



**The Role of Online Learning Platforms in Enhancing Education and Promoting
Environmental Sustainability in Rohingya Refugee Camps, Cox's Bazar, Bangladesh**

A Master's Thesis

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Declaration of AI Use

I used ChatGPT to improve the grammar, language, clarity, structure and readability of the text. Also, I used Claude to identify repetition and improve the coherence of paragraphs. In addition, I used ZeroGPT only to check the similarity of the written text. Other than these limited purposes, from the initial idea to the completion of this thesis, all work was carried out by myself. Furthermore, all sources used in this research have been properly acknowledged and cited according to guidelines.

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List of Abbreviations

- AUW – Asian University for Women
- AI – Artificial Intelligence
- APA – American Psychological Association
- BRAC – Bangladesh Rural Advancement Committee
- EE – Environmental Education
- ESD – Education for Sustainable Development
- FGD – Focus Group Discussion
- FGDs – Focus Group Discussions
- GAGE – Gender and Adolescence: Global Evidence
- ICT – Information and Communication Technology
- IDP – Internally Displaced Person
- IDPs – Internally Displaced Persons
- INGO – International Non-Governmental Organization
- INGOs – International Non-Governmental Organizations
- LPG – Liquefied Petroleum Gas
- NGO – Non-Governmental Organization
- NGOs – Non-Governmental Organizations
- PRIO – Peace Research Institute Oslo
- REC – Research and Ethics Committee
- RRRC – Refugee Relief and Repatriation Commissioner
- SPSS – Statistical Package for the Social Sciences
- TLC – Temporary Learning Centre

- TLCs – Temporary Learning Centres
- UN – United Nations
- UNDP – United Nations Development Programme
- UNEP – United Nations Environment Programme
- UNESCO – United Nations Educational, Scientific and Cultural Organization
- UNHCR – United Nations High Commissioner for Refugees
- UNICEF – United Nations Children's Fund
- WASH – Water, Sanitation and Hygiene

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Abstract

Bankground: Access to formal education remains restricted for Rohingya in Bangladesh, leaving many learners dependent on non-formal education with limited opportunities and resources for academic progression. In this context, online learning platforms have emerged as an alternative means of supporting learning and promoting environmental awareness. **Aim:** This research aims to evaluate how online platforms can enhance access to formal education in non-formal education settings and promote environmental sustainability in Rohingya refugee camps, Cox's Bazar. **Method:** This study employed a community-based, cross-sectional, mixed-methods design. Quantitative data were collected through face-to-face questionnaire surveys with 400 participants selected using simple random sampling, while qualitative data were drawn from five Focus Group Discussions (FGDs) involving 40 participants selected using purposive sampling, including students, parents, guardians, teachers, community members, NGO staff, and community leaders. Quantitative data were analyzed using descriptive and inferential statistics in SPSS, while Microsoft Excel was used for data organization and visualization. Qualitative data were analyzed using thematic analysis to identify key patterns and themes. **Results:** The findings revealed that participants widely perceived the current camp education system as informal, insufficient, and lacking opportunities for higher education and recognized certification. Formal education was identified as the highest priority for improving educational opportunities. Despite significant barriers, including poor internet connectivity, high mobile data costs, unreliable electricity, limited access to digital devices, and language barriers, most participants viewed online learning positively and believed it supported their learning. Qualitative findings further highlighted that online learning was regarded as "something better than nothing," providing an important opportunity to continue learning despite the absence of formal education. **Conclusion:** Although online learning

cannot replace formal schooling, it offers a valuable complementary approach for sustaining learning continuity and strengthening environmental awareness in refugee settings. Expanding digital infrastructure, improving internet accessibility, increasing access to digital devices, and developing multilingual learning resources are essential to maximizing the educational benefits of technology-supported learning for displaced populations. Evidence generated through this research would help to raise awareness about the educational and environmental needs of Rohingya refugees, leading to better policies and practices among governments, NGOs, and humanitarian actors working to expand technology-supported education and strengthen environmental sustainability in refugee settings.

Keywords: Online learning platforms; non-formal education; Rohingya refugees; environmental sustainability; refugee education; Cox's Bazar; learning continuity; digital learning.

Chapter 1: Introduction

1.1 Background of the Study

Education is a fundamental human right, yet many people around the world are still denied access to education. “Education is not a privilege. It is a human right” (Mercado & Manzano, 2024; United Nations, n.d.). It is a slogan or principle that has been practiced in reality in some countries and alive in papers in many countries like Myanmar and Bangladesh. At the end of 2025, there were 41.6 million refugees worldwide, 9 million asylum-seekers, and 68.7 million people displaced internally due to conflict or violence (UNHCR, 2026). In today's world only 9% of the refugees have access to higher education, which is far below the average of higher education enrollment compared to non-refugees, which accounts for 42% globally (Hossain, 2023), though there are many scholarship programmes that especially support refugees. Among the most affected populations are the Rohingya refugees in Bangladesh, who continue to face multiple humanitarian challenges, including limited access to education and essential services (Chowdhury et al., 2024).

The United Nations has named, “the Rohingya people are the most persecuted minority in the world” (UNHCR, 2026). Rohingya is an ethnic and religious minority who has been living for centuries in Myanmar, composing more than 1.2 million of its total population of 51.4 million (Mahmood et al., 2017). Rohingya have confronted decades of discrimination and domination under successive Myanmar governments such as denial of fundamental rights and other forms of human rights abuses which (Ahmed, 2010) became evident during the 2017 armed conflict. In that 2017 armed conflict, many forms of violence including rape, torture, arson, killing and many other forms of violence and incidents were reported whereas as of today no any actions against the perpetrators have been observed. After all of these, they were forced to flee to Bangladesh.

The United States officially declared the Myanmar military's campaign against the Rohingya in 2017 was genocide and crimes against humanity after a thorough factual and legal investigation on March 21, 2022. The initiation of ethnic cleansing by the Myanmar government has displaced more than 1 million Rohingya people in the world's largest and most congested temporary refugee camp in Cox's Bazar, Bangladesh, creating one of the world's largest refugee crises and leaving them with prolonged challenges in accessing fundamental human rights, including education (Filipenco, 2024; U.S. Department of State, 2022; Shahid, 2019; Rahman, 2023). Due to decades of persecution, segregation, forced displacement, and denial from access to education, particularly higher education has remained out of reach for the Rohingya (Human Rights Watch, 2022). The Rohingya people are not only denied education in Myanmar, but also it becomes the same challenges in Bangladesh especially in pursuing higher education.

Rohingya refugees face significant challenges in accessing education, as formal education is prohibited in the camps, leaving them reliant on non-formal programs provided by NGOs and UNICEF (2021, Billah). Even some community led schools were demolished and turned into shelters. Some teachers were even detained by the authority for teaching high school in the camp (Amnesty International, 2022). The Rohingya refugee camps in Bangladesh are home to nearly half a million children, who make up (52%) of all refugees registered there. According to UNICEF estimates, 5000 learning centers provide education to almost 300,000 refugee children. However, (81%) of adolescents aged 15 to 24 and (16%) of children aged 3 to 14 do not have access to school in the refugee camps. These persistent barriers continue to limit educational opportunities for Rohingya children and youth, highlighting the need for alternative approaches to learning (Rahman, 2023; Hossain, 2023).

In this digital era, digital technologies and online learning platforms are growing and developing every day. It has developed into important tools for improving student engagement, expanding learning opportunities, and maintaining continuity of learning during crisis and displacement (Creleanor, 2025; Olney et al., 2022). The online learning tool has become a rescue for the Rohingya refugees in Cox's Bazar as it is one of the ways they can pursue formal education in a non-formal setting despite limited internet access, financial burdens, and restrictions on formal schooling. Many Rohingya youth and teachers view digital learning as a practical means of continuing their education under their current situation (Olney et al., 2022).

In addition to limited access to education, the Rohingya refugee camps in Cox's Bazar face significant environmental and sustainable development challenges. High rates of deforestation, poor waste management, water contamination, overcrowding, and inadequate water, sanitation, and hygiene (WASH) services continue to pose serious environmental and public health risks (Butt et al., 2025; Khan, 2024; Shapna et al., 2023). The construction and expansion of refugee camps, together with the heavy dependence on forest resources for cooking fuel before the introduction of liquefied petroleum gas (LPG), have contributed to extensive deforestation in and around the camps, increasing the risks of soil erosion, landslides, and flooding during the monsoon season (Khan, 2024).

These environmental challenges directly affect the daily lives and well-being of both Rohingya refugees and the surrounding host communities. Inadequate infrastructure, overcrowding, and increasing pressure on natural resources have placed considerable strain on water supply, sanitation, healthcare, and other essential services, exacerbating environmental and public health risks (Butt et al., 2025; Khan, 2024; World Bank, 2022). Therefore, promoting environmental awareness and encouraging the sustainable use of natural resources are essential for improving

living conditions and supporting the long-term sustainability of refugee camps. Such efforts benefit not only the Rohingya refugee population but also the host communities in Cox's Bazar, who depend on the same shared natural resources (Khan, 2024; World Bank, 2022).

Education can play a significant role in addressing these environmental challenges by increasing people's knowledge, awareness, and environmentally responsible behaviours. It can promote good practices related to waste management, environmental cleanliness, water conservation, recycling, and environmental protection (UNESCO, 2020; United Nations Environment Programme (UNEP), 2021). Previous studies have shown that improving environmental awareness through education and community participation is essential for addressing environmental problems and promoting sustainable development, particularly in vulnerable communities (UNEP, 2021; World Bank, 2022). Online education platforms are an exciting and valuable medium to consider integrating environmental sustainability education to help address both environmental and education concerns at once. Technology-supported learning can foster community involvement, raise environmental awareness and foster sustainable behaviour among refugee learners (Niesen, 2021; PRIO, 2022). However, existing literature has primarily focused on non-formal education, Temporary Learning Centers (TLCs), or general humanitarian responses, while little attention has been given to how online platforms specifically bridge the formal-education gap in these settings, or to the combined role of digital education and environmental learning in refugee contexts.

1.2 Problem Statement

Formal schooling remains restricted in the Rohingya in Refugee Camp in Cox's Bazar, Bangladesh. Rohingya children are neither permitted to enroll in Bangladeshi schools nor formal

schools in the camp. Instead the Myanmar Curriculum runs within the camps with limits on certificates, which prevents students from progressing to higher education or gaining recognized qualifications. As a result, thousands of Rohingya children and youth are left with uncertain educational futures, despite their right to learn (UNESCO, 2020; Human Rights Watch, 2019; Saha et al., 2024; Shohel et al., 2023).

Online learning platforms currently represent the only practical means for Rohingya learners to pursue continued education within these restrictive conditions, since formal schooling remains closed to them and non-formal learning centers cannot on their own offer certification or continuity. At the same time, the environmental sustainability challenges outlined above make it equally important that any technology-supported learning initiative in the camps also builds environmental awareness and responsible practices among camp residents, rather than treating educational access and environmental sustainability as separate problems requiring separate interventions.

According to the research, there is little study that has looked at how online learning platforms might simultaneously help students gain formal education in non-formal settings and assist environmental sustainability among Rohingya refugees, despite earlier studies highlighting the relevance of digital learning in improving educational access. Thus, in the Rohingya refugee camps in Cox's Bazar, Bangladesh, this project explores how online learning platforms might improve education in informal settings and encourage environmental sustainability. This is especially evident in the Rohingya refugee camps in Cox's Bazar, Bangladesh, where formal education opportunities are limited and the environment is continuing to have an impact on life. The study intended to fill this research gap by providing data that could support refugee communities in developing more effective, technologically assisted environmental and educational initiatives.

1.3 Novelty of the Study

Platforms such as Khan Academy, Kolibri, and other mobile-based applications provide accessible content, though their delivery is constrained by limited internet bandwidth, inadequate infrastructure, and scarce access to devices, and institution-led initiatives such as BRAC University's Refugee Studies Unit and the fully online University of the People have similarly begun to widen access despite the challenges of displacement (BRAC University, 2022.; University of the People, 2025). While prior studies have focused on general refugee education and Temporary Learning Centers (TLCs), few have investigated how online learning platforms help Rohingya refugees gain access to formal education within non-formal camp settings, and fewer still have examined the integration of online learning tools for environmental education aimed at sustainability in these same settings (UNHCR, 2020).

This research explores the integration of online platforms in the education of Rohingya children and youth in refugee camps, emphasizing how these platforms can enhance educational opportunities and promote sustainable environmental management practices (Niesen, 2021). This combined focus on formal-education access through online platforms and their potential role in promoting environmental sustainability is the specific novelty of this study. Despite these efforts, such online and institution-led interventions also hold promise for improving sustainability practices such as waste reduction, clean water management, energy conservation, and recycling within refugee communities, by investigating how digital learning can address the educational needs of marginalized Rohingya learners while incorporating sustainability education (PRIO, 2022).

1.4 Research Aim and Objectives

Aim

This research aims to evaluate how online platforms can enhance access to formal education in non-formal education settings and promote environmental sustainability in Rohingya refugee camps, Cox's Bazar.

Objectives

1. To evaluate the current educational situation and challenges in Rohingya refugee camps.
2. To identify the role and effectiveness of online learning platforms in supporting education in non-formal settings.
3. To assess the level of Rohingya refugees' understanding, awareness, and practices about environmental sustainability.

1.5 Research Questions and Hypothesis

Research Questions

1. How do online platforms help students to gain formal education in non formal education settings?
2. In what ways can online platforms be leveraged to integrate environmental education and promote sustainable practices within refugee camps?
3. What are the key challenges and opportunities in implementing an online platform–driven environmental education in refugee settings, and how can stakeholders (teachers, NGOs, and policymakers) address them effectively?

Hypothesis

Integrating online learning platforms in non-formal education settings will enhance educational access and promote environmental sustainability in Rohingya refugee camps by increasing student engagement, raising environmental awareness, and encouraging sustainable practices.

1.6 Significance of the Study

The findings of this research will help to develop the design of more inclusive, sustainable, and context-specific educational programs for refugees while providing guidance for policymakers, NGOs, and humanitarian actors to develop effective education strategies for displaced people. The study presents a snapshot of the current use and perceptions of online platforms within the Rohingya camps, and can help guide decisions regarding tools and approaches that are worth scaling up and/or adapting. For NGOs and humanitarian organizations already delivering non-formal and digital education in Cox's Bazar, the findings on connectivity, device access, and technical barriers can help direct future investment toward the constraints learners report most often. For policymakers, the study's joint focus on educational access and environmental sustainability responds directly to calls for environmental education to be embedded within existing curricula rather than delivered only through standalone awareness campaigns. Academically, the study contributes to the limited literature examining the combined role of digital education and environmental learning in refugee contexts, addressing the specific gap identified.

Chapter 2: Literature Review

2.1 Introduction

The literature reviewed in this chapter aims to provide a theoretical and empirical background for the study. The review is based on literature published in peer-reviewed journals, books, reports from international organisations and humanitarian agencies and official publications, to review the current state of knowledge on the research topic. For the purpose of this study, the literature has been organized around the three goals. It looks first at obstacles facing formal education for Rohingya refugees and the importance of non-formal education in meeting these obstacles. It then discusses research findings on online learning platforms in refugee education, their opportunities and challenges in enhancing access to education. Lastly, it looks at the existing literature on refugee camp-based environmental sustainability education and the potential of education in fostering sustainable environmental practices.

2.2 Barriers to Formal Education for Rohingya Refugees

Education is a human right, irrespective of nationality, ethnicity or legal status. However, the Rohingya refugees still have a number of obstacles to overcome for accessing formal education, including prolonged displacement, limited access to the formal education system, and restrictions on formal education systems. The literature across the board shows that the issue is not a lack of interest in education, but rather limited opportunities to access accredited and certified learning opportunities.

Since the large-scale resettlement of Rohingya refugees to Bangladesh in 2017, it is becoming increasingly scarce to access formal education. In Bangladesh, children faced the denial

of formal education, and were instead non-formal education programmes offered through humanitarian organizations (Human Rights Watch, 2019). In the same way, ReliefWeb (2021) reported that, despite the increase in education access to be offered, humanitarian organizations have not been able to fully engage refugee adolescents in secondary and tertiary education, as they are not receiving recognised certification. Consequently, most students are unable to move forward in their learning due to participation in educational activities.

There have been a number of recent initiatives aimed at the improvement of learning opportunities. The implementation of the Myanmar Curriculum is in progress which has extended access to structured education and raised enrolment of Rohingya learners (UNICEF, 2023, as cited in NewsOnAir, 2023). But research suggests there are still key issues to be faced. The implementation is limited due to low teacher capacity, language issues, and non-existent certification system outside refugee camps (Saha et al., 2024). Language remains a big challenge as the language used for teaching is mainly Burmese, and the language of the learners is Rohingya. In response to this challenge, the organizations like Children on the Edge (2023) have produced Rohingya language learning materials for better understanding Myanmar Curriculum.

2.3 Non-Formal Education and Temporary Learning Centres (TLCs)

In response to the limited availability of formal education, non-formal education delivered through Temporary Learning Centres (TLCs) has become the primary means of providing education for Rohingya children and adolescents in refugee camps. Supported mainly by UNICEF and humanitarian organizations, TLCs provide foundational learning, life skills, and psychosocial support while helping children maintain educational continuity during displacement.

The literature recognizes the important contribution of TLCs to refugee education. In the Rohingya refugee camps, TLCs provide non-formal education that helps children continue learning during displacement. Beyond academic instruction, these learning centres offer psychosocial support, life-skills education, and structured learning opportunities that contribute to children's well-being and social development (United Nations Children's Fund (UNICEF), 2017; Dupuy et al., 2019). However, the sustainability of these programmes remains uncertain because they rely heavily on donor funding and humanitarian assistance.

Several studies identify persistent challenges affecting the quality and effectiveness of non-formal education in Rohingya refugee camps. UNICEF (2020) highlights the need to strengthen teacher capacity, improve teaching and learning materials, and enhance the quality of education provided through learning centres. These challenges may limit the quality of instruction and reduce learners' opportunities for meaningful educational progress. Similarly, Shohel et al. (2023) argue that although the Learning Competency Framework and the phased implementation of the Myanmar Curriculum have strengthened curriculum organization, they do not provide learners with recognized certification or clear pathways to secondary and higher education. Consequently, many Rohingya learners remain unable to continue their education beyond the non-formal system.

Despite these limitations, the literature emphasizes that TLCs remain essential for ensuring access to education in refugee camps. PRIO (2022) reports that many Rohingya learners and teachers value non-formal education because it provides opportunities to continue learning under difficult circumstances, even though it cannot replace formal education. Collectively, these studies suggest that while Temporary Learning Centres play a critical role in supporting educational continuity, their structural limitations highlight the need for more sustainable and inclusive educational approaches.

2.4 Online Learning Platforms in Refugee Education

2.4.1 Global Perspectives on Online Learning.

Over the past few years, the world has seen enormous progress with regards to information and communication technology (ICT) in education, and online learning is now gaining significant traction as a tool to increase educational access, especially in situations such as emergencies, humanitarian crises, or when traditional learning is disrupted. Online learning platforms offer refugees the chance to keep learning even if they are displaced or live far away from education.

The literature indicates that online learning is to be used alongside formal learning. Tobin and Hieker (2021), whose study was carried out in refugee contexts in Greece, Jordan, Kenya and Rwanda, claim that digital learning is an effective way to access education, but cannot substitute for the academic, social and protective role of the physical school. In the same vein, research conducted in higher education programmes rolled out in the refugee camps of Kakuma and Dadaab shows that tailoring learning materials, teaching methods and course content to refugees' local contexts and technological realities are key to better outcomes of online education (O'Keeffe & Lovey, 2022).

Prior research also highlights the importance of consideration of the non-technological factors that support successful online learning. Linguistic, technological, financial and cultural challenges often disrupt the learning opportunities for refugee learners. There is a need for continuous teacher support, mentoring, reliable Internet access and culturally appropriate learning materials to enhance learning outcomes (Halkic & Arnold, 2019). Furthermore, both mobile technologies and refugee women have been identified as developing educational opportunities for refugee women by overcoming the mobility barriers and enhancing access to higher education by refugee women by Dahya and Dryden-Peterson (as cited in Cin & Dogan, 2021). Generally, the

literature suggests that, with adequate infrastructure, learner support, and contextually relevant education resources, online learning platforms can be a powerful tool for enhancing educational access in refugee contexts.

2.4.2 Online Learning among Rohingya Refugees

In the Rohingya refugee context, online learning has slowly become a viable option to ensure children's education, but there is limited evidence of its sustained impact. Since then, the humanitarian community and schools have launched various digital learning initiatives to enhance learning opportunities for IDPs.

Kolibri is one of the most popular digital learning platforms, as it is designed to work in low connectivity settings, and learners can access educational resources without the need for constant internet connection (Learning Equality, n.d.). In the same way, Children on the Edge (2020) produced Rohingya language support video materials which also matched the Myanmar Curriculum to overcome language barriers and enhance students' understanding of the teaching materials.

Beyond the limits of basic education, digital technologies have opened up new possibilities. Khan (2024) found that teachers had largely positive attitudes towards the use of technology in English language learning (ELL) despite ongoing technological challenges. Similarly, programs like the Refugee Studies Unit at BRAC University and the University of the People's online education programs illustrate how online learning can offer alternative avenues for higher education to reach displaced learners (BRAC University, n.d.; University of the People, 2025). In more recent times, UN Women' Accelerated Adult Learning Programme has facilitated the provision of adult literacy and numeracy training for Rohingya women in Cox's Bazar using tablet-based training, and noted

the tablets improving the literacy and numeracy skills of the learners (UN Women Asia-Pacific, 2026).

2.4.3 Digital Divide and Online learning challenges

The literature has always listed the digital divide as one of the biggest challenges in putting online learning to practice in refugee contexts, which has a growing potential. Limited internet connections, low internet access in digital devices, access to electricity, high internet prices, and low level of digital literacy are still limiting children's access to online education.

Studies show that the majority of refugee learners rely on collective mobile phones, community devices, NGOs supported learning centres or institutions to access digital education. This dependency restricts regular participation, decreases learning flexibility, and breaks the learning continuity (Halkic & Arnold, 2019; Tobin & Hieker, 2021). Unstable internet connectivity, lack of smartphone and computer in Rohingya refugee camps and financial difficulties are also reported as barriers in online learning for Rohingya refugees (PRIO, 2022).

While these obstacles hinder the capacity of online learning environments, they consistently show that a well-designed infrastructure, institutional buy-in, learner assistance, and contextualization can help digital technologies enhance educational access as well. Therefore, it is crucial to address these barriers to realize what potential online learning can have for refugee populations in terms of education.

2.5 Environmental Sustainability Education in Refugee Camps

Given the high refugee numbers that strain natural resources, waste management systems, water resources, and ecosystems in humanitarian contexts, there is growing concern

about environmental sustainability. The quick construction and growth of Rohingya refugee camps in Cox's Bazar have been adding to deforestation, trash piling, environmental pollution and overburden on the sanitation system for Rohingya and host communities.

Solving these environmental issues requires more than just infrastructure development, as indicated in the literature. In refugee camps in Cameroon, the Sahrawi refugee settlements and Jordan, studies have highlighted that EE and community awareness are important factors for encouraging sustainable practices, such as good waste management, recycling, water conservation and environmental stewardship (Kodji et al., 2021; Guijarro et al., 2022; Behnke et al., 2024). The studies indicate that it takes the active involvement of communities and the built environment over a period of time to make lasting improvements.

Generally, in the Rohingya refugee camps, environmental interventions have been directed towards waste management and environmental rehabilitation. In the camps, for instance, UNDP Bangladesh set up the first sanitary landfill, which is both improving the waste disposal and providing livelihood opportunities to Rohingya refugees (UNDP Bangladesh, 2025.). While these efforts have enhanced environmental management, there is hardly any research to date on how these initiatives are connected to formal, non-formal or digital education programmes.

International organizations have thus made environmental sustainability a priority in education programmes. Including environmental education in refugee curricula to promote sustainable attitudes and behaviours, and the Global Opportunity Explorer (2018) identifies education as an important tool to reinforce environmental awareness in humanitarian contexts. The literature shows the importance of Environmental Education (EE) as a means of

encouraging environmentally sustainable practices among refugees. Few studies have explored how online learning platforms can be leveraged as a tool to incorporate environmental sustainability education into refugee learning programmes, especially in the Rohingya refugee camps in Cox's Bazar. This is an important motivation for the current study.

2.6 Synthesis and Research Gap

This chapter reviews literature on the challenges of formal education for Rohingya refugees, which shows that they still face a high level of restrictions in their access to formal education, both from policy restrictions and lack of recognised educational pathways. TLCs and other non-formal education programmes have broadened access to basic education, but do not offer accredited certification and do not offer a clear pathway to secondary and post-secondary education (Human Rights Watch, 2019; Shohel et al., 2023).

The review also shows that online learning platforms hold great promise for enhancing educational access for refugee populations, especially in the absence of traditional school education. Nevertheless, while technology plays a crucial role, there is a strong consensus from previous research that online learning is not technology alone, but it also relies on the availability of adequate infrastructure, digital accessibility, and learner support, along with contextually appropriate learning materials (Tobin & Hieker, 2021; Khan, 2024).

Moreover, the literature emphasises the need for environmental education and community involvement in addition to infrastructure development in refugee camps to ensure environmental sustainability. Research has demonstrated that environmental awareness and education have positive impacts on sustainable practices including waste management, water

conservation, recycling and environmental stewardship (Harper, 2017; Global Opportunity Explorer, 2018; Guijarro et al., 2022).

While all three have been studied increasingly over the last few years, these studies have tended to focus on each in isolation. Few studies have examined how refugee education and online learning or environmental sustainability can be combined in a refugee context. Little research has been conducted so far on the intersection of refugee education and other fields, such as online learning and environmental sustainability. Specifically, there is a lack of evidence on the potential of integrating access to education with environmental sustainability at the same time in the context of Rohingya refugees in Cox's Bazar using online learning platforms.

Chapter 3: Materials and Methodology

3.1 Study Design

This research is conducted through a cross-sectional study by using mixed-methods to collect data among the Rohingya community living in the world's largest Refugee Camp (Filipenco, 2024) in Cox Bazar after their displacement to Bangladesh. I chose a mixed-methods approach because it combines measurable findings of the questionnaire survey with the in-depth perspectives obtained through Focus Group Discussions (FGDs). Using both quantitative and qualitative methods provides a more comprehensive understanding of the role of online learning platforms in enhancing education and promoting environmental sustainability among Rohingya refugees. This approach allowed the researcher to examine overall patterns while also exploring participants' experiences, perceptions, challenges, and recommendations, thereby strengthening the depth and credibility of the study.

3.2 Study Sites and Population

The study site for this study was Rohingya Refugee Camp, and the respondents for this study were selected from Kutupalong, Balukhali, Jamtoli, Naya Para and other camps located in Ukhiya, the sub-district of Cox's Bazar. This research was conducted on adolescent and adult age from 15 to 50 years old including both females and males from the Rohingya community who are currently living in the Rohingya Refugee Camp, Cox's Bazar, Bangladesh. There are more than one million Rohingya refugees living in the 33 congested camps area after fleeing from Myanmar to Bangladesh due to the genocidal attempts by the Myanmar military. The participants included students, parents, guardians, teachers, community members, NGO staff, and community leaders.

3.3 Sampling Method

Quantitative Data

Probability sampling (Random) was used for this study, where I covered the sample by using simple random sampling that was selected based on the listing to ensure that every eligible individual had an equal opportunity to participate in the study. I have chosen the population to participate in the survey by relying on the representative of the entire population in the refugee camp, Cox's Bazar, Bangladesh.

Qualitative Data

Purposive sampling was used to select participants for the Focus Group Discussions (FGDs). The initial plan was to recruit 50 participants; however, 40 participants ultimately participated in five FGDs. The discussion groups included male and female parents, teachers, and NGO staff, adolescent students, and youth students and community leaders to capture diverse experiences and perspectives from different members of the refugee community.

3.4 Sample Size

Quantitative Data

The calculation for the estimation of the sample size was as follows;

$$n = (Z^2 \cdot 1-\alpha/2 \cdot p(1-p)) / d^2$$

Where, n= Sample size

p= Population proportion

d= Absolute precision required on either side of proportion

1- α = Confidence level

i.e. Prevalence rate (p): 30% = 0.3

d= 5% = 0.05

1- α = 95% (α = 0.05) (Z_{α} = 1.96)

$$n = ((1.96)^2 \times 0.3 \times (1-0.3)) / (0.05)^2$$

$$n = 322.69 = 323$$

Considering 20% non-response rate,

$$20\% \text{ of } 323 = 64.6 = 65$$

$$n = 65 + 323 = 388$$

Hence, the sample size is 388. However, I interviewed 400 participants.

Qualitative Data

The initial plan was to conduct five Focus Group Discussions (FGDs) with 50 participants. However, 40 participants took part in the FGDs, consisting of one group of male parents, one group of female parents, one group of teachers and NGO staff, one group of adolescent students, and one group of youth students and community leaders and explored collective insights from various community members.

Overall, the study included 440 participants, comprising 400 survey respondents selected through simple random sampling and 40 FGD participants selected through purposive sampling. The participants represented students, parents, teachers, NGO staff, community leaders, and other community members across various learning centers and camps in the Rohingya refugee camps. The sample size was considered sufficient to capture diverse experiences and perspectives while remaining feasible within the logistical and environmental constraints of conducting research in a refugee camp setting.

3.5 Data Collection Method

Data were collected using a mixed-methods approach through a structured questionnaire survey and Focus Group Discussions (FGDs). The questionnaire survey was conducted through face-to-face interviews with 400 participants selected using simple random sampling. The questionnaire was developed in English and translated into the Rohingya language to ensure participants' understanding.

For the qualitative component, five Focus Group Discussions (FGDs) were conducted with 40 purposively selected participants representing students, parents, teachers, NGO staff, community

members, and community leaders. The discussions explored participants' experiences, perceptions, challenges, and recommendations regarding online learning platforms and environmental sustainability. All FGDs were conducted in the Rohingya language to encourage active participation and enable participants to express their views freely. Data from both methods were collected during the same study period and were used to provide complementary quantitative and qualitative evidence to address the research objectives.

3.6 Data Collection Tools

Two data collection tools were used in this study: a structured questionnaire and a semi-structured Focus Group Discussion (FGD) guide.

The structured questionnaire was developed in English and translated into the Rohingya language to improve participants' understanding. It consisted of both closed-ended and open-ended questions. The closed-ended section included multiple-choice questions and five-point Likert-scale items ranging from Strongly Disagree to Strongly Agree, while the open-ended questions allowed participants to share their opinions, suggestions, and recommendations. The questionnaire comprised five sections: (1) socio-demographic information, (2) current education system and quality, (3) access to and use of online learning platforms, (4) environmental awareness and practices, and (5) suggestions and recommendations.

A semi-structured FGD guide was used to collect qualitative data. The guide covered five broad themes: education access and the current education system, online learning platforms, environmental education and practices, challenges and opportunities, and stakeholders' roles and recommendations. The semi-structured format allowed the researcher to probe participants' responses and explore their experiences and perspectives in greater depth.

3.7 Data Analysis

Quantitative Data

The questionnaire data were coded, entered, cleaned, and analyzed using IBM SPSS Statistics. Descriptive statistics, including frequencies, percentages, means, and standard deviations, were used to summarize the respondents' demographic characteristics and responses. Cross-tabulations were conducted to examine the distribution of variables, while correlation analyses were performed to assess the relationships among variables related to online learning platforms, education, and environmental sustainability. Other appropriate statistical analyses were conducted where necessary to address the research objectives. Microsoft Excel was used to create tables, charts, and graphs for data visualization and presentation of the findings.

Qualitative Data:

The Focus Group Discussions (FGDs) were audio-recorded with the participants' consent and transcribed from Rohingya into English. For focused group discussions data, at first, it is transcribed from recorded Rohingya recordings into English written documents in the Google document. Secondly, necessary data cleaning and organization are done. Thirdly, it is read multiple times to get holistic ideas and find themes. After finding the themes, the data is analyzed by using thematic analysis. The Focus Group Discussions (FGDs) were audio-recorded with participants' consent and transcribed from Rohingya into English. The transcripts were reviewed, cleaned, and organized before analysis. The data were analyzed using Braun and Clarke's (2006) six-step thematic analysis framework, which was chosen for its clarity and flexibility in identifying patterns within qualitative data. I read the transcripts several times to become familiar with the data, generated initial codes, and grouped similar codes into themes. The themes were then reviewed, refined, and defined to ensure they accurately reflected the data and addressed the research

objectives. Finally, the findings were presented using direct quotations from participants to support each theme. Additionally, it is also written with direct quotation in the result section.

3.8 Ethical Considerations

After reviewing research proposals, questionnaires, interview guides, consent forms, and other relevant documents from the Research and Ethics Committee (REC) of the Asian University for Women, the study received ethical approval to conduct the research before data collection began. In addition, the research supervisor revised all of the required documents from the initial idea to complete this study. Furthermore, to collect the data from the camp, permission was obtained from the Refugee Relief and Repatriation Commissioner (RRRC). The study followed the rules and regulations of the relevant local authorities, NGOs, and AUW. Participants' privacy, confidentiality, and rights were respected throughout the data collection process and after its completion. No personally identifiable information was included in the research report, and all collected data were securely stored and used only for research purposes.

3.9 Knowledge Dissemination Plan

First of all, this study will be submitted to the department of Master of Arts in Education at the Asian University for Women as part of the requirements. A copy of the final research report will be submitted to the Asian University for Women (AUW) Library for the students and AUW community. The findings will also be shared with relevant camp authorities, government agencies, NGOs, INGOs, humanitarian organizations, education providers, and community representatives working in the Rohingya refugee camps in Cox's Bazar. Sharing the findings with these stakeholders may support evidence-based decision-making and contribute to the development of

more inclusive, technology-supported educational programmes and environmental sustainability initiatives.

With the support of the research supervisor and the university, the findings may also be presented at academic conferences or submitted for publication in a peer-reviewed journal. The study may further be shared through relevant academic and professional platforms to reach a wider audience and encourage collaboration among organizations working in refugee education and environmental sustainability.

Chapter 4: Results

Table 1: Socio-demographic Characteristics of the Participants

Variables	Frequency (%)
Participants's Age:	
15-23	201(50.2)
24-32	120(30.0)
33-41	46(11.5)
42-50	33(8.3)
Gender:	
Male	208(52.0)
Female	192(48.0)
Education Status:	
Primary	15(3.8)
Secondary	141(35.3)
High School	172(43.0)
Degree	39(9.8)
None	9(2.3)
Others	24(6.0)
Occupation:	
Daily labour	18(4.5)
Farmer	9(2.3)
Shopkeeper	37(9.3)
Teacher	39(9.8)
Student	198(49.5)
Volunteer	96(24.0)
Factory worker	3(0.8)

Table 1 presents the socio-demographic characteristics of the 400 study participants. Half of the participants (50.2%) were aged between 15 and 23 years, followed by 30.0% aged 24-32 years. Participants aged 33-41 years and 42-50 years accounted for 11.5% and 8.3%, respectively, indicating that the study primarily included younger individuals.

Regarding gender, 52.0% of the participants were male and 48.0% were female, showing a nearly balanced gender distribution. In terms of educational status, the largest proportion of participants had completed high school (43.0%), followed by secondary education (35.3%). A smaller number had attained a degree (9.8%), while 6.0% reported other educational qualifications, 3.8% had primary education, and only 2.3% reported having no formal education.

With respect to occupation, nearly half of the participants were students (49.5%), followed by volunteers (24.0%). Teachers (9.8%), shopkeepers (9.3%), daily labourers (4.5%), farmers (2.3%), and factory workers (0.8%) represented smaller proportions of the sample. Overall, the findings indicate that the study participants were predominantly young, had at least secondary or high school education, and were mainly students and volunteers.

Table 2: Current Education System and Online Learning Access

Variables	Frequency (%)
Awareness of the Education System:	
Yes	400(100)
No	0(0)
Sufficiency of current Education System:	
Yes	43(10.8)
No	357(89.3)
Opinion on Education Improvement:	

Yes	400(100)
No	0(0)
Uses of Devices:	
Yes	385(96.3)
No	15(3.8)
Opinions on technology solving educational barriers:	
Disagree	64(16.0)
Neutral	50(12.5)
Agree	206(51.5)
Strongly agree	65(16.3)
Types of digital devices used for learning(Multiples responses allowed):	
Mobile phones	65(16.3)
Computers	65(16.3)
Tablets	65(16.3)
Shared phone	65(16.3)
Community/NGO device	65(16.3)
Frequency of technical difficulties during online learning:	
Yes, often	99(24.8)
Sometimes	204(51.0)
Rarely	85(21.3)

Note. Participants were allowed to select more than one type of digital device; therefore, the percentages do not sum to 100%.

Table 2 presents participants' views on the current education system and their access to online learning. All participants (100%, $n = 400$) reported being aware of the current education

system, and all agreed that the education system needs improvement. However, only 10.8% considered the current education system sufficient, while the majority (89.3%) believed that it is not sufficient.

Most participants (96.3%) reported using digital devices for learning, whereas only 3.8% did not use any devices. Regarding the role of technology in overcoming educational barriers, more than two-thirds of the participants agreed (51.5%) or strongly agreed (16.3%) that technology can help address these challenges. In contrast, 16.0% disagreed, (3.8%) strongly disagreed, and (12.5%) remained neutral.

Participants reported using a range of digital devices for learning, including mobile phones, computers, tablets, shared phones, and community or NGO-provided devices. As multiple responses were allowed, many participants used more than one type of device for online learning. Technical difficulties were common during online learning. More than half of the participants (51.0%) experienced technical difficulties sometimes, (24.8%) experienced them often, (21.3%) rarely encountered such difficulties, and only (3.0%) reported no technical difficulties.

“There is no systematic education in the camp. Children attend learning centers, but there is no clear educational pathway for our future.” (FGD Participant 6)

“Even though the Myanmar curriculum has been introduced, many students still cannot read or write properly because they missed years of education.” (FGD Participant 4)

“We study because something is better than nothing, but this education cannot secure our future.” (FGD Participant 2)

“Without recognized certificates, we worry that all our efforts may not help us continue our education.” (Youth FGD Participant)

Table 3: Environmental Sustainability, Awareness and Practices

Variables	Frequency (%)
Participation in environmental sustainability training:	
Yes, within the last 6 months	141(35.3)
Yes, more than 6 months ago	123(30.8)
No	116(29.0)
Not sure	20(5.0)
Training Provider:	
NGOs	115(28.7)
Learning Center	89(22.3)
Community Organization	128(32.0)
Others	68(17.0)
Inclusion of environmental topics in lessons:	
Yes, regularly	84(21.0)
Sometimes	154(38.5)
Rarely	93(23.3)
No	39(9.8)
Not applicable	30(7.5)

Table 3 presents participants' awareness, perceptions, and practices related to environmental sustainability. Regarding environmental sustainability, 35.3% of the participants had received environmental sustainability training within the last six months, while 30.8% had received training more than six months ago. However, 29.0% reported that they had never participated in such

training, and 5.0% were unsure. Among those who had received training, community organizations were the most commonly reported providers (32.0%), followed by NGOs (28.7%), learning centers (22.3%), and other organizations (17.0%).

With regard to the inclusion of environmental sustainability topics in lessons, 38.5% of the participants reported that these topics were included sometimes, while 21.0% indicated that they were included regularly. In contrast, 23.3% reported that environmental topics were rarely included, 9.8% stated that they were not included, and 7.5% indicated that the question was not applicable.

Table 4: Participation in Environmental Sustainability Activities

Variables	Frequency (%)
How often:	
Often	76(19.0)
Sometimes	223(55.8)
Rarely	90(22.5)
Never	11(2.8)
Types of Sustainability Practices:	
Reduce plastic use or reuse containers/bags	201(50.2)
Repair or repurpose items	173(43.3)
Save water at home	175(43.8)
Plant or care for trees/plants	180(45.0)
Use cleaner cooking methods	219(54.8)
Keep shared spaces clean	178(44.5)
Give waste to community collectors or disposal points	248(62.0)
Other	60(15.0)

Note. Participants were allowed to select more than one sustainability practice; therefore, the percentages do not sum to 100%.

Table 4 presents participants' involvement in environmental sustainability activities and the types of practices they commonly adopted. More than half of the participants (55.8%) reported that they sometimes participated in environmental sustainability activities, while 19.0% participated often. In comparison, 22.5% reported participating rarely, and only 2.8% stated that they never participated.

Participants reported engaging in a variety of environmental sustainability practices. As multiple responses were allowed, many participants selected more than one practice. The most commonly reported practice was giving waste to community collectors or disposal points (62.0%), followed by using cleaner cooking methods (54.8%), reducing plastic use or reusing containers and bags (50.2%), planting or caring for trees and plants (45.0%), keeping shared spaces clean (44.5%), saving water at home (43.8%), and repairing or repurposing items (43.3%). A smaller proportion of participants (15.0%) reported engaging in other sustainability practices.

Table 5: Association between Educational Level and Online Learning Platform Use

						Total N=400	p-value
Characteristics							
Participant's Education Status:						0.001	
Frequency of online learning Platform Use							
Education Level:	Daily n (%)	Weekly n (%)	Monthly n (%)	Rarely n (%)	Never n (%)	Total n (%)	
Primary	0(0.0)	6(40.0)	0(0.0)	3(20.0)	6(40.0)	15(100.0)	
Secondary	42(29.8)	54(38.3)	33(23.4)	12(8.5)	0(0.0)	141(100.0)	
High School	73(42.4)	45(26.2)	45(26.2)	9(5.2)	0(0.0)	172(100.0)	
Degree	18(46.2)	15(38.5)	0(0.0)	6(15.4)	0(0.0)	39(100.0)	
None	9(100.0)	0(0.0)	0(0.0)	0(0.0)	0(0.0)	9(100.0)	
Others	18(75.0)	0(0.0)	0(0.0)	6(25.0)	0(0.0)	24(100.0)	
Total	160(40.0)	120(30.0)	78(19.5)	36(9.0)	6(1.5)	400(100.0)	

According to the statistics on the frequency of online learning platform use by educational level, participants with degree-level education reported the highest proportion of daily online learning platform use (46.2%), followed by those with high school education (42.4%). Among participants with secondary education, the largest proportion reported weekly use (38.3%), while (23.4%) used online learning platforms monthly. In contrast, (40.0%) of participants with primary education reported never using online learning platforms. The p-value (0.001) indicates that there is a statistically significant association between educational level and online learning platform use.

Table 6: Relationship between Online Learning Support and Environmental Understanding

Characteristics	Enhanced Environmental Understanding						Total n (%)	p-value
	Strongly Agree n (%)	Agree n (%)	Neither Agree nor Disagree n (%)	Disagree n (%)	Strongly Disagree n (%)	Not Applicable n (%)		
Online Learning Support								0.001
Strongly support my learning	9 (25.0)	18 (50.0)	0 (0.0)	6 (16.7)	3 (8.3)	0 (0.0)	36 (100.0)	
Somewhat support my learning	9 (4.9)	118 (64.5)	19 (10.4)	31 (16.9)	3 (1.6)	3 (1.6)	183 (100.0)	
Mixed impact (help in some ways, hinder in others)	15 (13.0)	78 (67.8)	19 (16.5)	3 (2.6)	0 (0.0)	0 (0.0)	115 (100.0)	
Somewhat hinder my learning	0 (0.0)	27 (81.8)	3 (9.1)	3 (9.1)	0 (0.0)	0 (0.0)	33 (100.0)	
Strongly hinder my learning	3 (12.5)	21 (87.5)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	24 (100.0)	
Not applicable	0 (0.0)	3 (33.3)	0 (0.0)	0 (0.0)	0 (0.0)	6 (66.7)	9 (100.0)	
Total	36 (9.0)	265 (66.3)	41 (10.3)	43 (10.8)	6 (1.5)	9 (2.3)	400 (100.0)	

According to the relationship between online learning support and environmental understanding, the majority of participants who reported that online learning somewhat supported their educational experience agreed that online learning enhanced their environmental understanding (64.5%). Similar patterns were observed among participants reporting a mixed impact (67.8%), somewhat hindered learning (81.8%), and strongly hindered learning (87.5%). The

p-value (0.001) indicates that there is a statistically significant relationship between online learning support and environmental understanding.

Figure-1: Respondents' Views on the Refugee Camp Education System

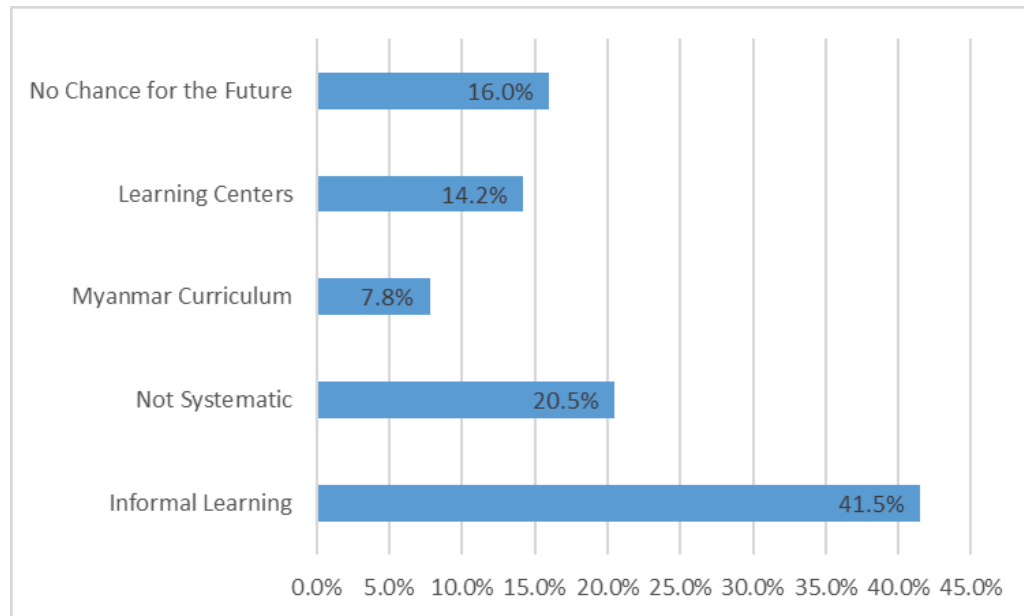


Figure 1 presents participants' views on the current education system in the Rohingya refugee camps. The largest proportion of participants (41.5%) described the education system as informal learning, followed by 20.5% who considered it not systematic. Additionally, 16.0% believed that the current system provides no chance for the future, while 14.2% identified it as being based on learning centers. Only 7.8% of participants associated the current education system with the Myanmar curriculum. Overall, the findings indicate that participants largely perceived the existing education system as informal and lacking a structured approach.

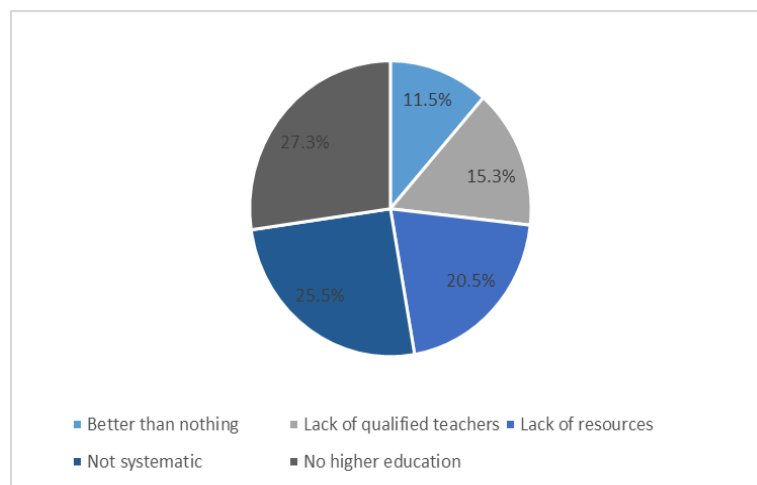
“There is no future for us in the camp, if the education system is no more on system.” (Female FGD Adolescent Participant)

“I have passed the matriculation exam from the Rohingya lead community school and my certification does not have any value because I cannot use it for any employment or higher studies.” (Adult Male FGD Participant)

Figure-2: Perception of the Sufficiency of Current Education System

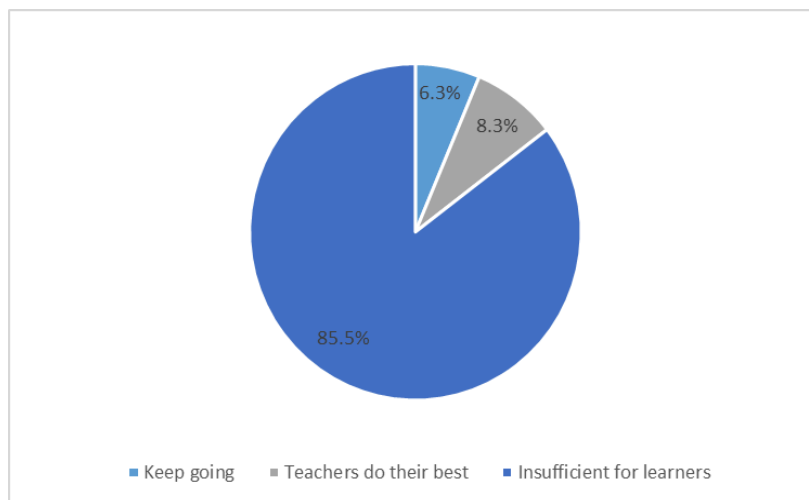
These figures illustrate participants' perceptions of the sufficiency of the current education system.

2.1: No Response



Among those who considered the education system insufficient, the most common concern was the lack of higher education opportunities (27.3%), followed by the view that the system was not systematic (25.5%). Other concerns included limited educational resources (20.5%), a lack of qualified teachers (15.3%), and the perception that the education provided was better than nothing (11.5%).

2.2: Yes Response



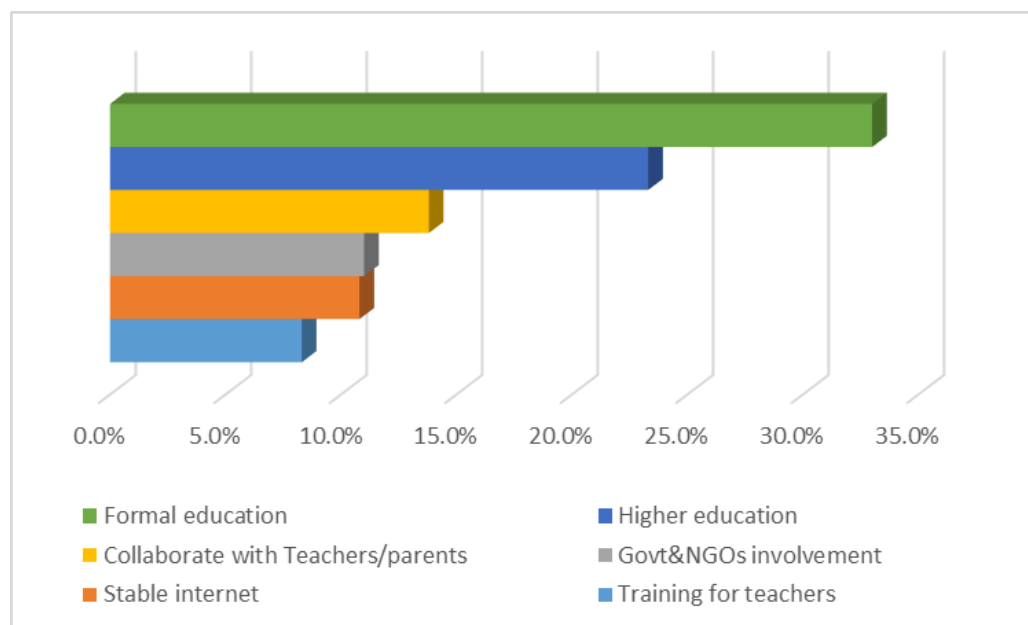
Among participants who considered the current education system sufficient, the majority (85.5%) believed that it should continue as it is. A smaller proportion stated that teachers were doing their best (8.3%), while 6.3% still believed that the education system remained insufficient for learners.

“Our biggest dream is to have formal education like other children. We need certificates that are recognized everywhere.” (Student FGD Participant)

“Learning centers are helpful, but they cannot replace formal schools or provide opportunities for higher education.” (Teacher FGD Participant)

“If formal education were available, many young people would have hope for a better future.”
(Community Leader FGD)

Figure-3: Views on Improving the Education System in the Camp



Note. Participants were allowed to select more than one response; therefore, the percentages do not sum to 100%.

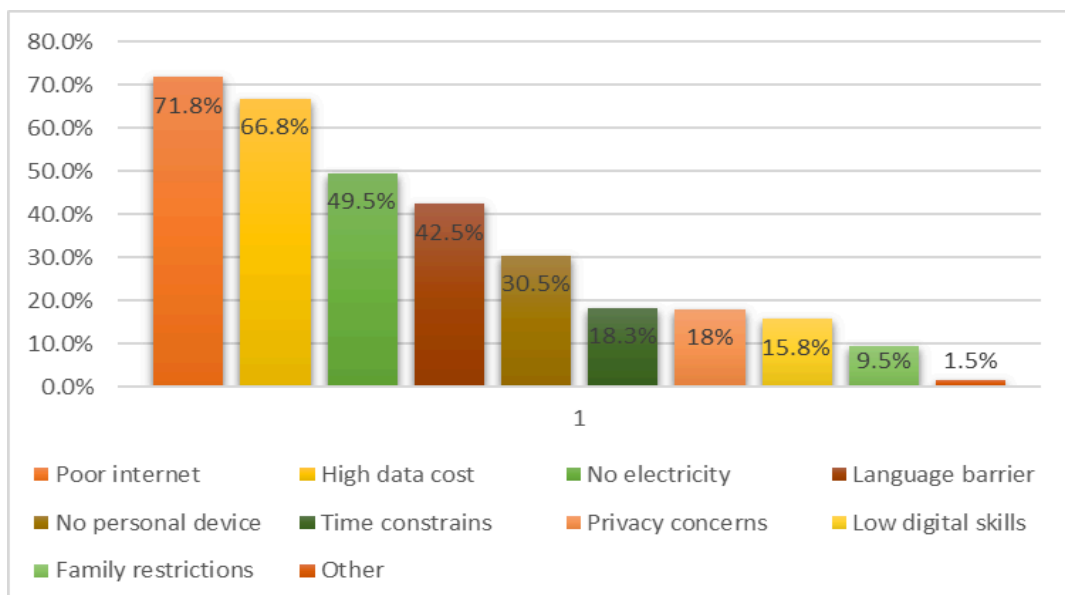
Figure 3 presents participants' suggestions for improving the education system in the refugee camps. The most frequently recommended improvement was the introduction of formal education (33.0%), followed by expanding higher education opportunities (22.5%). Other suggestions included collaboration between teachers and parents (13.5%), increased government and NGO involvement (11.0%), stable internet access (10.5%), and training for teachers (8.5%). These findings show that participants prioritized access to formal and higher education while also recognizing the importance of institutional support and improved learning resources.

“Online learning allows us to continue studying when formal education is not available. It is not perfect, but it helps us keep learning.”(FGD Participant 2)

“Sometimes the internet is too slow, but whenever we can connect, we learn many new things.” (Student FGD Participant)

“Mobile phones have become our classrooms because we have very limited educational opportunities.” (Youth FGD Participant)

Figure-4: Challenges of Online Learning in the Camp



Note. Participants were allowed to select more than one response; therefore, the percentages do not sum to 100%.

Figure 4 shows the major challenges participants experienced during online learning. Poor internet connectivity was the most commonly reported challenge (71.8%), followed by high data costs (66.8%). Nearly half of the participants also reported lack of electricity (49.5%) and language barriers (42.5%). Other challenges included lack of personal devices (30.5%), time constraints (18.3%), privacy concerns (18.0%), limited digital skills (15.8%), family restrictions (9.5%), and

other challenges (1.5%). Among all, internet access and affordability were identified as the primary barriers to online learning.

“The biggest problem is the internet. Sometimes we cannot even open the lesson because the connection is too weak.” (Student FGD Participant)

“Many students share one phone with family members, so they cannot attend every lesson.” (Teacher FGD Participant)”

“Electricity cuts interrupt our learning. Even when we have the internet, we cannot always charge our phones.” (Parent FGD Participant)

Figure-5: Opinions on Technology to Reduce Educational Barriers

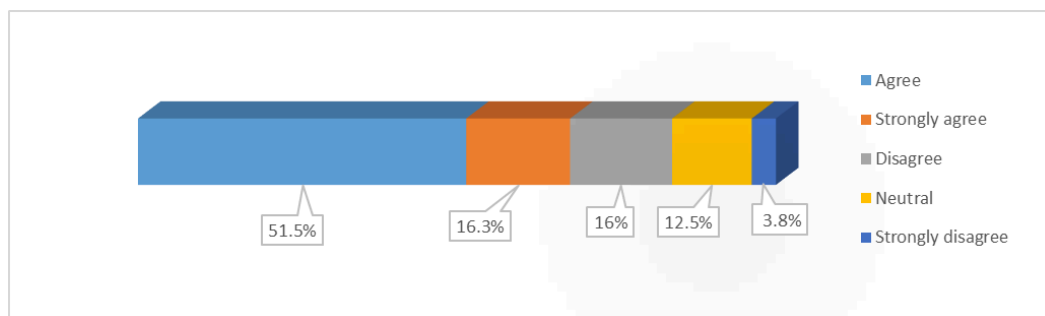


Figure 5 presents participants' opinions on the role of technology in reducing educational barriers. More than half of the participants (51.5%) agreed that technology can help overcome educational barriers, while an additional 16.3% strongly agreed. In contrast, 16.0% disagreed, 3.8% strongly disagreed, and 12.5% remained neutral. Overall, the majority of participants expressed positive views regarding the potential of technology to improve educational access.

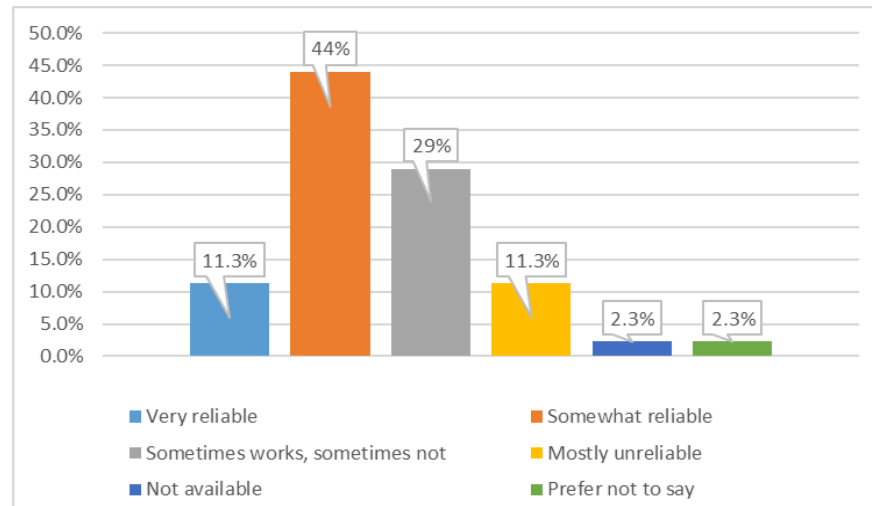
Figure-6: Internet Reliability

Figure 6 illustrates participants' perceptions of internet reliability in the refugee camps. The majority of participants (44.0%) described the internet connection as somewhat reliable, while 29.0% reported that it sometimes worked and sometimes did not. Equal numbers (11.3%) considered the internet very reliable and mostly unreliable, respectively. Only 2.3% stated that internet service was not available, and another 2.3% preferred not to respond. These findings indicate that internet access was available to most participants but was not consistently reliable.

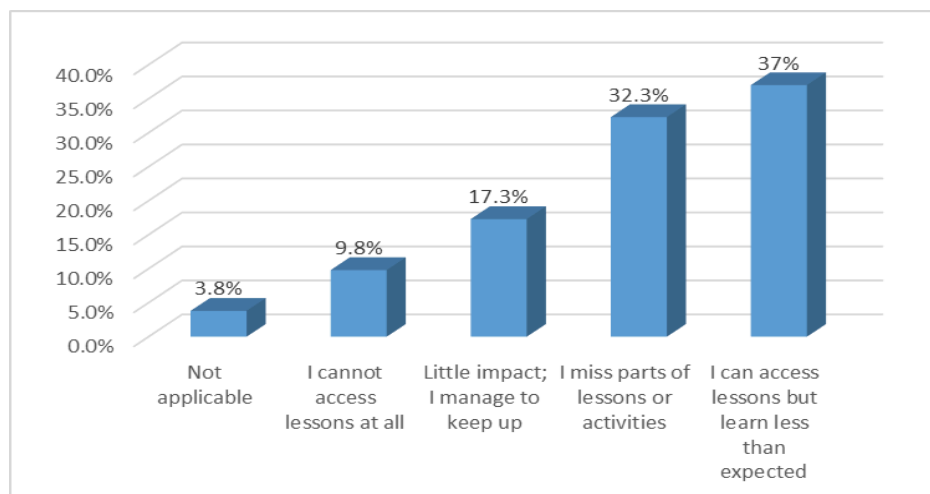
Figure-7: Effect of Technical Problems on Learning

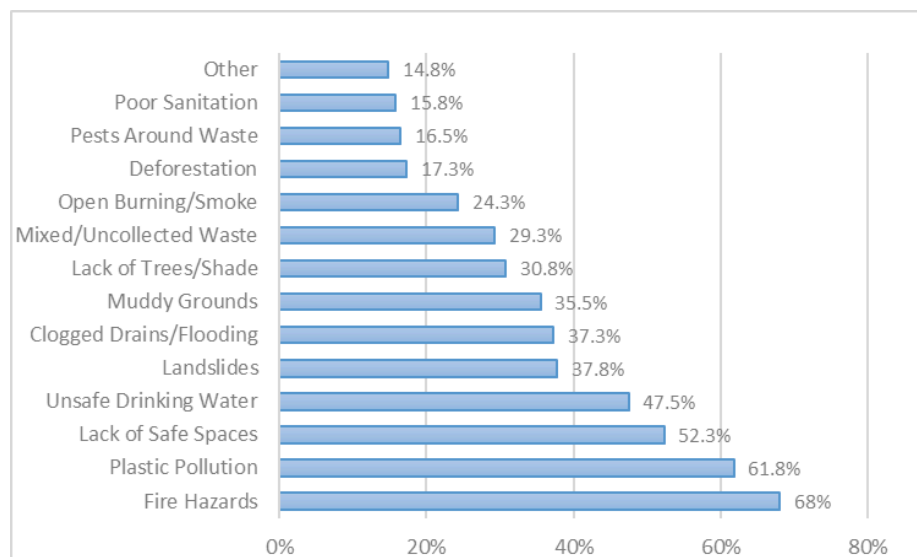
Figure 7 presents the impact of technical problems on participants' learning experiences. Most of the participants (37.0%) reported that they could access lessons but learned less than expected because of technical difficulties. Another 32.3% indicated that they missed parts of lessons or learning activities, while 17.3% experienced little impact and were generally able to keep up with their learning. In contrast, 9.8% reported being unable to access lessons at all, and 3.8% stated that the question was not applicable. The findings suggest that technical problems affected the learning experiences of the many participants.

“We learned from online videos that keeping our surroundings clean helps prevent diseases.” (Female Parent FGD)

“Online lessons taught us about reducing plastic waste and protecting the environment.” (Student FGD Participant)

“Many people now separate waste or give it to waste collectors because they understand why it is important.” (Community Member FGD)

Figure-8: Environmental Challenges



Note. Participants were allowed to select more than one response; therefore, the percentages do not sum to 100%.

Figure 8 presents the main environmental challenges reported by participants in the refugee camps. Fire hazards were identified as the most common challenge (68.0%), followed by plastic pollution (61.8%) and lack of safe spaces (52.3%). Other frequently reported challenges included unsafe drinking water (47.5%), landslides (37.8%), clogged drains and flooding (37.3%), muddy grounds (35.5%), lack of trees or shade (30.8%), and mixed or uncollected waste (29.3%). Smaller numbers of participants identified open burning or smoke (24.3%), deforestation (17.3%), pests around waste (16.5%), poor sanitation (15.8%), and other environmental issues (14.8%). These findings highlight the wide range of environmental challenges experienced in the refugee camps.

“Plastic waste is everywhere in the camp, especially after rainfall, and it blocks the drains.”

(Community Leader FGD)

“Fire is one of our biggest fears because the shelters are so close together.”(Parent FGD

Participant)

“During the rainy season, landslides and flooding make life very difficult.”(Community

Member FGD)

Figure-9: Online learning Improves Environmental Understanding

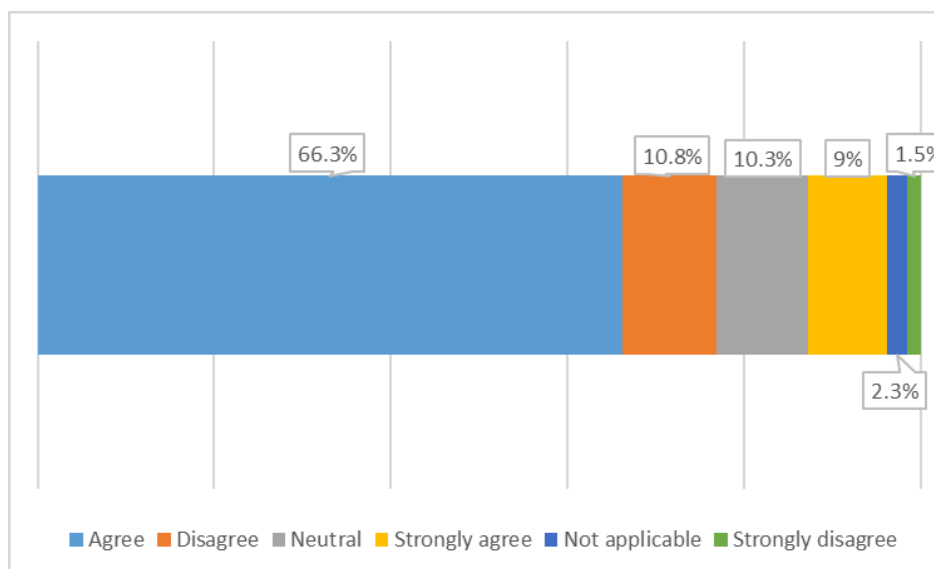


Figure 9 presents participants' perceptions of whether online learning improves environmental understanding. The majority of participants (66.3%) agreed that online learning enhanced their environmental understanding, while 9.0% strongly agreed. In contrast, 10.8% disagreed, 1.5% strongly disagreed, and 10.3% remained neutral. A small proportion (2.3%) indicated that the question was not applicable. Overall, the findings show that most participants believed online learning contributed to a better understanding of environmental issues.

“Before using online learning, I did not know much about environmental protection. Now I understand why keeping the camp clean is everyone's responsibility.” (Student FGD Participant)

“The online lessons changed the way we think about waste management and saving water.”
(Female Parent FGD)

Chapter 5: Discussion

This chapter discusses and interprets the major findings of the study in relation to the research objectives, research questions, and relevant previous studies. The findings indicate that the current education system is insufficient to meet the educational needs and future aspirations of many Rohingya learners. Although online learning platforms provide valuable opportunities to access educational resources, continue learning, and improve environmental understanding, their effectiveness is limited by poor internet connectivity, high mobile-data costs, limited access to digital devices, unreliable electricity, technical difficulties, and language barriers. The findings also show that educational level is significantly associated with the frequency of online learning platform use, suggesting that learners with different educational backgrounds may experience unequal access to and engagement with online learning. Furthermore, the significant relationship between online learning support and environmental understanding indicates that online platforms have the potential to strengthen environmental knowledge and encourage sustainable practices.

Altogether, these findings demonstrate that online learning can serve as a valuable complementary educational strategy for Rohingya refugees, but it cannot replace formal, structured, and recognized education. Strengthening digital infrastructure, improving affordable access to technology, providing culturally and linguistically appropriate learning materials, supporting learners with different educational backgrounds, and integrating practical environmental education into online and non-formal learning programmes are essential to improve educational access and promote environmental sustainability in the Rohingya refugee camps.

5.1 Current Educational Situation and Challenges in the Rohingya Refugee Camps

The findings indicate that Rohingya refugees continue to experience significant barriers to accessing quality, systematic, and recognized education. All respondents were aware of the current education system in the camps, and nearly all participants (89.3%) reported that the existing education system was insufficient to meet learners' needs. Only a small proportion considered the system somewhat sufficient, with some participants expressing the view that "something is better than nothing."

These findings suggest that, although educational opportunities are available, the current system does not adequately support learners' educational needs, future aspirations, or long-term academic development. Participants described the existing education system as informal, unstructured, and limited in providing opportunities for future educational progression. The lack of higher education opportunities, the absence of a systematic education system, limited educational resources, and the shortage of qualified teachers were identified as important concerns.

The qualitative findings strongly supported the survey results. Although some participants valued the available learning opportunities, they expressed concerns about their limited quality and future value. One participant stated:

"Something is better than nothing."

(FGD 1, Participant 2)

However, another participant expressed concern about the limited future opportunities provided by the current education system:

“There is no chance for the future.”

(FGD 1, Participant 5)

Participants also raised concerns regarding the effectiveness of the Myanmar Curriculum. One participant explained:

“Though the Myanmar Curriculum has been introduced and is currently running, many students are unable to read or write.”

(FGD 1, Participant 4)

These findings demonstrate that access to education alone is not sufficient. The quality, structure, recognition, and long-term value of education are equally important. Participants valued the opportunity to continue learning but emphasized the need for formal education, qualified teachers, recognized certification, and clear pathways to higher education and employment.

These findings are consistent with previous studies. Human Rights Watch (2019) reported that Rohingya refugee children remain excluded from formal education and depend largely on non-formal learning programmes without recognized certification. Similarly, Hossain (2023) found that the absence of formal educational pathways continues to limit educational progression among Rohingya learners. Shohel et al. (2023) also argued that, although the Myanmar Curriculum has improved curriculum organization, the lack of recognized certification and clear pathways to higher education remains a major challenge. Furthermore, Saha et al. (2024) noted that the implementation of the Myanmar Curriculum continues to face challenges related to teacher capacity, language barriers, and limited educational resources.

The present findings also support the study by Olney et al. (2022), which found that many Rohingya youth considered the available educational opportunities limited but still preferred them to having no education. The statement, “Something is better than nothing,” reflects this perception and demonstrates that learners continue to value the available educational opportunities despite their limitations. Both the quantitative and qualitative findings indicate that the current education system in the Rohingya refugee camps is insufficient to support learners’ long-term educational development and future aspirations.

5.2 The Role of Online Learning Platforms in Supporting Education

The findings demonstrate that online learning platforms provide an important alternative opportunity for Rohingya learners to access educational resources and continue learning in a context where formal and recognized education remains limited. Most participants reported using digital devices for educational purposes, and many believed that technology could help reduce educational barriers. These findings highlight the potential of digital learning to support educational continuity among displaced populations. Online learning platforms provide access to educational videos, digital lessons, online courses, and other learning materials. They may also enable learners to continue their education beyond the limited opportunities available through learning centres. However, access to digital technology does not necessarily ensure equal or consistent participation. Some participants depended on shared devices, community resources, or limited internet access, which may affect the frequency, quality, and continuity of online learning.

The association between educational level and the frequency of online learning platform use provides further evidence that engagement with digital learning varies across educational backgrounds. Participants with degree-level education reported the highest proportion of daily

online learning platform use (46.2%), followed by those with high school education (42.4%). Among participants with secondary education, the largest proportion reported weekly use (38.3%), while 23.4% reported monthly use. In contrast, 40.0% of participants with primary education reported never using online learning platforms. The statistically significant association between educational level and online learning platform use ($p = 0.001$) indicates that the frequency of online learning engagement differed significantly among educational groups.

These findings suggest that participants with higher educational attainment may have greater familiarity, confidence, digital literacy, and ability to navigate online learning platforms. Conversely, learners with lower educational levels may require additional support to effectively access and benefit from digital learning resources. However, the findings do not indicate that educational level directly causes increased online learning use, as other factors, including device availability, internet access, economic conditions, digital skills, and previous exposure to technology, may also influence online learning participation.

The qualitative findings further support these results. Participants described online learning as a practical means of continuing education when formal schooling opportunities are restricted. One participant explained:

“If there is no school, learning through a phone is still helpful because we can continue studying.” (FGD 2, Participant 3)

Another participant stated:

“Online learning cannot replace school, but it helps us learn when there is no other opportunity.” (FGD 2, Participant 7)

Similarly, a teacher shared:

“Many students are interested in learning through online platforms because they can access lessons anytime, even though internet problems sometimes interrupt their learning.” (FGD 3, Participant 5)

These perspectives demonstrate that participants valued online learning as a supportive educational tool rather than a replacement for formal education. They continued to emphasize the importance of structured curricula, qualified teachers, recognized certification, and opportunities for progression to higher education.

The findings are consistent with previous research highlighting the increasing role of digital learning in humanitarian contexts. Tobin and Hieker (2021) noted that online learning can expand educational opportunities for refugees when conventional education systems are disrupted; however, digital approaches should complement rather than replace face-to-face education. Similarly, Olney et al. (2022) found that Rohingya youth and teachers viewed online education as an important opportunity to continue learning despite restrictions on formal education, although challenges related to internet connectivity, digital device access, and language barriers limited its effectiveness. Khan (2024) also identified poor internet connectivity, limited access to digital devices, and language barriers as major challenges affecting technology-supported learning among Rohingya learners.

Further evidence from digital education initiatives among displaced populations demonstrates the potential of technology-supported learning. UN Women Asia-Pacific (2026) reported improvements in literacy and numeracy among Rohingya women participating in tablet-based learning programmes, suggesting that digital technologies can support learning across different age groups. Similarly, higher education initiatives by BRAC University’s Refugee Studies

Unit (BRAC University, 2022) and the University of the People (2025) illustrate how online education can expand opportunities for displaced learners beyond basic education.

5.3 Challenges of Online Learning in the Rohingya Refugee Camps

Although online learning platforms provide valuable educational opportunities for Rohingya refugees, the findings reveal several challenges that limit their effectiveness. Poor internet connectivity, high mobile-data costs, limited access to personal digital devices, unreliable electricity, technical difficulties, and language barriers were identified as major obstacles. Many participants also reported that technical problems sometimes or frequently disrupted their learning, causing them to miss lessons or learn less than expected. These findings suggest that, although online learning provides important opportunities to continue education, its effectiveness depends largely on reliable infrastructure, affordable access to technology, and adequate learner support.

The qualitative findings further illustrate how these challenges affect learners' participation and learning experiences. One participant explained:

“The internet is very slow. Sometimes we wait a long time just to open one lesson.”

(FGD 2, Participant 5)

Another participant stated:

“Most families cannot afford enough mobile data, so we cannot attend online classes regularly.” (FGD 4, Participant 6)

Similarly, another participant shared:

“Sometimes there is no electricity to charge the phone, so we miss our lessons.” (FGD 2, Participant 8)

A teacher also highlighted the language challenge:

“Many students struggle because the lessons are not always available in the Rohingya language, making it difficult for them to fully understand the content.” (FGD 3, Participant 4)

These quotations demonstrate that technological, financial, and linguistic barriers affect learners’ ability to access online lessons regularly and benefit fully from digital education. Poor internet connectivity can delay or prevent access to educational materials, while high mobile-data costs limit regular participation. Limited access to personal devices and unreliable electricity further affect learning continuity, particularly when learners depend on shared mobile phones or are unable to charge their devices. In addition, language barriers may reduce learners’ understanding and meaningful engagement with online educational content.

The present findings are consistent with previous studies conducted in both Rohingya and broader refugee contexts. Tobin and Hieker (2021) argued that digital learning can improve educational access in refugee settings only when supported by reliable internet connectivity, appropriate digital infrastructure, and continuous learner support through blended-learning approaches. Similarly, Olney et al. (2022) found that Rohingya youth and teachers actively pursued online learning because they viewed education as essential for their future; however, unstable internet connectivity, limited access to digital devices, and financial constraints significantly reduced its effectiveness. The present findings reinforce these studies, with poor internet connectivity and high mobile-data costs emerging as major barriers to online learning.

The findings also reflect the broader digital divide experienced by displaced populations. Refugee learners may rely on shared mobile phones or limited community resources to access online education, reducing their ability to participate consistently in learning activities (Tobin & Hieker, 2021). Similarly, Khan (2024) reported that teachers working with Rohingya learners identified poor internet access, limited technological resources, and inadequate digital infrastructure as major barriers to integrating technology effectively into teaching and learning. Together, these findings suggest that expanding access to technology alone is insufficient without strengthening the infrastructure and support required for effective online education.

Language barriers emerged as another significant challenge in this study. Participants reported difficulty understanding some online learning materials because they were not available in their preferred language. This finding is consistent with Saha et al. (2024), who identified language as a major obstacle to implementing the Myanmar Curriculum in the Rohingya refugee camps. Likewise, Shohel et al. (2023) emphasized that educational materials should be linguistically and culturally appropriate to meet the learning needs of displaced Rohingya children. These findings highlight the importance of developing multilingual and contextually appropriate digital learning resources to improve learners' understanding and participation.

The findings also indicate that technical difficulties affected learning continuity and outcomes. Many participants reported missing lessons or learning less than expected because of unstable internet connections and electricity interruptions. This finding supports Khan (2024), who found that although teachers generally held positive attitudes toward technology-assisted learning, technological limitations continued to hinder effective teaching and learning in the Rohingya refugee camps. Similar challenges have also been documented in other refugee settings, where inadequate infrastructure remains one of the greatest obstacles to successful digital education.

(Tobin & Hieker, 2021). Addressing these challenges requires improving digital infrastructure, providing affordable internet services and appropriate digital devices, strengthening access to reliable electricity, developing multilingual and culturally appropriate learning resources, and providing adequate technical and teacher support.

5.4 Environmental Sustainability Awareness, Practices, and the Role of Online Learning

The findings demonstrate that participants had a moderate level of environmental awareness and were involved in several environmental sustainability activities. Regarding environmental sustainability training, 35.3% of participants had received training within the previous six months, while 30.8% had received training more than six months earlier. However, 29.0% had never participated in environmental sustainability training. These findings suggest that environmental education has reached many members of the refugee community, but access to training remains unequal.

Community organizations were the most commonly reported providers of environmental training, followed by NGOs and learning centres. This highlights the important role of community-based and humanitarian organizations in promoting environmental awareness within the camps. However, the findings also indicate the need for more regular and systematic environmental education to ensure wider access to environmental knowledge and sustainability practices.

Environmental topics were not consistently included in educational lessons. While 21.0% of participants reported that environmental topics were included regularly, 38.5% stated that they were included only sometimes. In addition, 23.3% reported that environmental topics were rarely included, and 9.8% stated that they were not included. These findings suggest that environmental

education is present in some learning activities but has not yet been systematically integrated into the curriculum.

Despite the inconsistent inclusion of environmental topics, participants reported engaging in various environmentally responsible practices. More than half of the participants (55.8%) sometimes participated in environmental sustainability activities, while 19.0% participated often. The most commonly reported practice was giving waste to community collectors or disposal points (62.0%), followed by using cleaner cooking methods (54.8%), reducing plastic use or reusing containers and bags (50.2%), planting or caring for trees and plants (45.0%), keeping shared spaces clean (44.5%), saving water (43.8%), and repairing or repurposing items (43.3%).

These findings suggest that environmental awareness may contribute to positive environmental behaviours in daily life. However, the fact that most participants reported participating only sometimes indicates that environmental knowledge does not always result in regular practices. Environmental actions may also be influenced by challenges within the camp environment, including limited resources, inadequate infrastructure, overcrowding, and existing environmental conditions.

One of the major contributions of this study is its examination of the relationship between online learning and environmental sustainability in the Rohingya refugee camps. More than three-quarters of participants agreed or strongly agreed that online learning improved their understanding of environmental issues. This finding suggests that online learning can provide an additional platform for integrating environmental education into non-formal learning settings and supporting environmental awareness among Rohingya refugees.

The qualitative findings further support these results. One participant explained:

“Through online lessons, I learned why plastic waste is harmful and now I always throw waste into the collection points.” (FGD 5, Participant 3)

Another participant stated:

“Before joining the online sessions, I did not know much about protecting the environment. Now I save water and encourage my family to keep our surroundings clean.” (FGD 5, Participant 6)

A community leader also shared:

“Environmental education should be included in every online lesson because the camp faces many environmental problems.”
(FGD 5, Participant 8)

These quotations demonstrate that participants viewed online learning as more than an educational tool. They perceived it as a means of improving environmental awareness and encouraging environmentally responsible practices in their daily lives. However, this relationship should be interpreted carefully, as the findings demonstrate an association between online learning and environmental understanding rather than a direct causal relationship.

The findings are consistent with previous literature emphasizing the role of education in promoting environmental sustainability. UNESCO (2020) argues that Education for Sustainable Development (ESD) equips learners with the knowledge, values, and skills needed to address environmental challenges and adopt sustainable behaviours. Similarly, the United Nations Environment Programme (UNEP, 2021) emphasizes that education is essential for addressing climate change, pollution, biodiversity loss, and the sustainable use of natural resources. The

present study supports these perspectives by demonstrating that online learning can contribute to environmental education even within resource-constrained refugee settings.

The environmental challenges identified by participants, including fire hazards, plastic pollution, unsafe drinking water, landslides, flooding, and poor waste management, also reflect conditions reported in previous research. Butt et al. (2025) and Shapna et al. (2023) documented continuing challenges related to water, sanitation, hygiene (WASH), and waste management across the Rohingya refugee camps. Similarly, Khan (2024) reported that overcrowding, environmental degradation, and pressure on natural resources continue to threaten both refugee and host communities. The consistency between the present findings and previous studies highlights that environmental sustainability remains a critical issue requiring both educational and practical interventions.

The findings also support previous research highlighting the importance of community participation in environmental management. Studies conducted in refugee settings have shown that environmental education encourages behaviours such as waste reduction, recycling, water conservation, and environmental stewardship when combined with active community engagement (Management of Plastic Waste in a Refugee Camp, 2021; Participatory Methodologies for Self-Management of Waste, 2022). Similarly, UNHCR Innovation (2017) recommends integrating environmental education into refugee learning programmes to promote sustainable practices and strengthen community resilience. The Global Opportunity Explorer (2018) also recognizes education as an important strategy for improving environmental awareness and supporting sustainable development in humanitarian contexts.

Overall, the findings demonstrate that environmental education and online learning can play complementary roles in promoting environmental awareness and sustainability practices among Rohingya refugees. However, environmental education is not yet consistently integrated into learning activities, and participation in sustainability practices remains irregular for many participants. Therefore, integrating environmental education more systematically into non-formal and online learning programmes, with practical activities relevant to daily life in the camps, may help strengthen environmental knowledge and encourage more consistent sustainable practices.

5.5 The Relationship Between Online Learning Support and Environmental Understanding

A major contribution of this study is its examination of the relationship between online learning and environmental understanding. The findings showed that most participants believed that online learning enhanced their understanding of environmental issues. The analysis further demonstrated a statistically significant relationship between participants' perceptions of online learning support and their environmental understanding ($p = 0.001$).

Among participants who reported that online learning somewhat supported their educational experience, 64.5% agreed that online learning enhanced their environmental understanding. Similar patterns were observed among participants who reported a mixed impact (67.8%), somewhat hindered learning (81.8%), and strongly hindered learning (87.5%). These findings indicate that participants across different experiences of online learning generally reported improved environmental understanding.

This finding is important because it suggests that online learning may provide environmental knowledge even when participants experience educational or technical challenges. Digital platforms can provide access to videos, visual materials, online lessons, and practical

information related to waste management, water conservation, plastic reduction, environmental cleanliness, and environmental protection. These resources may help learners understand environmental issues and connect environmental knowledge with their daily experiences in the camps.

However, the results should be interpreted carefully. Although the association was statistically significant, the findings do not establish that online learning directly caused improvements in environmental understanding. The study was cross-sectional and relied on participants' reported perceptions. In addition, the high proportions of agreement among participants who reported that online learning hindered their learning may indicate that environmental information can still be accessed through online platforms despite challenges, or that participants interpreted educational support and environmental understanding differently. Therefore, further research is needed to explore these patterns in greater detail.

The findings are consistent with UNESCO (2020), which emphasizes that Education for Sustainable Development should develop the knowledge, skills, values, and behaviours needed to support sustainable societies. UNEP (2021) also identifies education as an important strategy for increasing environmental awareness and encouraging responsible resource management. Additionally, the findings support the study hypothesis that integrating online learning platforms into non-formal education may increase environmental awareness and encourage sustainable practices. However, the hypothesis is supported based on the significant association and participants' reported perceptions rather than evidence of a direct causal effect. Online environmental education should therefore be combined with practical community-based activities, such as waste-management campaigns, clean-up activities, water-conservation practices, tree planting, recycling initiatives, and community environmental programmes.

5.6 Implications for Policy and Practice

The findings of this study have important implications for policymakers, humanitarian organizations, education providers, and other stakeholders working to improve education and environmental sustainability in the Rohingya refugee camps. The findings demonstrate that, although online learning platforms provide valuable educational opportunities, they cannot replace formal education. Instead, online learning should be integrated into broader educational strategies that provide recognized learning pathways, strengthen digital infrastructure, and promote environmental sustainability within refugee communities.

One of the most important implications concerns the need to expand access to quality, structured, and recognized education. Participants consistently emphasized that the current education system does not adequately provide recognized certification or clear opportunities for higher education. Although the Myanmar Curriculum has improved access to structured learning, previous studies have shown that the absence of recognized qualifications continues to limit educational progression among Rohingya learners (Human Rights Watch, 2019; Saha et al., 2024; Shohel et al., 2023). Therefore, policymakers and humanitarian organizations should continue working to expand access to recognized education and develop clear pathways to secondary, higher, vocational, and lifelong learning opportunities.

The findings also highlight the importance of strengthening digital infrastructure to improve the accessibility and effectiveness of online learning. Poor internet connectivity, high mobile-data costs, limited access to digital devices, unreliable electricity, and technical difficulties were identified as major barriers. Similar challenges have been reported in refugee education research, where reliable technological infrastructure is considered essential for effective digital learning (Olney et al., 2022; Tobin & Hieker, 2021). Improving internet connectivity, providing affordable

data access, increasing access to appropriate digital devices, strengthening electricity and charging facilities, and providing technical support could help reduce interruptions and enable learners to participate more consistently in online education.

Another important implication is the need to develop learning resources that are linguistically and culturally appropriate for Rohingya learners. Language barriers were identified as a significant challenge to understanding and engaging with online educational materials. Previous studies have shown that educational materials should be adapted to learners' languages, cultural contexts, and educational backgrounds to support meaningful participation and learning (Saha et al., 2024; Shohel et al., 2023). Therefore, future online learning initiatives should provide multilingual and culturally appropriate educational content and offer additional digital-literacy support to learners with different educational backgrounds.

The findings further suggest that online learning should be integrated into existing non-formal education programmes through a blended-learning approach. Online platforms can provide flexible access to educational materials, while teachers and learning centres can provide guidance, interaction, feedback, assessment, and additional learner support. This approach may help address some of the limitations of online learning while maintaining its flexibility and accessibility. Online learning should therefore be considered a complementary strategy that supports educational continuity rather than a replacement for formal, structured, and recognized education.

Environmental sustainability should also become a more systematic component of both non-formal and online learning programmes. Participants reported that environmental education and online learning contributed to improving their understanding of environmental issues and encouraged practices such as proper waste disposal, reducing plastic use, conserving water, keeping

shared spaces clean, planting trees, and using cleaner cooking methods. UNESCO (2020) emphasizes that Education for Sustainable Development equips learners with the knowledge, skills, values, and behaviours needed to contribute to sustainable societies. Similarly, UNEP (2021) highlights education as an essential strategy for addressing environmental challenges and promoting sustainable resource management. Integrating practical environmental education into online and non-formal learning programmes could therefore strengthen environmental awareness and encourage more consistent sustainable practices within refugee communities.

The findings also highlight the importance of collaboration among government agencies, humanitarian organizations, NGOs, education providers, teachers, parents, community leaders, and Rohingya communities. Participants emphasized the need for greater support and involvement from different stakeholders in improving education and addressing environmental challenges. Previous research similarly emphasizes that effective refugee education requires coordinated partnerships among governments, humanitarian organizations, educational institutions, and refugee communities (PRIO, 2022; World Bank, 2022). Such collaboration can help ensure that educational and environmental initiatives respond to the needs and experiences of Rohingya learners and are sustainable within the camp context.

Overall, the findings suggest that improving education and environmental sustainability in the Rohingya refugee camps requires an integrated approach. Expanding access to recognized education, strengthening digital infrastructure, providing affordable and inclusive access to technology, developing culturally and linguistically appropriate learning materials, supporting teachers and learners, and integrating practical environmental education are essential. Coordinated action among relevant stakeholders may help develop more inclusive, sustainable, and context-appropriate educational opportunities for Rohingya refugees.

5.7 Strengths and Limitations

This study has several strengths. First of all, a mixed-methods approach was used by combining questionnaire surveys and Focus Group Discussions (FGDs), which provided both quantitative evidence and qualitative insights into participants' experiences, perceptions, challenges, and recommendations. Secondly, the study included a diverse sample of 440 participants, including students, parents, teachers, NGO staff, community members, and community leaders from Rohingya refugee camps in Cox's Bazar, providing a broader understanding of education, online learning, and environmental sustainability practices.

Thirdly, the study addresses an important research gap by examining the combined role of online learning platforms in supporting education and promoting environmental sustainability among Rohingya refugees. Fourth, the study was conducted within the language and cultural context of the Rohingya community. The researcher's shared linguistic and cultural background helped facilitate communication, build trust with participants, and support a deeper understanding of their experiences and perspectives.

However, the study also has some limitations. As a cross-sectional study, it reflects participants' experiences at one point in time and cannot establish causal relationships. Therefore, the significant associations identified between educational level and online learning use, and between online learning support and environmental understanding, should not be interpreted as causal effects.

The study was conducted in selected Rohingya refugee camps in Cox's Bazar, Bangladesh; therefore, the findings may not represent all Rohingya refugees or other refugee populations. In addition, the study relied on self-reported data, which may be affected by recall bias or social

desirability bias. The study also focused on participants' perceptions and reported practices rather than directly measuring academic achievement, digital skills, or long-term environmental outcomes.

Finally, challenges such as limited internet access, electricity shortages, device availability, mobile-data costs, technical difficulties, and language barriers may have influenced participants' experiences with online learning. Despite these limitations, this study provides valuable evidence on the potential of online learning platforms to support education and environmental awareness among Rohingya refugees and provides a foundation for future research in refugee education and technology-supported learning.

Chapter 6: Conclusion & Recommendations

6.1 Conclusion

This study explored the role of online learning platforms in enhancing education and promoting environmental sustainability among Rohingya refugees living in camps in Cox's Bazar, Bangladesh. The findings indicated that formal education remains one of the greatest unmet needs for the Rohingya community. Although the Myanmar Curriculum and non-formal learning centres have expanded learning opportunities, participants consistently reported that the current education system lacks recognized certification, clear pathways to higher education, and long-term educational prospects.

Additionally, the study found that online learning platforms have become an important alternative for maintaining learning continuity in the absence of formal education. Despite challenges such as poor internet connectivity, limited access to digital devices, high data costs, electricity shortages, and language barriers, most participants viewed online learning positively and believed that technology could help reduce educational barriers. However, the findings also indicate that online learning should complement, rather than replace, formal education.

The study further demonstrates that online learning platforms can contribute to environmental sustainability by improving participants' understanding of environmental issues and encouraging environmentally responsible practices. Many participants reported applying knowledge gained through online learning in their daily lives by practicing proper waste disposal, reducing plastic use, conserving water, maintaining clean surroundings, and participating in other environmental activities within the camps. These findings suggest that integrating environmental sustainability into online learning can provide practical benefits for refugee communities.

Generally, this study highlights the potential of online learning platforms as a context-appropriate approach to supporting education and environmental awareness in refugee settings. While digital learning alone cannot solve the structural challenges facing refugee education, it offers an effective way to sustain learning, expand educational opportunities, and promote positive environmental practices where formal education remains limited. The findings provide evidence that can inform policymakers, humanitarian organizations, and education providers in developing more inclusive, technology-supported, and sustainable education programmes for Rohingya refugees and other displaced populations.

6.2 Recommendations

Based on the findings of this study, the following recommendations are proposed;

1. Expand Access to Quality and Recognized Education

The Government of Bangladesh, humanitarian organizations, and international partners should work together to provide quality and recognized education for Rohingya refugees in Bangladesh. More work and efforts are needed to provide recognized certification and establish clear secondary, higher, vocational, and lifelong learning opportunities pathways for the Rohingya. Online learning should complement existing education programmes and support learning continuity rather than replace formal, structured, and recognized education.

2. Strengthen Digital Access and Learning Infrastructure

The Government of Bangladesh should provide reliable internet connectivity, affordable data support, and stable electricity in the refugee camps while ensuring appropriate safety and security measures. NGOs, education providers, and humanitarian organizations should provide

sufficient digital devices and accessible charging facilities in learning centres. Also, technical support should be provided to help learners overcome difficulties when using online learning platforms. Strengthening this digital infrastructure and support services may reduce interruptions and enable learners to participate more regularly and effectively in online learning.

3. Improve the Quality and Accessibility of Online Learning

Online learning should be integrated into existing non-formal education programmes through a blended-learning approach. Online platforms can provide flexible access to educational materials, while teachers and learning centres can provide guidance, interaction, feedback, assessment, and learner support. Learning materials should be shorter, simpler, visually engaging, and appropriate for learners' educational levels. Content should also be developed or adapted to the local language and cultural context to reduce language barriers and improve understanding. Regular learning schedules, reminders, and notifications may further support participation and learning continuity.

4. Strengthen Teacher Capacity and Digital Literacy

Teachers, facilitators, volunteers, and learners should receive regular training on digital literacy, the effective use of online learning platforms, online teaching methods, learner engagement, and basic technical skills. Continuous guidance and technical support should be provided to strengthen teachers' ability to integrate digital tools into non-formal education and support learners with different levels of digital experience.

5. Promote Safe and Inclusive Learning Environments

Learning centres should provide safe, inclusive, and accessible spaces with appropriate study areas, reliable electricity, internet access, and shared digital devices. Online learning programmes should provide age-appropriate content, protect learners' privacy, promote digital safety, and support the equal participation of girls and other vulnerable learners. Safe group-learning arrangements may also help learners who do not have individual access to digital devices.

6. Integrate Environmental Education into Online and Non-Formal Learning

Environmental sustainability should be systematically integrated into online learning platforms and non-formal education programmes. Educational content should focus on practical issues relevant to daily life in the camps, including proper waste disposal, waste separation, reducing plastic use, recycling and reusing materials, water conservation, hygiene, environmental protection, climate awareness, tree planting, and care for shared spaces. Practical and context-specific lessons may help strengthen environmental understanding and encourage more consistent sustainable practices.

7. Strengthen Community-Based Environmental Activities

NGOs, camp authorities, community leaders, teachers, parents, youth, and community members should work together to promote environmental sustainability. Activities may include regular waste collection, clearly designated waste collection points, household waste separation, community awareness sessions, learning-centre-led clean-up activities, tree-planting and tree-care programmes, and recognition initiatives for maintaining clean areas. Community participation should be encouraged to support cleaner, healthier, and more sustainable camp environments.

8. Strengthen Collaboration, Monitoring, and Community Feedback

Government agencies, NGOs, humanitarian organizations, education providers, camp authorities, and community representatives should strengthen coordination in implementing online learning and environmental education programmes. Collaborative efforts should support resource sharing, teacher training, digital access, waste-management systems, and the development of context-appropriate learning materials. Programmes should be regularly monitored and evaluated, and feedback from learners, teachers, parents, and community members should be used to improve future planning. Progress and results should also be shared with the refugee community to promote transparency and participation.

9. Support Future Research and Programme Development

Future research should examine the long-term effects of online learning on educational achievement, digital literacy, learning participation, environmental knowledge, and sustainable behaviour among Rohingya refugees. Longitudinal and intervention-based studies may provide stronger evidence regarding the effectiveness of technology-supported education. Future studies should also examine which types of online learning materials, digital support, and environmental education activities are most effective in refugee settings. Successful and context-appropriate initiatives may then be strengthened and adapted for use in other refugee communities.

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Information Sheet Guidelines

My name is Tofrida Rahman and I am a Master student in a course at AUW and the thesis titled **“Effective Learning through Online Platforms and Promoting Environmental Sustainability in Rohingya Refugee Camps, Cox’s Bazar, Bangladesh”**. This sheet gives you information about the project and gives details about your participation.

To the Participant:

- Participation in this project is your choice and you do not have to take part;
- You may take time to decide whether you wish to take part;
- You can withdraw from the study at any time;
- There will be no adverse consequences regarding your decision;
- You will receive a copy of the Participant Information Sheet.

Description of Project

- This project is about **“Effective Learning through Online Platforms and Promoting Environmental Sustainability in Rohingya Refugee Camps, Cox’s Bazar, Bangladesh”**: A community based cross- sectional study.
- I will ask participants to fill up the questionnaire with those who can read and write. If they cannot read and write but understand I will read and make them understand then, I will note down their answers instead of them. Focus- group discussion will be included.

Investigators and Contacts

- Name: Tofrida Rahman
- Email address: tofrida.rahman@auw.edu.bd

Funding

- Asian University for Women and International Development Research Center (IDRC)

Benefits and risks

- There will not be physical risks but because of the questions that I will be asking, they might have some psychological risk but it will also be taken care of.
 - No direct benefit
 - Indirect benefits:
- Assisting in a better understanding of digital literacy skills, environmental awareness, and problem-solving abilities, which can enhance their future opportunities.
- It is hoped that research like this will assist to spotlight the distinctive voices and experiences of vulnerable educators with alternative social missions, resulting in better policies and tactics.

Privacy and Confidentiality

- Your confidentiality will be maintained to the degree permitted by the technology used. Specifically, no guarantees can be made regarding the interception of data sent via the Internet by any third parties.
- Confidentiality cannot be maintained if the researcher has reason to believe that the participant plans to harm her/herself or another person or if child abuse or elder abuse is occurring.
- Confidentiality is subject to legal limitations.

Data Storage

- This information will be personally stored on my laptop or recording device. Once the study has been completed, data will be deleted.

Shared findings

- The completed thesis writing will be presented as part of course assessment. After completing the study, I will share the findings with participants, AUW students, faculty and related authorities, Agencies and INGOs from the camp. I will try to publish the article in some journal if possible. Furthermore, a presentation will be done on the study findings in AUW as well as a copy of the report will be submitted to the library. Moreover, I will submit the copy to 3CEH, IDRC and will present my findings to the community as an IDRC fellow.

Further Information

If you have any questions, concerns or complaints about the study at any stage, please contact the thesis advisor:

Dr. Sayed Mohammad Nazim Uddin

Associate Professor of Environmental Sciences

Founding Director, Center for Climate Change and Environmental Health (CCCEH)

20/A, M M Ali Road, Chittagong, Bangladesh

Mob: +88 017 2113 0505, Email: sayed.uddin@auw.edu.bd

Voluntary Consent Form

Protocol Title: Effective Learning through Online Platforms and Promoting Environmental Sustainability in Rohingya Refugee Camps, Cox's Bazar, Bangladesh : A community Based Cross-sectional study

Principal Investigator: Tofrida Rahman and **Organization:** Asian University for Women (AUW)

Hello, I am Tofrida Rahman, a master student in education from Asian University for Women in Chittagong, Bangladesh. I am conducting a study on “Effective Learning through Online Platforms and Promoting Environmental Sustainability in Rohingya Refugee Camps, Cox's Bazar, Bangladesh”. It is a community based cross- sectional study.

Purpose of the research

The purpose of this study is to evaluate how online platforms can enhance non-formal education and promote environmental sustainability through technology-driven learning and community-led initiatives in Rohingya refugee camps.

Why are you invited to participate in this study?

In this study, I will be interviewing learners, educators, and NGO staff across various learning centers in the camp. You are invited to participate in this study, because your age matches with our inclusion criteria.

What is expected from the patient/ respondent?

I will ask you some basic questions related to socio-demographic and questions regarding education, environmental sustainability, uses of different online platforms for education based on your knowledge and experiences. The interview will take about 15- 20 minutes.

Risk and benefit

There are no anticipated risks for participation in this study, other than the possibility that some of the questions may be a bit personal. The study information would be used in formulation of better lifestyle for the learners, educators considering their educational and environmental contribution to provide them better knowledge about effective learning and environmental sustainability.

Privacy, anonymity and confidentiality

Information provided by the participant will be kept strictly confidential, and nobody other than the investigators of this study will be able to access them. All of the information provided by you will be kept confidential; an identification number or pseudonym will be used in the place of your name. During dissemination of study results, your name will not be disclosed. Some of the questions asked to you will be personal in nature. If you are uncomfortable with a question, you do not have to answer it if you do not want to. You may also stop the interview at any time.

Right not to participate and withdraw

Your participation in this study is completely voluntary. You have the right to withdraw from the

study at any time you wish. You will also be able to withdraw yourself at any time during the study without giving any reason. However, we will be unable to withdraw your participation from the research once data is stored. So, think carefully about your participation before you participate.

Principle of compensation

The study is unable to provide any direct financial benefit but will be knowledgeable in effective learning and environmental sustainability to the participants.

For further information

If you have further questions regarding this study and rights in participating in the study, you may ask those to the study Research Assistant or at any time in future. If you want to know more about your rights as a participant in this research or for any other queries please contact to the address given below:

Contact address:

Student's Name: Tofrida Rahman
Master in Education
Principal Investigator
Asian University for Women,
20/A M.M Ali Road, Chittagong 4000
Email: auw234026.auw@auw.edu.bd

Do you have any questions? Yes No Do you agree to participate in this research project?
Yes No

Consent: I acknowledge that the study has been explained to me. I have also been given the opportunity to ask questions about the goals and procedures of the study. In signing this consent form, I give my consent to participate in this study.

Signature of Investigator

Signature of Participants

Date: _____ Date: _____

Effective Learning through Online Platforms and Promoting Environmental Sustainability in Rohingya Refugee Camps, Cox's Bazar, Bangladesh

If you are residing or working in the Rohingya refugee camps, can I have some time to talk with you regarding online learning and environmental sustainability?

Section 1: Education Access & Situation

Q.1) How do you see the current education system in the camps? In what ways do they help or limit students from gaining formal education?

Q.1.1. Can you describe specific opportunities that are helpful?

Q.1.2. What are the biggest gaps or limitations?

Q.1.3. How do students and parents feel about these opportunities?

Section 2: Online Platforms & Learning

Q.2) Have you or others that you know in your family used online platforms (such as mobile apps, WhatsApp groups, BRAC University, or University of the People) for learning? Can you share your experiences?

Q.2.1. What type of platforms or devices did you use?

Q.2.2. What kind of lessons or skills did you learn?

Q.2.3. Was it easy or difficult to use? Why?

Q.3) In what ways do you think online platforms could help Rohingya students gain access to more formal or recognized education opportunities, even while living in the camps?

Q.3.1. Do you know anyone studying in BRAC University or University of the People? Q.3.2. What difference would a certificate or degree make for students here?

Q.3.3. What support would students need to succeed in such programs?

Section 3: Environmental Education & Practices

Q.4) Do you think online learning platforms could be used to teach environmental topics such as waste management, tree planting, or water conservation? How? Q.4.1. What kind of content (videos, apps, voice messages) would work best? Q.4.2. Should it be in Rohingya, Burmese, or another language?

Q.4.3. How would families and children respond to such lessons?

Q.5) What kinds of environmental problems are most urgent in your camp, and how could education—especially online education—help address them?

Q.5.1. Examples: waste, flooding, deforestation, fire hazards.

Q.5.2. How do these problems affect your daily life?

Q.5.3. What solutions have already been tried? Were they effective?

Section 4: Challenges & Opportunities

Q.6) What are the main challenges you face when trying to use online learning platforms (such as internet, devices, or content in your language)? How do you or others overcome these challenges?

Q.6.1. Which challenge is hardest: internet, electricity, or lack of devices? Q.6.2.

Have NGOs provided any solutions (e.g., charging stations, shared devices)?

Q.6.3. How do you manage when the internet is weak or costly?

Q.7) From your perspective, what are the biggest opportunities for using online platforms in education and environmental awareness in the camps?

Q.7.1. Could online learning give better access to higher education?

Q.7.2. How could online lessons make environmental practices easier?

Q.7.3. What would motivate people in your community to use online platforms more?

Section 5: Recommendations & Stakeholders

Q.8) What role should teachers, NGOs, or policymakers play in making online education and environmental sustainability programs more effective in the camps?

Q.8.1. Should NGOs focus more on devices, the internet, or training teachers? Q.8.2. What role can the community itself play?
Q.8.3. If you could give one recommendation to policymakers, what would it be?

Questionnaire

Effective Learning through Online Platforms and Promoting Environmental Sustainability in Rohingya Refugee Camps, Cox's Bazar, Bangladesh

Serial Number	
Site	
Date of Interview	
Interviewed by	

S l. N o	Q u e s t i o n s	Coding category	Direc tion	Co de
SECTION A: Socio-demographic				
1	Address: Camp Name	1. Kutupalong 2. Balukhali 3. Jamtoli 4. Naya Para 5. Other (Please specify-----)		
2	Age (in completed years)	----- years		
3	What is your gender?	1. Male 2. Female 3. Other (Please specify-----)		
4	What is your education level?	4. Primary 5. Secondary 6. High School 7. Degree 8. Non formal 9. None 10. Other (Please specify-----)		

5	Participant's occupation	1. Daily labour 2. Farmer 3. Shopkeeper 4. Teacher 5. Student 6. Volunteer 7. Factory worker 8. Other (Please specify-----)		
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SECTION B: Current Education System and Quality				
6	Do you have any idea regarding the education system in the refugee camp?	1. Yes 2. No		
7	If yes, could you please elaborate?			
8	Do you think the current education system is enough for the learners?	3. Yes 4. No		
9	If yes, what are the reasons?			
10	If not, what are the reasons?			
11	Do you think the education system should improve in the camp?	1. Yes 2. No		
12	If yes, how can it be implemented in the camp?			
13	In your opinion, who has the most responsibility to improve or support the refugees' education?	1. Parents 2. Government 3. NGO/Developing partners 4. Society 5. Ownself 6. Other (Please specify-----)	Multiple responses	
SECTION C: Access to and Use of Online Learning Platforms				
14	Have you ever used any device like phone, computer?	1. Yes 2. No		

1 5	If yes, which purpose do you use the most?	1. Communication 2. Study 3. Game 4. YouTube 5. Facebook 6. Other (Please specify-----)		
1 6 .	What challenges do you face with online learning in the camp? (Select up to three)	1. Weak or unstable internet connection 2. Data/internet cost 3. No personal device / must share device 4. No electricity / charging problems (e.g., solar not available in rainy season) 5. Language barrier (content not in my language) 6. Hard to use / low digital skills 7. Safety or privacy concern 8. Time limitations / household duties 9. Not allowed by family or community 10. Other (Please specify-----)	Multiple responses	
1 7	Do you think implementing technology for the education purpose would solve the current barrier of education in the camp?	1. Strongly disagree 2. Disagree 3. Neutral 4. Agree 5. Strongly agree		
1 8	How often do you use online platforms for learning or teaching?	1. Daily 2. Weekly 3. Monthly 4. Rarely 5. Never 6. Other (Please specify-----)		

1 9	What types of digital devices do you currently have access to for learning or teaching purposes?	1. Mobile phones 2. Computers 3. Tablets 4. Shared phone 5. Community/NGO device 6. Other (Please specify-----)		
2 0	How reliable is your internet connection for learning?	1. Very reliable 2. Somewhat reliable 3. Sometimes works, sometimes not 4. Mostly unreliable 5. Not available 6. Prefer not to say		
2 1	In what ways do online learning platforms support or hinder your educational experience?	1. Strongly support my learning (clear lessons, easy access, better understanding) 2. Somewhat support my learning (helpful but with a few issues) 3. Mixed impact (help in some ways, hinder in others) 4. Somewhat hinder my learning (progress is slower or confusing at times) 5. Strongly hinder my learning (hard to learn or keep up) 6. Not applicable (I do not use online platforms for learning)		
2 2	Please share one example of how online platforms have supported or hindered your learning. (Optional follow-up, Q-21)			

2 3	How have digital tools (e.g., online platforms, apps) influenced your teaching or learning process?	1. Faster access to lessons and materials 2. Easier communication with teachers/facilitators 3. Learn at flexible times and space 4. Short videos or audio improve understanding 5. Practice quizzes help me remember 6. Hard to focus; too many distractions 7. Difficult to ask questions or get feedback 8. Internet/device issues reduce learning 9. Other (Please specify:)		
2 4	Do you face technical difficulties when accessing online learning platforms?	1. Yes, often 2. Sometimes 3. Rarely 4. No		
2 5	If Yes, Sometimes, or Rarely: What are the main issues? (Select up to three)	1. Weak or unstable network 2. High data/internet cost 3. No personal device / must share 4. Battery or electricity problems 5. Platform glitches or compatibility problems 6. Low digital skills 7. Content not in my language 8. Safety or privacy concerns 9. Other (Please specify:)	Multiple responses	

2 6	How do these difficulties affect your learning?	1. I cannot access lessons at all 2. I miss parts of lessons or activities 3. I can access lessons but learn less than expected 4. Little impact; I manage to keep up 5. Not applicable		
SECTION D: Environmental Awareness and Practices				
2 7	What environmental challenges do you face in the camp? (Select all that apply)	1. Uncollected or mixed waste 2. Open burning or smoke 3. Clogged drains or flooding 4. Unsafe drinking water 5. Too little shade or trees 6. Pests or animals around waste 7. Open latrines/ poor sanitation 8. Deforestation or soil erosion 9. Plastic pollution blocking drains or contaminating water 10. Landslides or unstable ground 11. Muddy or slippery grounds (Rain season) 12. Fire hazards due to overcrowded shelters 13. Lack of safe communal spaces for children 14. Other (Please specify: _____)	Multiple responses	

28	Have you received any training or education on environmental sustainability, such as waste management, water conservation, or protection of natural resources?	1. Yes, within the last 6 months 2. Yes, more than 6 months ago 3. No 4. Not sure		
29	If yes, Who provided the training or education? (Optional follow-up, Q-21)	1. NGOs 2. Learning center 3. Community Organization 4. Other (Please specify: _____))		
30	Do you engage in activities related to environmental sustainability (e.g., waste management, recycling, water saving, planting trees)?	Part A- How often (Frequency) 1. Often 2. Sometimes 3. Rarely 4. Never		
		Part B- Practices (Select all that apply) 1. Reduce plastic use or reuse containers/bags 2. Repair or repurpose items 3. Save water at home 4. Plant or care for trees/plants 5. B5-Use cleaner cooking methods 6. B6-Keep shared spaces clean 7. B7-Give waste to community collectors or disposal points 8. B8-Other (Please specify: _____))	Multiple responses	
		Part C- Optional Example If you practice any of these activities, please share one specific		

		example of your involvement (in one line)		
3 1	How do you currently manage waste in your home? (Select all that apply; tick the one done most often)	1. Put all waste together (no separation) 2. Separate organic and non organic waste 3. Use a covered bin 4. Use an open bin 5. Take to community bin or collection point 6. Give to the waste collectors (NGO/ Community) 7. Compost food waste 8. Burn waste 9. Bury waste 10. Dispose of waste in open areas or nearby drains 11. Other (please specify: _____)	Multiple responses	
3 2	Do you include environmental topics (such as waste management or recycling) in your lessons?	1. Yes, regularly 2. Sometimes 3. Rarely 4. No 5. Not applicable		
3 3	If it is (1 or 2): One example of how you include it. (Follow-up Q-31)			
3 4	To what extent do you feel that online learning platforms have enhanced your understanding of environmental issues?	1. Strongly agree 2. Agree 3. Neither agree nor disagree 4. Disagree 5. Strongly disagree 6. Not applicable		
3 5	If applicable, please give one example of how online learning has enhanced your understanding (in one line). (Follow-up Q-33) Optional			

3 6	What role do you think digital platforms can play in promoting environmental awareness and sustainable practices in education? (Select up to two)	1. Provide easy tips and short lessons 2. Share examples from the community 3. Remind and motivate through messages 4. Connect learners and teachers to solve problems 5. Organize clean-up or tree-planting events 6. Not useful in my context 7. Other (Please specify:)	Multiple responses	
3 7	How do you think environmental education can be integrated more effectively into online learning environments?	1. Very short videos/audio for low internet 2. Content in Rohingya/Myanmar language 3. Ready-to-use lesson plans and slides 4. Practice activities at home/center 5. Safe/private groups for learners 6. Parent/community awareness messages 7. Offline packs with phone support 8. Other (Please specify:)		
SECTION E: Suggestion and Recommendation				
3 8	What could be done to improve online learning in the camp or your learning center? (Select up to three)	1. Better internet connection or data support 2. More shared devices or accessible charging stations 3. Shorter, simpler, and	Multiple responses	

		easy-to-understand learning materials 4. More teacher training, guidance, and support 5. Safer learning spaces or group arrangements 6. Regular schedules, reminders, and notifications 7. Other (Please specify:)		
39	What strategies would you suggest for improving environmental sustainability in the camps, such as waste management, recycling, water saving, or tree planting? (Select all that apply)	1. Regular waste collection and clearly designated collection points 2. Household waste separation (e.g., organic and non organic) 3. Community awareness or education sessions on environmental practices 4. School or learning center-led clean-up activities 5. Incentives or recognition programs for maintaining clean areas 6. Tree planting and care drives 7. Strict environmental policies/rules 8. Other (Please specify:)	Multiple responses	

40	In your opinion, how can NGOs and policymakers better support online learning and environmental education in refugee camps? (Select all that apply)	1. Provide data, internet, or device support 2. Develop and approve local-language learning content 3. Train, guide, and supervise facilitators or teachers 4. Coordinate camp-wide waste management and environmental systems 5. Monitor progress and share results with the community 6. Create safe learning spaces and clear protocols 7. Other (please specify: _____)	Multiple responses	
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