☐	☐	☐

C2. Academic Performance and Learning Engagement

Statement	1	2	3	4	5
Learners are more motivated to perform well academically.	☐	☐	☐	☐	☐
Learners participate more actively during lessons.	☐	☐	☐	☐	☐
Learners demonstrate improved concentration during learning activities.	☐	☐	☐	☐	☐
Teachers observe improvements in learners' academic engagement.	☐	☐	☐	☐	☐
The intervention contributed positively to academic performance.	☐	☐	☐	☐	☐

SECTION D: IMPACT ON EARLY PREGNANCY AWARENESS AND PREVENTION

Statement	1	2	3	4	5
The intervention increased awareness about the risks of early pregnancy.	☐	☐	☐	☐	☐
Learners better understand the effects of early pregnancy on education.	☐	☐	☐	☐	☐
The intervention promoted responsible decision-making among adolescents.	☐	☐	☐	☐	☐
Community discussions on early pregnancy prevention increased after the intervention.	☐	☐	☐	☐	☐

The intervention contributed to positive behavioral change among young people.	☐	☐	☐	☐	☐
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SECTION E: EFFECTIVENESS OF EDUTAINMENT AND BEHAVIORAL CHANGE APPROACHES

Statement	1	2	3	4	5
The edutainment approach was engaging and interesting.	☐	☐	☐	☐	☐
Learners could relate to the characters and scenarios presented.	☐	☐	☐	☐	☐
Storytelling improved understanding of educational messages.	☐	☐	☐	☐	☐
The intervention effectively communicated behavioral change messages.	☐	☐	☐	☐	☐
Edutainment is an effective strategy for refugee education interventions.	☐	☐	☐	☐	☐

SECTION F: ROLE OF TELECOMMUNICATION TECHNOLOGIES IN EDUCATION

Statement	1	2	3	4	5
Telecommunication technologies improved access to educational information.	☐	☐	☐	☐	☐
Radio broadcasting effectively supported learning in the refugee camps.	☐	☐	☐	☐	☐
Technology-based interventions helped overcome educational barriers.	☐	☐	☐	☐	☐
Telecommunication platforms expanded learning opportunities for vulnerable learners.	☐	☐	☐	☐	☐
Technology-supported education can improve refugee learning outcomes.	☐	☐	☐	☐	☐

SECTION G: POLICY ALIGNMENT AND INSTITUTIONAL SUPPORT

Statement	1	2	3	4	5
The intervention aligns with Rwanda's Vision 2050 educational goals.	☐	☐	☐	☐	☐
The intervention supports the Education Sector Strategic Plan (ESSP).	☐	☐	☐	☐	☐
Stakeholders and institutions adequately supported the intervention.	☐	☐	☐	☐	☐
Policies support the use of telecommunication technologies in refugee education.	☐	☐	☐	☐	☐
Collaboration among stakeholders strengthened implementation effectiveness.	☐	☐	☐	☐	☐

SECTION H: COMMUNITY AND SOCIAL IMPACT

Statement	1	2	3	4	5
The intervention increased community awareness about education.	☐	☐	☐	☐	☐
Parents and guardians became more supportive of learners' education.	☐	☐	☐	☐	☐
The intervention promoted positive educational values within the community.	☐	☐	☐	☐	☐
Educational discussions increased within households and communities.	☐	☐	☐	☐	☐
The intervention strengthened collective responsibility for education.	☐	☐	☐	☐	☐

SECTION I: SUSTAINABILITY AND SCALABILITY OF THE INTERVENTION

Statement	1	2	3	4	5
Similar educational broadcasts should continue in refugee camps.	☐	☐	☐	☐	☐
The intervention can be replicated in other refugee settings.	☐	☐	☐	☐	☐
Telecommunication-based educational interventions are sustainable.	☐	☐	☐	☐	☐
Communities are willing to support continuation of the intervention.	☐	☐	☐	☐	☐
Policymakers should expand technology-supported refugee education programs.	☐	☐	☐	☐	☐

SECTION J: OVERALL PERCEIVED CHANGE

Compared to before the intervention, how would you rate the following?

Indicator	No Change	Slight Change	Moderate Change	Major Change
School attendance	☐	☐	☐	☐
Literacy and reading culture	☐	☐	☐	☐
Academic motivation	☐	☐	☐	☐
Awareness about early pregnancy	☐	☐	☐	☐
Learner behavior and discipline	☐	☐	☐	☐
Community support for education	☐	☐	☐	☐
Access to educational information	☐	☐	☐	☐
Educational engagement through technology	☐	☐	☐	☐

SECTION K: OPEN-ENDED QUESTIONS

1. What major educational or behavioral changes have you observed after the intervention?
2. Which aspects of the intervention were most effective and why?
3. What challenges continue to affect refugee learners despite the intervention?
4. How can telecommunication technologies be used more effectively to support refugee education?
5. What recommendations would improve future policy and educational interventions in refugee camps?

Ending notes

KEY MEASURABLE INDICATORS

Domain	Indicator	Measurement
Telecommunication Accessibility	Access and engagement with broadcasts	Mean scores
Literacy Outcomes	Reading and learning engagement	Perception ratings

Attendance Improvement	School attendance motivation	Agreement ratings
Early Pregnancy Awareness	Prevention awareness and responsible behavior	Mean scores
Academic Performance	Motivation and classroom participation	Perception ratings
Policy Alignment	Support for technology-based refugee education	Stakeholder agreement
Community Impact	Educational awareness and parental support	Mean scores
Sustainability	Replication and continuity potential	Sustainability ratings

SECTION M: DATA INTERPRETATION GUIDE

Mean Score	Interpretation
1.0–1.9	Very Low Impact
2.0–2.9	Low Impact
3.0–3.4	Moderate Impact
3.5–4.4	High Impact
4.5–5.0	Very High Impact

Appendix D: Educational Drama Script

IKINAMICO: "UBUZIMA BWANJYE, EJO HANJYE"

Inshamake.

Iy'ikinamico ngufi "ubuzima bwanjye, ejo hanjye" yubakiye kunsanganyamatsiko igira
iti: **"Uburezi ku bijyanye n'imibonano mpuzabitsina no kurwanya inda ziterwa abangavu"**.

Igamije kandi kugaragaza ibibazo binyuranye abanyeshuri batuye munkambi y'impunzi ya
Mahama hano mu Rwanda bahura nabyo birimo gutwara inda zidateguwe kubana
b'abangavu bitewe n'ubukene, ubucucike mumashuri, ikibazo cya interineti
n'amashanyarazi, ibibazo bikomoka kumico itandukanye n'ubwenegihugu bunyuranye,
ndetse n'ikibazo cy'indimi zitandukanye kinagira uruhare runini mukugira umusaruro muke
mu ishuri kubana bamwe na bamwe kuberako batumvikana n'abalimu babigisha bitewe
nuko abanyeshuri bavugaga indimi kavukire ziwabo.

Iy'ikinamico kandi iragaragaza uruhare rw' ababyeyi, ishuri, REB, MINISANTE na MINEMA,
nk'abafatanyabikorwa mukuzamura ireme ry'uburezi bwa ba bana ,gukemura no gushakira
hamwe ibisubizo birambye kubibazo byabo.

Abakinnyi:

Aline – umunyeshuri w'umukobwa

Eric – umunyeshuri w'umuhungu

Mwarimu – umwarimu uyobora abanyeshuri

Mama wa Aline – umubyeyi

Umujyanama w'ubuzima (MINISANTE)

Uhagarariye ishuri (REB)

Uhagarariye MINEMA

Umukobwa wahuye n'inda y'imburagihe (Ubuhamya)

Abanyeshuri benshi (chorus)

IGICE CYA MBERE: KU ISHURI

(Abanyeshuri bicaye mu ishuri. Mwarimu arinjira.barangije baramusuhuza)

Mwarimu :

banyeshuri, uyu munsu turaganira ku ngingo ikomeye: uburezi ku mibonano mpuzabitsina

no kwirinda inda ziterwa abangavu. Ibi ni ingenzi cyane cyane hano mu nkambi aho duhura n'ibibazo byinshi.

Eric:

Mwarimu, kuki inda z'imburagihe ari ikibazo gikomeye?

Mwarimu :

Ni ikibazo kuko zituma abanyeshuri benshi bava mu ishuri, inzozo zabo zigahagarara.

Aline: (umunyeshuri utavuga ikinyarwanda neza)

Ariko se mwarimu, hari abantu bavuga ko ibyo kutuganiriza kuri ibyo bidakwiye ku bana.

Mwarimu :

Oya. Ubumenyi burinda ubuzima. Iyo mutazi amakuru nyayo mushobora gufata ibyemezo bibi.

IGICE CYA KABIRI: IBIBAZO MU NKAMBI

(Abanyeshuri baganira hanze y'ishuri.)

Eric:

Aline, hari ikibazo gikomeye hano mu nkambi: amashuri aruzuye cyane.

Aline:(umunyeshuri utavuga ikinyarwanda neza)

Ni byo. Kandi hari n'ikindi: interneti n'amashanyarazi bidahora biboneka, bigatuma kwiga bitoroha.

Undi munyeshuri: (umunyeshuri utavuga ikinyarwanda neza)

Hari n'ikibazo cy'indimi. Bamwe bavuga icyarabu, abandi igifaransa, abandi ikinyarwanda.

Eric:

Ibyo byose bituma bamwe bacika intege.

IGICE CYA GATATU: UBUHAMYA

(Haza umukobwa mukuru utanga ubuhamya.)

Umukobwa:

Nitwa Sarah. Ndi umunyeshuri nka mwe niga muri S1. Ariko nararangaye, ntaramenya amakuru ku buzima bw'imyororokere.

Natewe inda nkiri ku ishuri, niga P6. Ibyo byatumye ndeka ishuri ndetse mbaho m'ubuzima bugoye.

(Abanyeshuri baraceceka.)

Sarah:

Guterwa inda nkiri umwana byarankomerekeje mubuzima ariko nasanze bidakwiye guhagarika inzosi zanjye nyuma yo kubyara nagarutse ku ishuri kandi ndatsinda neza. Ntabwo nifuza ko ibyo byambayeho byaba kuri mwe. Mwige, mubaze abarimu n'abajyanama b'ubuzima.

IGICE CYA KANE: UBUTUMWA BW'INZEGO

(Hinjira abantu bahagarariye inzego zitandukanye.)

Uhagarariye REB:

Twebwe nka REB, dushyiraho gahunda zo kwigisha ubuzima bw'imyororokere mu mashuri kugira ngo abanyeshuri bamenye ukuri. Murakoze.

Uhagarariye MINISANTE

MINISANTE:

Abana bagomba kumenya uko birinda inda zitateganyijwe n'indwara zandurira mu mibonano mpuzabitsina. Amavuriro ari hano kubafasha.

Uhagarariye MINEMA:

Mu nkambi, turakora ibishoboka kugira ngo abana bose babone uburezi n'amakuru abafasha kubaho neza.

Umubyeyi (Mama wa Aline):

Natwe nk'ababyeyi tugomba kuganira n'abana bacu ku buzima bwabo, tukabafasha kugera ku nzozi zabo.

IGICE CYA GATANU: INDIRIMBO Y'UBUTUMWA

(Abanyeshuri baririmba hamwe)

Indirimbo:

Twige neza, twubake ejo hazaza!

Inzosi zacu ntizizimee!

Turirinda inda z'imburagihe,

Kuko ejo hazaza ni ahacu

Babyeyi bacu, namwe barezi mwese!

Ni mudushyigikire muture neza,

Muduhe ubumenyi ni urumuri,
Rutuyobora mu buzima

IGICE CYA NYUMA

Mwarimu :

Bana bacu, murumva ko uburezi ku buzima bw'imyororokere ari ingenzi. Iyo mufite amakuru nyayo, mushobora kurinda ejo hazaza hanyu.

Aline: (umunyeshuri utavuga ikinyarwanda neza)
Njye ndifuza gukomeza amashuri nkazaba umuganga.

Eric:
Nanjye ndifuza kuzaba injeniyeri.

Abanyeshuri bose:
Tuzarinda inzosi zacu!

(Bose bahaguruka bavuga)
"Uburezi burinda ubuzima!"

Appendix E: Participant Information and Consent Forms

Consent form



TLFC

code

RESEARCH PARTICIPANT CONSENT DOCUMENT

Research Title: Leveraging Telecommunication Models and Policy Frameworks to Enhance Literacy and Learning Outcomes in Refugee Camps in Rwanda

Researcher: Dr. Theodore HABIMANA

Co-Researchers: Prof. Irene NDAYAMBAJE, Dr. Charles NDAGIJE, Dr. Charline UWILINGIYIMANA

Institution: INES-Ruhengeri

Email: habitheo@gmail.com

Contact Phone number: +250788301057

You are invited to take part in a research study that seeks to explore how telecommunication models and policy frameworks can be used to enhance literacy and improve learning outcomes in refugee camps Mahama, Kigeme, Mugombwa, Nyabiheke and Kiziba

If you agree, you may be asked to take part in this research for approximately 30–60 minutes. Questions will focus on your views, experiences, and perspectives regarding education, communication, and literacy in the camp.

Participation in this study is completely voluntary. You have the right to refuse to participate, to skip any question you do not wish to answer, and to withdraw from the study at any time without any negative consequences. No benefits or payments will be provided for participation, but your views may help inform policies and programs aimed at improving education in refugee camps.

Confidentiality will be respected at all stages of this research. Your personal identity will not be shared, and any reports or publications from this study will not contain information that can be used to identify you. All data collected will be kept securely and used strictly for academic and research purposes.

There are no major risks anticipated in this study. However, if you feel uncomfortable at any point, you are free to stop participating. Your participation or non-participation will not affect your access to education, services, or support in any way.

By signing this consent, you confirm that you have read or been informed about the study, understand the purpose and your rights, and voluntarily agree to participate.

Participant's Name: _____

Signature: _____

Date: _____

Researcher's Name and Signature: _____

Date: _____



CONSENT AND ASSENT FORM FOR STUDENTS UNDER 18 YEARS OLD

Research Title: Leveraging Telecommunication Models and Policy Frameworks to Enhance Literacy and Learning Outcomes in Refugee Camps in Rwanda

Researcher: Dr. Theodore HABIMANA, PhD

Co-Researchers: Prof. Irene NDAYAMBAJE, Dr. Charles NDAGIJE, Dr. Charline UWILINGIYIMANA

Institution: INES-Ruhengeri

Funder: CODE

Contact Phone Number: +250 788 301 057

Information for Parents/Guardians

Your child is invited to take part in a research study that seeks to explore how telecommunication models and policy frameworks can be used to enhance literacy and improve learning outcomes in refugee camps, including Mahama, Kigeme, Mugombwa, Nyabiheke, and Kiziba.

If you agree, your child may be asked to take part in this research for 30 minutes. The questions for students will be simple and will focus on their experiences in learning, and how tools such as phones, radios, or the internet help them in their education.

Participation is completely voluntary. Your child may skip any question or stop at any time without any consequence. Confidentiality will be maintained: your child's name will not appear in any report or publication. Data will be kept securely and used for academic purposes only.

There are no major risks to your child in this study. Their participation or refusal will not affect their education, services, or opportunities in any way.

By signing below, you agree that your child may take part in this study.

Parent/Guardian's Name: _____

Parent/Guardian's Signature: _____

Date: _____



INFORMATION FOR STUDENTS (ASSENT FORM)

Hello! You are being asked to take part in a study about learning in your camp.

If you agree, you may be asked some questions about your learning, how you use things like phones, radios, or the internet to help you learn, and what makes learning easy or hard for you.

You do not have to answer every question if you do not want to. If at any time you want to stop, you can stop. Nobody will be upset with you if you choose not to participate.

What you say will be private. Your teachers, parents, or friends will not know your answers.

If you agree to take part, please sign below.

Student's Name: _____

Student's Signature: _____

Date: _____

Researcher's Name and Signature: _____

Date: _____

Appendix F: Some Photographs of Project Activities



Picture 1: FGD with Parents at Kiziba Refugee Camp



Picture 2: Interaction with Parents at Kiziba Refugee Camp



Picture 3: Students at Paysanat L School (Mahama Refugee Camp) ready to watch the drama



Picture 4: Drama actors at Paysanat L School (Mahama Refugee Camp) with some research team members and DEO



Picture 5: PI giving some school materials to one drama actor at Paysanat L School (Mahama Refugee Camp)



Picture 6: A student acting as a teacher leading a class at Paysanat L School (Mahama Refugee Camp)