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An In-Depth Review of Barriers, Strategies, and Opportunities for Enhancing Female Participation in STEM

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Abstract: This comprehensive review examines the persistent underrepresentation of women in computer science education, with a particular focus on Cameroon, where cultural, economic, and systemic barriers severely limit female participation. Despite the global demand for tech talent and the rapid advancement of digital economies, women account for only 21% of computer science students in Cameroon, echoing the broader gender gap in STEM fields across Africa. By synthesizing global trends and zooming into the localized challenges faced by Cameroonian women, this paper illuminates a critical disparity that not only limits diversity in technology but also stymies the region's potential for inclusive innovation and sustainable growth.Through a multifaceted analysis, we explore barriers including entrenched gender norms, limited educational resources, and economic constraints that prioritize male education over female. Our review identifies both successful and underperforming interventions, evaluating policies, mentorship initiatives, and educational programs aimed at fostering gender equity in STEM. We highlight the importance of policy reform, societal shifts, and targeted support networks to dismantle these barriers and advocate for a culturally adaptive approach to empower women in technology. This paper provides actionable insights and recommendations for policymakers, educators, and industry leaders dedicated to building an equitable STEM landscape in Cameroon and beyond.In contributing to the global discourse on gender equity in STEM, this review serves as a vital resource for stakeholders across academia, industry, and government, fostering a nuanced understanding of the steps necessary to bridge the gender gap. By addressing the underrepresentation of women in computer science, Cameroon—and other regions with similar challenges—can cultivate a workforce poised for innovation, harnessing the full potential of its female talent to advance both technological and societal progress.

Keywords: STEM; gender disparity; barriers; gender equality; participation

1. Introduction

Gender inequality in computer science education is an urgent, global challenge—one that limits not only the aspirations of countless women but also the transformative potential of an entire sector [1]. Despite the rapid advancements in technology and a booming demand for tech talent, women remain vastly underrepresented in computer science, especially across African nations like Cameroon [2]. According to the United Nations, only 30% of STEM graduates in sub-Saharan Africa

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are women, a stark contrast to the global average of 52%. [3] In Cameroon, the gender divide is particularly troubling; ranked 143rd out of 149 countries for gender equality by the World Economic Forum, Cameroonian women encounter significant hurdles in education and career advancement [4]. In computer science programs, female students account for only a fraction of the enrollment, reflecting a critical gap that stifles the field's diversity and limits the pipeline for innovative thinking [5]. These statistics signal more than a numeric imbalance—they reflect a missed opportunity to empower women, advance economic growth, and cultivate a workforce better equipped to tackle today's most pressing technological and social challenges. This review sheds light on the multi-layered barriers preventing women from pursuing computer science in Cameroon, from entrenched societal norms to limited educational resources. Through an analysis of policies, initiatives, and interventions, we identify actionable strategies to increase female participation in computer science and STEM fields. By driving gender parity in tech education, Cameroon can harness the untapped potential of its female population, fueling a more inclusive workforce that is better positioned to lead and innovate. This paper contributes to the broader global conversation on gender equality in STEM, offering critical insights for educators, policymakers, and industry leaders committed to building a more equitable, dynamic future.

2. Gender Disparity in Computer Science

Gender disparity in computer science is an issue that spans continents, cultures, and economic systems, challenging the diversity, creativity, and innovation of the field [6]. This review aims to synthesize existing research on gender inequality within computer science education, with a specific focus on the barriers facing female participation in Cameroon. By analyzing both global and regional perspectives, we can better understand the roots of these disparities, evaluate the efficacy of interventions, and identify the unique social, economic, and cultural obstacles that hinder women from entering and excelling in this discipline. We will begin by examining global trends in gender disparity in STEM (science, technology, engineering, and mathematics) fields, with an emphasis on computer science. Next, we will explore gender inequality within STEM in Africa, identifying factors that make this issue particularly acute on the continent. Following this, the review will narrow its focus to Cameroon, analyzing local educational challenges, societal norms, and economic constraints that disproportionately impact women in computer science programs. Additionally, this review will examine policies and interventions designed to support female participation in STEM and assess their impact, effectiveness, and limitations. By mapping out existing knowledge and identifying gaps, this literature review will offer a comprehensive foundation to guide future research and inform actionable strategies to promote gender equality in computer science education in Cameroon.

2.1. Global Perspective on Gender Disparity in STEM

Gender disparity in STEM (science, technology, engineering, and mathematics) fields is a persistent global challenge, with women underrepresented at nearly every level of education and professional engagement. According to UNESCO, women account for only 29% of the global STEM workforce [7–9], and this gap is especially pronounced in computer science and engineering disciplines. Despite decades of advocacy and policy initiatives, women continue to face significant barriers in STEM fields, limiting diversity, innovation, and the inclusivity of the workforce. This gender gap is a critical issue in both developed and developing countries, though its causes and consequences vary across regions.

In developed countries, statistics show gradual improvements in gender representation within STEM fields; however, the gender gap remains substantial. In the United States, for example, women make up only 28% of the computer science workforce, despite accounting for roughly half of the country's general workforce [1,10,11]. Similarly, in Europe, women hold only 17% of jobs in the technology sector [12,13]. Studies from UN Women and academic research reveal that gender stereotypes, bias in academic environments, and a lack of visible role models continue to deter women from pursuing careers in computer science and technology [14]. Further, a phenomenon known as the "leaky pipeline"—wherein women leave STEM fields at higher rates than men—further

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exacerbates the disparity, with women frequently exiting due to unwelcoming or biased work environments [15,16].

In developing regions, particularly in Africa and South Asia, the gender gap in STEM is more pronounced, with structural barriers compounding the problem. UNESCO reports that in sub-Saharan Africa, only 30% of STEM graduates are women, a number that reflects broader inequalities in educational access and opportunity [17]. In these contexts, socio-cultural factors play a significant role, with girls and young women often discouraged from pursuing STEM careers due to traditional gender roles that place less emphasis on female education. Economic constraints also impact girls' access to quality education, with limited access to necessary resources, technology, and infrastructure further impeding their ability to engage with STEM disciplines.

Cultural norms and gender biases are among the most significant factors contributing to these disparities worldwide. Societal expectations regarding women's roles, stereotypes about female abilities in math and science, and the perception of STEM as a male-dominated field discourage many girls from even considering careers in computer science and related areas. In both developed and developing regions, research shows that a lack of female representation in STEM fields contributes to this cycle, as the scarcity of female mentors and role models further reinforces the perception that STEM careers are "not for women."[18]

Addressing these disparities requires not only policy interventions but also a cultural shift that promotes gender equality and inclusivity from early education through professional environments. Reports by organizations like UN Women and UNESCO emphasize the need for systemic changes to combat gender biases and advocate for policies that support women's entry and retention in STEM careers [19]. Understanding these global dynamics is essential for contextualizing regional and local gender disparities, as it highlights the need for targeted strategies that address both the universal and unique factors influencing female participation in STEM across different regions.

2.2. Gender Disparity in STEM in Africa

In sub-Saharan Africa, gender disparity in STEM (science, technology, engineering, and mathematics) education and career pathways is particularly pronounced, with only 30% of STEM graduates being women, according to UNESCO [6]. This gender imbalance is prevalent across the continent and poses a significant barrier to economic development, social equity, and innovation in the region. The lack of female participation in STEM fields has long-term consequences, as it limits the diversity of perspectives in addressing Africa's challenges in health, agriculture, technology, and infrastructure.

A primary contributor to this disparity is the deeply rooted cultural norms that shape educational and career choices for girls and women. In many African countries, gender roles and expectations discourage girls from pursuing fields traditionally viewed as "male-dominated," such as engineering, computer science, and other STEM disciplines. According to the UN Economic Commission for Africa (UNECA), girls are often steered toward fields considered more "appropriate" for women, such as teaching and healthcare, while technical fields are associated with men [20]. This societal expectation is reinforced by a lack of female role models in STEM, which further discourages girls from considering careers in these fields.

Economics also plays a significant role in shaping STEM opportunities for women in Africa. Limited access to resources, such as quality education, technology, and funding for advanced studies, restricts girls' educational choices from an early age. For many families facing financial constraints, the cost of education can be prohibitive, leading parents to prioritize educational investments in boys, whom they view as having higher earning potential. Reports from the African Union highlight those financial barriers, combined with an unequal distribution of scholarships and funding, create substantial obstacles for young women in STEM. Moreover, due to limited infrastructure and resources in rural areas, many girls lack access to basic scientific tools and technology, hampering their ability to excel in science and technology subjects.

Social challenges, including discrimination and gender-based violence, also affect female participation in STEM fields across Africa. Girls in STEM often encounter hostile educational

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environments where they may face harassment or discrimination from peers and even educators. Research by the African Union indicates that these experiences can deter girls from STEM-related studies and careers, contributing to the so-called "leaky pipeline" phenomenon, where young women leave STEM pathways due to unsupportive environments. This issue is exacerbated by the low representation of women in STEM leadership roles, further reinforcing the perception of STEM as an unfriendly domain for women.

Despite these challenges, several African countries have launched initiatives aimed at bridging the gender gap in STEM. For instance, Rwanda has implemented policies to increase women's participation in STEM through targeted scholarships and mentorship programs, leading to a notable increase in female STEM graduates [21]. Similarly, in Nigeria, organizations like the African Women in Science and Engineering (AWSE) offer mentorship and resources to support young women in STEM fields, providing role models and encouragement to pursue these careers [22].

Addressing gender disparity in STEM within Africa requires both policy-level and cultural changes. Initiatives that provide financial support, mentorship, and safe learning environments are essential to foster a more inclusive and equitable STEM landscape. Ultimately, by empowering more women to participate in STEM, African nations can better harness the potential of their female populations, driving sustainable development and technological progress across the continent.

3. Gender Inequality in Computer Science Education in Cameroon

In Cameroon, the gender gap in computer science education reflects a complex interplay of cultural, economic, and structural barriers that prevent many women from pursuing or persisting in this field. According to the Ministry of Secondary Education, women constitute only 21% of students enrolled in computer science programs in the country, a figure significantly lower than the global average [2]. This underrepresentation limits Cameroonian women's access to technology-driven careers and, by extension, economic opportunities in a rapidly digitizing world. Exploring the unique factors that hinder female participation in computer science education in Cameroon is crucial for identifying effective strategies to close this gender gap and foster a more inclusive workforce.

3.1. Statistical Overview of Female Participation in Computer Science

Cameroon's overall enrollment of women in tertiary-level computer science programs remains disproportionately low compared to men [23]. Data from the Cameroonian Ministry of Higher Education indicate that, across both public and private universities, fewer than one in four computer science students is female. This trend begins early, with fewer girls than boys choosing STEM-related courses in secondary education, which affects their preparation and eligibility for computer science studies later on. According to a study by the World Economic Forum, Cameroon ranks 143 out of 149 countries for gender equality, with particularly low scores in education and economic participation, which translates to lower representation of women in science and technology fields [4].

3.2. Barriers to Female Participation in Computer Science

Several barriers specific to Cameroon impede women's entry and retention in computer science education. These include limited educational infrastructure, entrenched cultural expectations, and financial constraints.

1. Educational Infrastructure and Resource Limitations:

The availability of high-quality STEM education, including computer science, is limited, particularly in rural regions. Many schools lack the technological infrastructure, such as computer labs and internet connectivity, needed to teach computer science effectively. A 2023 report from Cameroon's Ministry of Education revealed that less than 30% of public secondary schools have access to functioning computer labs, which places students, especially girls, at a disadvantage in pursuing computer science [24,25]. The gap between urban and rural access to these resources is pronounced; students in rural areas, where traditional views on gender roles are often stronger, face

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additional barriers to accessing STEM education, perpetuating low female enrollment rates in computer science.

2. Cultural Expectations and Gender Stereotypes:

In Cameroon, as in much of Africa, traditional gender roles strongly influence the educational choices available to girls and young women. Cultural norms often position women in roles focused on household responsibilities or "feminine" professions, discouraging them from pursuing technical careers like computer science. Research from the United Nations Development Programme (UNDP) underscores that girls in Cameroon are often dissuaded from studying "difficult" subjects such as computer science, due to pervasive beliefs that these fields are inherently male-oriented. Families and communities often view careers in technology as unsuitable for women, leading to low aspirations for girls in these areas and a lack of encouragement from key influencers, including family members and teachers.

3. Financial Constraints and Economic Barriers:

Economic challenges significantly affect female participation in computer science education. In a country where many families live on limited incomes, financial constraints often lead parents to prioritize educational investments in boys, who are perceived as having higher earning potential. According to a 2022 report from Cameroon's Ministry of Women's Empowerment and the Family, poverty, and resource limitations prevent many girls from advancing in their education, particularly in fields that require additional expenses for specialized training and resources, such as computer science [26,27]. Scholarships and financial aid for female students in STEM are limited, meaning that many young women lack the financial support needed to pursue computer science at the tertiary level. Additionally, the costs associated with transportation, technology, and educational materials present further obstacles for low-income families, many of whom are concentrated in rural areas.

4. Local Efforts and Policy Interventions

Despite these challenges, there have been various efforts within Cameroon to increase female participation in STEM and computer science education. The Cameroonian government has partnered with organizations such as UN Women and the African Development Bank to implement programs aimed at increasing girls' access to STEM education. For instance, the "Women in STEM" initiative launched in 2021 aims to provide scholarships, mentorship, and technology resources for girls in secondary and tertiary education [28,29]. While promising, these programs face logistical challenges, including limited reach in rural areas and the need for increased funding to sustain long-term impact. Local NGOs have also played an important role in addressing gender disparities in computer science education. The "Girls Code Cameroon" initiative, for example, offers workshops and coding camps for girls in urban areas, aiming to demystify technology and provide hands-on experience in computer science. These programs not only teach technical skills but also foster supportive networks and mentorship, which are crucial for encouraging young women to pursue further studies and careers in technology.

3.3. Factors Contributing to Gender Disparity in Computer Science

The gender disparity in computer science education is a multi-layered issue shaped by a variety of socio-cultural, economic, and educational factors. These dynamics create barriers that limit female participation both globally and locally, affecting women's representation in the field and impeding their potential to thrive in technology-driven careers. Understanding these factors is essential to designing effective strategies to address the gender gap in computer science.

1. Socio-Cultural Factors

Socio-cultural factors, including stereotypes and entrenched gender norms, play a significant role in shaping educational and career aspirations, particularly in male-dominated fields like computer science. Studies reveal that stereotypes portraying STEM fields as "masculine" often discourage girls from pursuing technical subjects. From a young age, girls are frequently exposed to messaging that associates technology and engineering with men, while women are often depicted in nurturing or creative roles. Research by gender equality expert Maria Charles notes that these

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stereotypes become internalized, leading many girls to self-select out of STEM fields due to a perception of misalignment with their "feminine" identity. In many societies, including those in Africa, gender norms further reinforce these stereotypes, pressuring women to conform to traditional roles. A study from the United Nations Development Programme (UNDP) reveals that girls in many parts of sub-Saharan Africa are often guided toward fields deemed more appropriate for women, such as healthcare or education, rather than technology or engineering. In Cameroon, for example, traditional beliefs about gender roles restrict girls' freedom to explore interests outside domestic-oriented fields, creating a pipeline issue where few girls even consider studying computer science.

2. Economic Factors

Economic barriers also play a critical role in the gender disparity seen in computer science education. The costs associated with higher education can be prohibitive for many families, especially in low-income regions. When financial constraints necessitate choosing which child to send to school, boys are often prioritized due to societal expectations that they will become primary breadwinners. Research by the World Bank highlights this trend, pointing out that financial limitations disproportionately impact girls' educational opportunities, particularly in fields like computer science that may require additional resources, such as technology access and specialized training. Funding gaps extend beyond just education and influence employment opportunities for women in computer science fields. A report by UN Women identifies a "wage penalty" faced by women in technology, where women often receive lower pay than their male counterparts, diminishing their career incentives in this sector [30,31]. Additionally, due to the high costs of technology and internet access, girls in many regions lack the resources to develop computer science skills from an early age, creating a divide that persists as they transition into higher education. This lack of early exposure to technology is particularly detrimental in fields where foundational skills are typically built long before students reach university.

3. Educational Factors

Educational factors, including curricula, role models, and access to technology, also contribute significantly to the gender gap in computer science. Many educational systems lack curricula that encourage girls to explore computer science, missing an opportunity to engage them in STEM during their formative years. Studies from UNESCO show that a gender-neutral curriculum that actively promotes diversity in STEM subjects can significantly influence girls' interest in technology. However, in many countries, including Cameroon, computer science and STEM topics are introduced too late in students' academic journey, often after gender biases have already taken root. The scarcity of female role models in computer science further reinforces the perception that the field is not suitable for women. When young women do not see female professionals in technology roles, it becomes harder for them to envision themselves in similar careers. According to a study by educational sociologist Jocelyn Steinke, the presence of visible role models can positively impact girls' engagement and aspirations in STEM fields. In countries like Cameroon, where women make up only a small percentage of the STEM workforce, this role model gap is particularly evident, limiting the inspiration and mentorship available to aspiring female computer scientists.

4. Access to technology

Access to technology is another crucial educational factor. In regions where schools have limited resources, such as internet access or computer labs, students—especially girls—are deprived of essential exposure to technology. Research by the African Union underscores that schools in rural areas often lack the infrastructure needed to teach computer science effectively, putting students from these areas at a disadvantage. For girls, who already face cultural and economic challenges, this lack of access compounds existing barriers, preventing them from acquiring the skills necessary to pursue computer science studies.

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4. Existing Policies and Interventions

Efforts to address gender disparity in STEM, particularly in computer science, have gained momentum globally, with numerous governmental, non-governmental, and international initiatives designed to support female participation in the field. In Cameroon and similar countries, these policies and interventions aim to tackle the complex barriers hindering women's access to STEM education and careers. However, while progress has been made, several challenges remain, and the effectiveness of these initiatives varies widely.

4.1. Government Policies in Cameroon

The Cameroonian government has implemented a range of policies aimed at addressing gender inequality in education, including STEM fields. The Ministry of Higher Education, in collaboration with the Ministry of Women's Empowerment and the Family, has launched several initiatives to encourage women to pursue technical and scientific studies. One notable example is the Women in Science and Technology Initiative, which aims to increase the number of women in STEM disciplines by providing scholarships, mentorship, and academic support. Additionally, the Cameroonian government has participated in regional programs such as the African Union's Agenda 2063 and STEM for Women in Africa, which seek to improve women's representation in STEM across the continent. These initiatives focus on enhancing girls' access to education, particularly in rural areas, where traditional gender norms often limit educational opportunities. The government has also supported national awareness campaigns that challenge stereotypes about women's roles in science and technology, encouraging girls to pursue studies in technical fields. However, while these policies are promising, challenges remain in their implementation. According to a 2023 report from the Ministry of Higher Education, there is still insufficient infrastructure and funding to support large-scale initiatives, particularly in remote regions where access to education remains limited. Furthermore, societal barriers, including deep-rooted cultural biases, often undermine the effectiveness of these policies, especially when they fail to address the role of families and communities in shaping young girls' career aspirations.

4.2. NGO and Civil Society Initiatives

Non-governmental organizations (NGOs) in Cameroon play a crucial role in bridging the gap between policy and practice, providing targeted interventions to empower women and girls in STEM. One prominent example is the SheCodes Foundation, which offers coding workshops and mentorship programs to girls from underserved communities [32]. By equipping girls with technical skills and offering exposure to female role models in technology, this initiative aims to foster interest in computer science at an early age and provide the support needed for girls to succeed in this field.

Similarly, TechWomen Cameroon is another NGO dedicated to promoting female participation in technology. The organization conducts training programs, workshops, and seminars for young women, helping them develop both technical and soft skills necessary to thrive in the tech industry. While these programs have had a positive impact on some participants, the reach of such initiatives is often limited by funding and logistical challenges, particularly in rural areas where the gender gap in education is most pronounced.

4.3. International Programs and Initiatives

At the international level, organizations such as UNESCO, UN Women, and the World Bank have implemented programs aimed at narrowing the gender gap in STEM education and employment globally, including in Cameroon. The UNESCO STEM and Gender Advancement (SAGA) program, for example, has worked to identify and remove barriers to female participation in STEM through data collection, policy advocacy, and the development of gender-responsive education practices. The program has partnered with African governments, including Cameroon, to support national and regional efforts to empower women in STEM. The World Bank's Africa Gender Innovation Lab has also supported several initiatives focused on improving educational outcomes

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for girls in sub-Saharan Africa, with a particular emphasis on technology and digital literacy. Through pilot programs and funding opportunities, the World Bank has provided resources to improve school infrastructures, develop gender-sensitive curricula, and fund scholarships for female students pursuing STEM education. However, despite the global focus on gender equality in education, many of these initiatives face challenges related to scalability, sustainability, and effectiveness in the context of diverse socio-cultural environments. The impact of international programs is often limited by insufficient local adaptation, lack of long-term funding, and resistance to changing deeply ingrained societal attitudes about gender roles.

5. Evaluation of Effectiveness and Limitations

While government, NGO, and international efforts have resulted in some positive outcomes, the effectiveness of these interventions in Cameroon remains mixed. On the one hand, initiatives like scholarships, mentorship programs, and coding workshops have provided opportunities for women and girls to engage with STEM fields and develop skills. However, these programs often lack the scale necessary to make a systemic change. Additionally, the societal barriers and economic constraints facing women in Cameroon are often underestimated, making it difficult for these interventions to achieve long-term impact without addressing broader issues such as cultural attitudes toward women in technology, access to technology, and poverty. While policies and interventions aimed at addressing gender disparity in computer science education in Cameroon are growing, challenges remain in terms of reach, sustainability, and effectiveness. There is a need for more comprehensive, context-specific strategies that not only provide educational opportunities but also address socio-cultural and economic factors that limit women's full participation in STEM. Increased collaboration between governmental bodies, NGOs, and international organizations will be critical in creating a more equitable educational landscape and ensuring that women have the support and resources needed to succeed in computer science.

6. Gaps in the Literature and Future Directions

While the existing literature provides valuable insights into gender disparities in STEM education, particularly in computer science, several critical gaps remain, especially when considering the context of Cameroon and broader Africa. These gaps highlight areas that require further investigation to develop more effective strategies for closing the gender gap in this field.

6.1. Underserved Areas in Gender and STEM Research

One significant gap in the literature is the lack of region-specific studies that examine the unique barriers and opportunities for women in computer science education in Cameroon. While some research has been conducted on gender disparities in general education and STEM in Africa, Cameroon-specific data remains sparse. There is a pressing need for detailed research that addresses local socio-cultural dynamics, regional differences, and the specific challenges faced by Cameroonian women in accessing and succeeding in computer science programs.

Another underserved area is the intersectionality of gender with other factors, such as rural-urban divides, economic background, and ethnic groups, which can further exacerbate gender disparities. The literature predominantly focuses on a broad understanding of gender inequality but does not always consider the nuanced experiences of women from diverse backgrounds. Research into how these intersecting factors contribute to the gender gap in computer science education would provide a more holistic understanding of the challenges and solutions.

6.2. Call for Longitudinal Studies and Impact Assessments

Another key gap is the lack of longitudinal studies tracking the progress of female students in computer science education over time. Such studies would provide valuable insights into retention rates, the effectiveness of interventions, and the long-term impact of gender-focused policies on women's careers in STEM fields. These studies could inform adjustments to current strategies and

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ensure that interventions are sustained and impactful over the years. Moreover, there is a need for more robust policy impact assessments. While various initiatives have been introduced to support women in STEM, there is limited research on their actual outcomes and effectiveness. Rigorous evaluations of existing policies and programs will help identify what works and what doesn't, offering crucial insights for improving interventions.

6.3. Gender-Focused Curriculum Development

The development of gender-sensitive curricula remains an underexplored area in the literature. Many current educational systems and materials fail to incorporate gender-inclusive content that challenges traditional gender roles and encourages girls' interest in STEM subjects. Future research should explore how curricula can be reformed to integrate gender perspectives, making STEM subjects, including computer science, more accessible and appealing to female students.

Conclusions

This literature review has provided a comprehensive exploration of the gender disparity in computer science education, with a particular focus on Cameroon. The review revealed that, while global trends indicate a significant underrepresentation of women in STEM fields, the gender gap in computer science is particularly pronounced in sub-Saharan Africa, including Cameroon. This underrepresentation limits diversity, stifles innovation, and perpetuates gender-based inequalities in access to education and economic opportunities. The review also highlighted the key barriers contributing to the gender disparity, such as socio-cultural stereotypes, economic constraints, and limited access to educational resources. These factors are further compounded by challenges unique to the Cameroonian context, including cultural norms that discourage girls from pursuing technical studies and the lack of adequate infrastructure to support female students in STEM. While several policies and interventions, both governmental and non-governmental, have been introduced to address these issues, their effectiveness has often been limited by insufficient resources, logistical constraints, and deep-rooted societal biases. In conclusion, addressing the gender gap in computer science education in Cameroon and Africa is crucial for fostering a more inclusive and innovative future. By expanding research into underserved areas, conducting longitudinal studies, and developing gender-responsive curricula, stakeholders can create more actionable strategies to empower women in STEM. This will not only benefit women and girls but also contribute to a more diverse, equitable, and prosperous technological landscape for all.

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