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Bridging Distances: Reflections on STEM Education in Suriname's Interior

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ABSTRACT

This article shares reflections from a 2-week research trip to Suriname's remote Sipaliwini District, where a U.S.-based research group engaged in conversations with teachers and administrators to discuss teaching and administrative experiences, STEM education integration, challenges of teaching in remote areas, and recommendations for policy and practice. The article includes background information on the education system of Suriname and some of the predominant challenges faced in remote schools within the interior of the country. This article is a reflective scholarly account drawing on field experiences. It highlights issues related to access, infrastructure, and educational equity in interior communities of Suriname.

Keywords: educational equity, cross-cultural learning, international collaboration, rural education, culturally responsive STEM education, Suriname

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INTRODUCTION

In March of 2025, the authors of this paper set out on a 2-week journey to explore teachers' and administrators' perceptions and experiences with STEM education in Suriname. The group comprised one doctoral student and three professors of education from the United States. The article draws on the preliminary findings from immersive educational experiences and conversations with teachers and administrators to explore STEM education in geographically isolated contexts like the interior of Suriname.

Suriname is a small country of approximately 616,000 people, situated on the northeastern coast of South America. It is divided into 10 districts, which include Paramaribo and Wanica (urban), Commewijne, Para, Saramacca, Coronie, Nickerie, Marowijne (coastal), and Sipaliwini, and Brokopondo (interior). The largest district by land mass is Sipaliwini. Figure 1 presents a map of Suriname with labeled districts to support geographic context. Over 93% of Suriname's landmass is covered by forests, and it is a carbon-negative country (United Nations News, 2020). Suriname is also ethnically diverse, with major population groups including Hindustani (31%), Creole (18%), Maroon (17%), Javanese (11%), Mixed and other (19%), and Indigenous (4%; Ministry of Education, Science and Culture, 2024).

Figure 1
Map of Suriname



Map of Suriname showing districts and capitals. Adapted from *Suriname districts and capitals map* by SurinameCentral (2023), Wikimedia Commons

The Suriname education system includes 597 general and secondary schools across the 10 districts, with 373 Grade 1 to 8 schools and 163 Grade 9 to 12 schools (Ministry of Education, Science and Culture, 2024). Grade 1 to 8 as well as Grade 9 to 10 schools focus on general education, while Grades 11 and 12 include vocational/general education. Suriname also aims to innovate and improve its education system, as reflected in its vision statement, which states, “Education that is inclusive, focused on quality, promotes accessibility, provides equitable opportunities, is technology-driven and focuses on developing good and productive citizens” (Ministry of Education, Science and Culture, 2024, p. 30). Its mission emphasizes “sustainability, competence development and efficiency in supporting pupils and students (regardless of their individual and family characteristics) to develop their competencies which can contribute to the national development of the country by providing a challenging and safe learning environment ...” (Ministry of Education, Science and Culture, 2024, p. 30). Additionally, four core values guide educational policymaking: inclusivity, excellence, innovation, and cultural relevance. Suriname was previously a colony of the Netherlands; the Dutch language is still the predominant language of instruction in schools (Le Pichon & Kambel, 2016). Dutch is commonly perceived as vital for increasing social mobility in the country, but only a small number of Surinamese people in many districts use the language at home.

Throughout Suriname, about 10% of the population does not complete primary education, but in the remote, forested interior district of Sipaliwini, about 90% of children in the age range of 12 to 15 years are not enrolled in school (Ministry of Education, Science and Culture, 2024). Complex structural and social factors contribute to the lack of attendance and school completion in the interior. An obvious reason is the simple lack of schools for the higher grade levels. For younger and older students alike, there may be important tasks at home needing attention (working in the gardens, monitoring fishing nets, various repairs, etc.). Given that many children are picked up before dawn and travel long distances by open boats through boulders and rapids, fluctuating river levels prompt many parents to withhold students from school attendance for safety reasons or due to pressing needs at home in different seasons. In the remote regions of Sipaliwini, educational inequities are compounded by geographic isolation, making sustained teacher training and community involvement essential (UNESCO, 2016).

The emphasis on inclusivity and cultural relevance aligns with the United Nations Sustainable Development Goals, particularly SDG 4 on quality education (United Nations, 2015). The group was tasked with reporting insights to the Ministry of Culture, Education, and Science, which has a particular interest in strengthening STEM education. Two members of the group, including the lead researcher, had previously visited Suriname and conducted research in all the other districts of the country. One member, the lead researcher, has been to Suriname

multiple times over the last two decades. For the other two members, including the doctoral student, this was their first visit to the country.

Rural Education, Equity, and Cultural Relevance in STEM

These reflections are interpreted through the interconnected lenses of culturally sustaining pedagogy and place-based education, which highlight the role of culture, language, and environment in shaping STEM learning in rural contexts. The group's interest in rural education is grounded in their home institution's specialization in this area. Rural schools can benefit from "place-sustaining collaborations that elevate rural voice, leverage local knowledge, and center rural learners and educators in cocreating educational and career pathways that sustain their communities over time" (Saw & Culbertson, 2025, p. 3). While in Suriname, the group spoke with village elders who had discussed the role of families and village leaders in teaching children about the local land and nature. Rural schools are often left out of conversations pertaining to educational policies and curriculum decisions (Brenner, 2023). Including voices of local educators and members of the community in curricular and policy decisions in Suriname and other contexts can strengthen the relevance and equity of STEM education in rural contexts.

Although rural schools often face many challenges, such as underfunding or a lack of classroom resources, overlooked natural resources that can be used for instructional purposes are often in abundance. Students can have opportunities to engage with science and nature in more authentic ways in the natural community (Morales-Doyle, 2017). O'Neill et al. (2023) emphasize the importance of improving educators' and students' sense of belonging through a connection to the land and earth. In Suriname, this was highlighted in discussions with teachers and administrators who provided practical examples of how they taught students about food safety, resources in the natural environment, and other real-world examples of nature-centered curriculum.

Teachers and administrators emphasized the importance of centering the distinct cultural and geographic assets within the school curriculum, which was sometimes described as being heavily influenced by the Dutch cultural context and the Dutch language rather than the local context and languages commonly used. This reflection is also grounded in culturally sustaining pedagogy, which is rooted in the work of Ladson-Billings (1995) on culturally relevant pedagogy. Culturally sustaining pedagogy underscores the importance of educational equity and the need to focus on students' cultural heritage and backgrounds as well as cultural knowledge (Luehmann et al., 2024). Furthermore, culturally sustaining pedagogy aims to challenge Eurocentric curricula and pedagogies (Luehmann et al., 2024), which can be better achieved by including more local voices in pedagogical decisions (Vakil et al., 2023). In educational contexts such as Suriname's interior, integrating local linguistic, cultural, and geographic knowledge into the curriculum

can enhance relevance, promote equity, and strengthen students' interest and engagement in STEM learning by grounding instruction in local rather than externally imposed (Dutch-centered) contexts.

Experiences in Suriname

These theoretical perspectives became especially salient as the group engaged directly with educators and communities in Suriname's interior districts. The group primarily visited schools in the Sipaliwini District, which is relatively remote and sparsely populated and is often referred to as the interior of Suriname. The group also visited several schools in the Para District. The Sipaliwini District has 50 schools serving Grades 1 to 8 and 13 schools serving Grades 9 to 10. Approximately half of the Sipaliwini District population lives in poverty (Ministry of Social Affairs and Public Housing, 2019), and school attendance remains a significant challenge (Ministry of Education, Science and Culture, 2024). The Sipaliwini District has the highest drop-out rate among all districts (Ministry of Education, Science and Culture, 2024). Children may not complete their studies or regularly attend school due to the need to work or take care of family responsibilities. Both flooding and drought conditions along the river systems can also greatly influence school attendance since many children arrive by boat. Furthermore, based on insights from teachers and administrators, the group learned that educational challenges can be more pronounced in this district due to myriad factors, including transportation barriers, geographic isolation, limited educational resources, and parental perceptions about the irrelevance of formal education.

In preparation for the trip, the lead researcher began making contacts with former colleagues and friends in Suriname about 8 months prior to the trip. A local ecotourism company was contacted to help aid in reaching remote villages as well as providing educational and cultural insights. While visiting Surinamese educators, administrators, and local guides, the group prioritized listening, meaningful relationship building, and contextual awareness to better understand the local experience.

Prior to visiting remote parts of Suriname in the Sipaliwini District, the group met then Minister of Education, Science, and Culture, Dr. Henry Ori. They reported back to the Minister after visiting the interior and shared some preliminary insights. In March of 2025, Minister Ori was also interviewed and shared the following:

Many communities in Suriname's remote southern regions, including indigenous and Maroon populations, face difficulties accessing quality education due to geographical challenges and climate change-related issues like flooding. To address this, we are expanding digital learning platforms and improving infrastructure.

Overall, our educational transformation involves not just building new schools but also supporting teachers and school leaders—who are the key agents of change. Though the transition comes with resistance, we have made significant progress over the past three years (Kaori Media, 2025, para. 5–6).

Reflective Insights

Members of the group provided valuable insights from this immersive cultural and educational experience. The first account is from one researcher who had previously conducted research in Suriname.

Over the course of two trips, members of the group traversed the country's coastal cities and ventured into the interior to engage with and learn from educators striving to incorporate STEM into curricula. From a cursory reflection of these journeys, three interrelated themes seemed to surface: 1) the similarity between Suriname's rich ecosystem biodiversity and its multicultural population and the promise that is presented when protecting and capitalizing on these rather unique aspects of the country; (2) the parallel educational challenges facing Suriname and the United States, particularly in STEM integration despite stark resource disparities; and (3) the power of cultivating a scientific mindset—teaching not merely content but the processes of inquiry—as a means to fortify Suriname's future without eroding its unique heritage or environment, an aim that seemed to be shared by both the Ministry of Education and the leaders of its people.

Another account poignantly observed:

Following an insightful meeting with Suriname's Ministry of Education, our group journeyed into the rainforest interior to talk with teachers and administrators in local schools. These deeply personal conversations shed light on the daily realities of education in Suriname's rural villages and underscored the resilience and dedication of the educators who persist in the face of systemic obstacles. Many educators grew emotional as they described the challenges they confront each day: shortages of basic resources such as textbooks, desks, and chairs; inconsistent support from the Ministry of Education; and inadequate housing accommodations for teachers assigned to remote regions. Despite these hardships, there was a shared and inspiring desire to deliver meaningful education to their students.

What stood out most was how closely these challenges mirrored those in under-resourced communities in the United States. This parallel opened the door for further dialogue, not just about improving foundational support and infrastructure in Suriname, but about reimagining what STEM education can look like in these settings. While traditional resources may be limited, the natural environment offers a wealth of opportunities for hands-on, inquiry-based science learning. These reflections compel us to consider not just what is lacking, but what is possible. As Suriname seeks to strengthen its educational system, especially in

STEM disciplines, there is an opportunity to build capacity that honors the country's cultural identity and ecological richness.

This experience led to valuable discussions about practical ways to teach STEM using resources already available in the natural environment. Across several reflections, three key takeaways emerged: (1) structural barriers to access in rural STEM education, (2) the pedagogical potential of place-based learning, and (3) the role of cultural and linguistic context in shaping educational equity. Although the interior communities of the Sipaliwini region face pressing challenges such as teacher shortages, resource shortages, and transportation barriers, discussions with teachers, administrators, and other local people led us to understand that these issues mirror rural challenges in other countries. Ultimately, these reflections suggest that strengthening STEM education in rural and geographically isolated communities requires approaches that honor local knowledge, linguistic diversity, cultural identity, and environmental context alongside broader efforts to expand educational access and infrastructure.

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