

## INEQUITABLE ACCESS TO TECHNOLOGY AND CHALLENGES FACED BY STUDENTS – AN EMPIRICAL STUDY

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### ABSTRACT

Ghanaian school students face a significant obstacle in the form of unequal access to technology. Students who do not have access to devices or dependable internet connections are at a disadvantage as the use of technology in education increases. In low-income areas, where families cannot afford to purchase devices or pay for internet services, this problem is especially acute. The shortfall of power, obliviousness of accessible innovation, nonappearance of organization access and absence of offices for studies, and obliviousness of the school system are a couple of clear reasons adding to the difference. Students may be unable to fully participate in remote learning, complete assignments, or access educational resources if they do not have access to technology. The digital divide can also make existing educational disparities worse and limit students' chances of academic and professional success. To solve this problem, policymakers, educators, and other stakeholders need to work together to make sure that all Ghanaian students have equal access to technology.

The present study analyses the difficulties encountered by Ghanaian Students in getting to innovation, which has brought about discriminatory instructive open doors. The study investigates the causes of Ghana's digital divide and how it affects students' academic performance. Additionally, it takes into account public-private partnerships, community initiatives, and government policies as potential solutions to the disparities. The findings emphasize the need for immediate action to close the digital divide and ensure that Ghanaian students have equitable access to technology in order to improve their learning outcomes and prepare them for the global economy that is increasingly driven by technology.

**Key Words:** digitalization; higher secondary education; digital institution; digital education; digital educational technologies

### 1. INTRODUCTION

In the digital age of today, having access to technology is an essential part of education. Students need to have access to technology and digital resources in order to succeed academically and prepare for careers in the future. Notwithstanding, numerous students all over the planet, including Ghanaian students, face difficulties in getting to innovation and advanced assets, which can bring about critical instructive and financial variations.

Ghana's people don't have a good life and are behind in development. The destitution and joblessness rate is very high in Ghana. The poverty line affects approximately 24.4% of the population. From 3.77 percent in December 2020 to 3.92 percent in December 2021, Ghana's unemployment rate increased. In many rural areas, it is still difficult to obtain food, water for drinking, transportation, and other human necessities. As a result, a lot of kids don't go to school or stop taking their classes. Kid marriage, early sex and early pregnancy and other medical problems are exceptionally normal. Clearly female youngsters are the most helpless and most horrendously terrible impacted in such a situation. Therefore, it is crucial to educate every citizen, particularly girls.

The situation has been thoroughly examined, and it has been determined that many children are orphans, living with grandparents or single parents. Even though these children have a strong desire to study, they are unable to pursue higher education because of the poverty trap. Monetary issue is one of the significant obstructions for the vast majority splendid students to proceed with their higher examinations.

The first and only girls' boarding second-cycle school in Jirapa Municipal, Upper West Region, was St. Francis of Assisi Girls' Senior High School. The Franciscan Missionary of Mary, an international religious women's congregation, collaborate with the Catholic Church in the Diocese of Wa to establish the school. The school is supported by the government, but it adheres to biblical principles. Throughout the long term, the school has

encountered colossal development concerning enlistment because of its high scholastic presentation. The school had 436 students pass the WASSCE in 2019 with a passing score of 93.95%, while 305 candidates passed the 2020 exam with a passing score of 96%. The school's enrolment has increased from twelve (12) students to one thousand two hundred and ninety-seven (1,297) students since its founding in 1959. It has also changed from being owned solely by Catholics to being supported by the Ghanaian government. The school now employs 85 teaching staff members and 52 non-teaching staff members. The school's existing infrastructure, some of which were originally intended for use by a small number of people, has been severely strained as a result of this increase in both the number of students and staff members. It offers General Science, Home Economics, General Arts, Computer Science, and Business as programs of study as a public school with a three-year secondary education.

Assisi, or Assisi as it is more commonly known, is at the forefront of efforts to ensure that numerous girls enrol in and complete secondary education, forming and preparing them for their proper roles in society. Their dignity as women will be restored as a result, and poverty and illiteracy will be reduced as a result of the growth of their communities, countries, and beyond. The school's goal is to assist girls in enhancing their own lives, the lives of their families, and the future conditions of their communities and nations.

It is interesting to note that the school has produced so many prominent women who are currently serving the nation and other parts of the world in a variety of roles, including those in the political, health, education, judicial, and religious sectors, to name a few. However, they have been supporting the school in various small ways; They won't be able to fulfill all of the school's requirements, which are proportional to the population's growth, due to the severe economic crisis.

By a wide margin St. Francis Young Ladies' Senior Secondary School is one of the loftiest and high-performing schools in the Northern piece of Ghana and especially in the Jirapa Municipality.

### **Inequitable Access to Technology**

Many students in Ghana lack access to computers, the internet, and other digital learning resources. A number of things, like poverty, a lack of infrastructure, and inadequate funding for schools, can cause this lack of access. Accordingly, students in Ghana might have restricted chances to learn, impart, and access data contrasted with their friends in additional created nations.

Many students in Ghana have trouble gaining access to the technology and digital resources they need to learn. A variety of factors, including poverty, inadequate funding for schools, and a lack of infrastructure, contribute to this lack of accessibility. Approximately 70% of Ghanaian schools lack basic ICT infrastructure, and only 35% of schools have internet access, according to a UNESCO report. These insights are an obvious sign of the greatness of the issue and the requirement for deplorable act.

There are 1,269 students enrolled at St. Francis Senior High School, but only 30 computers are functional. It is mandatory for each understudy, aside from elective students (60 altogether), to learn center ICT. Students are unable to practice and learn ICT effectively due to the lack of working computers. They are not keen on learning just hypothesis and are anxious to rehearse and apply their insight. However, they are unable to do so due to the insufficient number of computers. Aside from the absence of PCs, students face different difficulties, for example, trouble in getting to online notes and assets, finishing project works, and introducing imaginative occasions. These difficulties impede their personal and academic development as a whole. The school needs to demand the public authority to give a favourable learning climate.

### **What teachers can do**

Teachers assume a significant part in tying down fair admittance to innovation. They are on the bleeding edges with understudies. Here are a few different ways they can help.

### **Foster a methodical innovation plan**

On the off chance that you are an instructor, consider empowering your everyday schedule locale to create a system wide innovation plan. It should be built on a foundation of policies that address the requirements for providing students with equal access to technology. At their center, these approaches ought to frame where to go for help gaining admittance, guarantee people know how to get to the innovation, and be sufficiently adaptable to oblige the assorted informative prerequisites and learning styles understudies have.

### **Get teachers involved**

Teachers serve as the link between students and school leadership. They are associated with understudies and have an excellent of their requirements and capacities. School pioneers ought to work close by instructors while executing programs that elevate fair admittance to innovation for their understudies. They ought to make it a point to consult with the teachers in charge of the students in the subject that the initiative is attempting to address.

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### **Make use of partnerships to make it possible for students**

In many schools to have equitable access to technology. Schools may not have access to the necessary technology for their students, despite funding from the government. Associations among schools and outside associations or different schools locally can assist teachers with overcoming their issue in assets for innovation.

The best associations are with associations that have the assets your school needs. Trade the resources your school does have for technology access. For instance, one school might lend another school a sports field in exchange for time spent in their computer lab.

### **Challenges Faced by Ghanaian Students**

The absence of digital resources and technology may cause a number of issues for Ghanaian students. For example, students can experience difficulty completing their schoolwork and tasks and may just have limited admittance to instructive devices and materials. If students are unable to use digital libraries or participate in online learning, their academic potential may also be limited.

The principal issue is that students could battle to get their work done and tasks since they don't approach the fundamental computerized instruments, similar to PCs, web availability, and programming. For instance, students probably won't have the option to utilize online devices or participate in virtual study halls, which are progressively normal in numerous foundations all through the world. This circumstance may have a significant impact on their academic performance, resulting in a lower grade point average (GPA).

**Infrastructure:** One of the most significant challenges Ghanaian students face is the absence of facilities that would make it easier to use technology. Many schools struggle with unreliable internet and electrical connectivity to allow students to access online resources and participate in online learning.

Another issue is the high cost of electronic devices like smartphones, tablets, and laptops. Numerous Ghanaian families can't stand to purchase these devices for their children, which puts them in a difficult spot while attempting to get to educational materials.

**Gender Inequality:** The inconsistent admittance to innovation in Ghana is additionally impacted by orientation imbalance. Since ladies are less inclined to approach innovative hardware and are regularly deterred from seeking after innovation related fields, female students are habitually in a difficult spot.

**Lack of Digital Literacy:** Numerous Ghanaian students come up short on computerized education abilities important to involve innovation for advancing really. This could include basic computer skills like typing and using software, or it could include more advanced skills like coding and analysing data.

When schools were closed following COVID-19, many students lacked even a television to attend classes. Since rural areas lack electricity, we cannot expect young people there to learn and compete globally. It is difficult for them to update their knowledge, raise their family out of poverty, and develop their village and country. This was extremely distinctive in the existence of Ghanaian students.

Many students faced a significant obstacle when schools were closed during the COVID-19 pandemic, particularly those in rural areas without access to electricity or television. These students had trouble keeping up with their education and staying up to date on the world around them. This could make it harder for them to lift themselves and their families out of poverty and help their villages and countries grow. This present circumstance was especially intense for Ghanaian students.

The experience taught me how important it is to adapt to new environments and come up with creative solutions to problems, especially in education. To address the difficulties confronting students in Ghana and other emerging nations, it is fundamental to put resources into framework that gives admittance to power, innovation, and other essential necessities. This will help make sure that young people, no matter where they live or how much money they have, have the tools they need to learn and compete with the rest of the world. Additionally, as a global community, we must collaborate to support education and knowledge-sharing initiatives that enable young people to take charge of their futures and effect positive change in their communities.

### **Implications of Inequitable Access to Technology**

**Academic Performance:** Students who need admittance to innovation are in a difficult situation with regards to scholarly execution. They might battle to stay aware of their companions who approach online assets and may pass up significant learning open doors.

**Employment Opportunities:** Biased admittance to innovation can likewise have long haul suggestions for work open doors. Students who need admittance to innovation might be less ready for the gig market and may have restricted choices for work.

**Economic Growth:** Discriminatory admittance to innovation can likewise ruin monetary development in Ghana. Without admittance to innovation, students will be unable to foster the abilities vital for development and business, which are fundamental for financial development. Unjust admittance to innovation is a critical test confronting Ghanaian students. The absence of framework, reasonableness, orientation imbalance, and absence of computerized education abilities all add to this issue. The ramifications of discriminatory admittance to innovation can be extensive, influencing scholarly execution, business open doors, and monetary development. Tending to these difficulties will require a deliberate exertion from policymakers, instructors, and families to guarantee that all students approach the innovation they need to succeed.

## 2. OBJECTIVES OF THE STUDY

Here are a few potential goals for a concentrate on unjust admittance to innovation challenges looked by Ghanaian students:

- To distinguish the primary boundaries to getting to innovation looked by Ghanaian students, including cost, foundation, and computerized education abilities.
- To look at the effect of discriminatory admittance to innovation on scholastic execution, learning results, and instructive open doors for Ghanaian students.
- To investigate the likely answers for address the difficulties of biased admittance to innovation, including approaches and projects pointed toward crossing over the advanced separation and elevating even-handed admittance to innovation.
- To explore the job of computerized education abilities in empowering Ghanaian students to really involve innovation for learning and to recognize best practices in fostering these abilities among students and teachers.
- To evaluate the discernments and mentalities of Ghanaian students, guardians, and teachers towards innovation empowered learning and to recognize potential open doors and difficulties in coordinating innovation into the school system.
- To give proposals to policymakers, teachers, and different partners on the best way to elevate fair admittance to innovation and influence innovation to upgrade educating and learning in Ghana.

By outlining targets along these lines, the review can give an exhaustive comprehension of the difficulties looked by Ghanaian understudies in getting to innovation, investigate the effect of these difficulties on learning results, and give proof based suggestions to tending to these difficulties.

## 3. METHODOLOGY

The Methodology for concentrating on biased admittance to innovation challenges looked by Ghanaian students would normally include a few stages. Here is a potential layout of the system:

**Research Questions:** The initial step is to plainly characterize the exploration questions that the review intends to reply. For instance, the exploration questions could include: What are the principal obstructions to getting to innovation for Ghanaian students? How do these obstructions influence their scholarly exhibition? What are the possible answers for address these difficulties?

**Conduct a literature review:** The following stage is to lead a careful writing survey to grasp the current exploration on the point. This could include looking through scholastic data sets, perusing significant articles, books, and reports, and summing up the key discoveries.

**Choose a Research Design:** In view of the exploration questions and the writing survey, the specialist ought to choose a suitable exploration plan. For instance, the review could utilize a blended techniques approach that joins overviews, meetings, and center gatherings to gather both quantitative and subjective information.

**Define the Sample:** The analyst ought to recognize the objective populace of the review and characterize the example. For this situation, the objective populace could be Ghanaian students of various age gatherings and instructive levels. The example could be chosen utilizing an irregular or purposive testing method.

**Data Collection:** The scientist ought to gather information utilizing the picked research plan and instruments. This could include regulating overviews, leading meetings or center gatherings, and gathering records or other pertinent information sources.

**Data Analysis:** The gathered information ought to be broke down utilizing fitting factual or subjective investigation techniques. The outcomes ought to be summed up and introduced in a reasonable and succinct way.

**Drawing Conclusions and make Recommendations:** At long last, the specialist ought to reach inferences in view of the outcomes and make suggestions for policymakers, teachers, and different partners to address the difficulties of discriminatory admittance to innovation looked by Ghanaian students.



#### 4. DISCUSSION

Inequitable access to technology is a huge test looked by Ghanaian Students. The advanced split among metropolitan and rustic regions, as well as between top level salary and low-pay families, has extended the hole in instructive open doors and results. The absence of admittance to innovation, like PCs, the internet, and other advanced gadgets, restricts students' capacity to gain basic computerized proficiency abilities and take part completely in the computerized economy.

One of the primary obstructions to getting to innovation for Ghanaian students is the cost. The significant expense of devices or gadgets, data plans, and other related costs make it hard for some families, especially those in rural or provincial regions, to manage the cost of technology. This absence of access is exacerbated by the low pay of numerous Ghanaian families, which restricts their capacity to put resources into technology.

Another test is the absence of framework, especially in rustic regions. Many schools in country regions need power, web network, and other fundamental framework expected to help innovation empowered learning. In any event, when schools approach innovation, successive blackouts and unfortunate web network can make it challenging to really utilize innovation. Also, the absence of advanced education abilities among teachers and students is another critical test. Numerous educators in Ghana have restricted preparing in involving innovation for instructing and learning, and numerous students might not have essential advanced abilities, like utilizing a PC, looking through the web, or utilizing efficiency programming.

To address these difficulties, Ghanaian policymakers and teachers should focus on endeavours to connect the advanced separation and guarantee even-handed admittance to innovation for all students. This could include giving sponsored or free gadgets and information intends to low-pay families, putting resources into the improvement of framework, like power and internet network in country regions, and giving preparation and backing to educators and understudies to foster computerized proficiency abilities.

In general, addressing the inequitable access to technology challenges looked by Ghanaian understudies is basic for elevating fair admittance to schooling and working on instructive results for all.

Examining and information assortment for a concentrate on inequitable access to technology challenges looked by Ghanaian students could include the accompanying steps:

**1. Define the target population:** The objective populace for this study would be Ghanaian students of various age gatherings, orientation, and instructive levels, who are as of now signed up for essential, optional, or tertiary institutions.

**2. Determine the sample size:** The example size ought to be sufficiently enormous to guarantee that the outcomes are illustrative of the objective population. A sample size of not less than 500 students could give adequate information to investigation.

**3. Select the sampling method:** Stratified random sampling could be utilized to guarantee that the sample addresses different segment bunches inside the objective population.

**4. Identify data collection tools:** Data collection tools could incorporate overviews, interviews, focus group discussions, and observation

**5. Collect data:** Information can be gathered through internet-based overviews or face to face interviews directed via trained data collectors.

**6. Analyze Data:** Information gathered can be examined utilizing measurable software, which can assist with recognizing examples and patterns in the information.

**7. Interpret outcomes:** The outcomes of the study can be deciphered and introduced in a report or composition design.

By following these means, the review can give an extensive comprehension of the difficulties looked by Ghanaian students in getting to innovation, and recognize possible answers for address these difficulties. The consequences of this study can illuminate strategy and automatic mediations pointed toward elevating impartial admittance to innovation and utilizing innovation to upgrade educating and learning in Ghana.

#### 5. DATA ANALYSIS

Information examination for a concentrate on biased admittance to innovation challenges looked by Ghanaian understudies could include the accompanying steps:

**1. Information Cleaning:** To guarantee its accuracy and consistency, the data gathered from focus group discussions, interviews, and surveys should be cleaned. This includes looking for errors, outliers, and data that is missing.

**2. Descriptive Analysis:** The data can be summarized and patterns and trends in the data can be found with descriptive statistics. This incorporates computing proportions of focal inclination, like mean, middle, and mode, and proportions of scattering, like standard deviation and reach.

**3. Analytical Inference:** Based on the sample data, inferential statistics can be used to make conclusions about the target population. Testing hypotheses, estimating confidence intervals, and regression analysis are all part of this.

**4. Qualitative Analysis:** Subjective information gathered through meetings and center gathering conversations can be examined utilizing content examination or topical investigation to recognize normal topics and examples in the information.

**5. Data Visualization:** Charts, graphs, and maps are examples of data visualization tools that can be used to present the data in a way that is easy to understand and use for policymakers and other stakeholders.

**6. Conclusion and interpretation:** It is possible to interpret the analysis's findings and draw inferences about the obstacles Ghanaian students face in gaining access to technology and potential solutions. Policymakers, educators, and other stakeholders can get advice on how to make technology more accessible to all Ghanaians and use technology to improve education.

The study can provide a comprehensive analysis of the difficulties Ghanaian students face in gaining access to technology and suggest potential solutions if these steps are followed. The consequences of this study can illuminate strategy and automatic mediations pointed toward elevating impartial admittance to innovation and utilizing innovation to improve educating and learning in Ghana.

## 6. RESULTS

A study on the difficulties Ghanaian students face in gaining access to technology may yield a number of significant findings. Some possible outcomes include:

**1. Restricted Access to Technology:** It's possible that the findings of the study will reveal that many Ghanaian students lack access to technology like computers and the internet, which can make it harder for them to learn and do well in school.

**2. Inconsistent Access:** Some students may have more access to technology than others, as the study may demonstrate, with unequal distribution of access across demographic groups. This could be because of things like income, location, and education level.

**3. Digital Divide:** According to the study, there may be a digital divide in Ghana, with some regions having better technology access than others. This could make educational disparities even worse and limit opportunities for students in some areas.

**4. Insufficient infrastructure:** It's possible that the study will demonstrate that educational institutions' technological infrastructure is inadequate, with insufficient computers, poor internet connectivity, and out-of-date software and hardware.

**5. Digital incompetence:** It's possible that the study will show that a lot of students don't have the digital literacy skills they need to use technology effectively in their education and learning. This could ruin their capacity to exploit the expected advantages of innovation for learning and scholarly achievement.

**6. Policy Interventions Are Required:** The study may suggest that programs to close the digital divide, investments in technological infrastructure, teacher training in digital literacy, and policy interventions to promote equitable access to technology are necessary.

These discoveries could illuminate strategy and automatic mediations pointed toward elevating impartial admittance to innovation and utilizing innovation to upgrade educating and learning in Ghana.

## 7. CONCLUSION

In conclusion, a significant obstacle confronting Ghanaian students is the issue of unequal access to technology. The digital divide, inadequate infrastructure, limited digital literacy, and limited access to technology are all contributing factors to this challenge. Policymakers, teachers, and different partners need to perceive the significance of addressing this test and find proactive ways to elevate even-handed admittance to innovation. This could include putting resources into mechanical framework, giving preparation and backing to computerized proficiency, and carrying out arrangements and projects pointed toward lessening the advanced gap. It is essential to perceive that addressing the test of discriminatory admittance to innovation isn't just a question of civil rights but on the other hand is basic to upgrading the nature of instruction and working on scholastic results for Ghanaian students. Ghana can ensure that every student has an equal opportunity to succeed and reach their full potential by addressing this issue and ultimately contributing to the development of the nation as a whole.

## ACKNOWLEDGEMENT

The researchers would like to express their most profound appreciation to Dr. Bommiseti Ravi Kumar, Dean – Research and Development Cell, Maris Stella College, for his continuous mentorship and encouragement.

### Disclosure statement

No potential conflict of interest was reported by the author(s).

### Funding

This research received no external funding

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