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Digital Education Policies and the Digitalization of the Teaching-Learning Process in Lycée Général Leclerc, Yaounde-Cameroon

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Abstract: The pedagogical integration of digital technology is considered as a panacea to diverse contemporary educational issues. That is why policy makers are making frantic efforts to see into it that the teaching-learning process, specifically in secondary schools is digitalized. However, this initiative is marred by a given number of challenges; amongst which are inadequate technological infrastructure, stakeholders' training and digital resource accessibility in Lycée Général Leclerc, Yaounde. This paper therefore seeks to explore the degree at which the current digital education policies are contributing to the digitalization of the teaching-learning process in the said institution. To achieve this objective, a mixed-methods approach, involving qualitative and quantitative techniques was adopted. While interviews were conducted with 07 teachers and 08 parents, questionnaires were administered to 52 students purposively sampled via the Krejcie and Morgan (1970) model. Qualitative analyses were content-based, anchored in François-Xavier de Vaujny's Theory of Technology Appropriation and Kurt Lewin's Theory of Change while quantitative data were analyzed in frequencies and percentages via Excel 2016. Findings revealed a significant gap between institutional ambitions regarding digital technologies integration in the teaching-learning process and the reality in Lycée Général Leclerc due to inadequate digital technologies infrastructure, stakeholders' training as well as digital resource availability. These limitations hinder the smooth and sustainable adoption and effective use of digital technologies in the teaching-learning process in the said school. In response to these challenges, the study recommended the development of a comprehensive action plan to strengthen the integration of digital technologies in secondary education. It also advocates for the enhancement of support for educational stakeholders in terms of training as well as the establishment of strategic partnerships with technology companies and Internet service providers to improve access to digital resources.

Keywords: Digital education, Policy, Digitalization, Teaching, and Learning



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1. Introduction

It The advent of digital technologies has profoundly transformed education systems around the world, generating growing interest in the integration of these tools into teaching and learning

practices. This educational approach is guided by digital education policy, which refers to the set of strategies and actions implemented to integrate digital technologies into education. Its objective is to harness the potential of digital technologies to improve learning, teaching, and the digitalization of the entire education system. Digitalization is the integration of digital technologies into human activities and tasks with the aim of improving them. This perspective emphasizes that digitalization extends across multiple sectors and is not exclusive to education. Teaching is the process of facilitating the acquisition of knowledge, skills, or behaviors by a learner under the guidance of a teacher or instructor. This definition is centered on a formal educational setting. However, the OECD[1] argues that teaching is a dynamic activity comparable to an art, in the sense that it is not governed solely by prescriptions and routines but is shaped by qualities and contingencies that cannot be anticipated and that emerge during the teaching process. Learning is defined as a set of voluntary and conscious activities explicitly aimed at acquiring a skill, knowledge, or information[2].

Education, as a human activity, seeks to transform individuals into socially responsible citizens capable of contributing to the development and improvement of their own living conditions as well as those of their communities. UNESCO[3] recognizes education as a fundamental human right, in accordance with the Universal Declaration of Human Rights. Similarly, the World Bank considers education a key sector for a country's economic and social development. It warns of a global learning crisis and recommends three strategic priorities: measuring learning outcomes, using evidence to guide policy and practice, and aligning the efforts of all stakeholders.

Digital technologies facilitate the teaching-learning process and improve performance and productivity. There are so many universities, colleges, and schools using digital technologies to education standard. To Shanks[4], Course Management Systems (CMS) are championed for enabling instructors to easily and efficiently distribute course information and content to learners via the internet. Common CMS platforms include: Canvas, Desire2Learn, Google Classroom, Moodle, and Sakai. CMS provides collections of software and online tools for course interactions and are also referred to as Learning Management Systems (LMS) or Virtual Learning Environments (VLE). Almost all universities and colleges in the United States and United Kingdom utilize CMS. The situation is different in African and other third world countries as only a handful of the said institutions make use of virtual learning platforms[5].

Whatever the case, activities that Pedagogues used to take over very long periods of time and/or put in much effort to realize are now done at a short notice and at a cheaper rate in terms of cost. Today's classrooms are rapidly being transformed as almost every activity is going digital. Lately, it is common to hear of appellations like: e-learning, mobile learning, distance learning, collaborative learning, tele-education and evaluation or assessment, et cetera. That is to say, digital technologies do not intervene in education only at the levels of teaching and learning but also at the levels of evaluation, results diffusion, research, records keeping, and communication with different stakeholders. With digital technologies, learning is learner-centered; wherein, learners work on their own, at their pace and at their own convenience; requiring fewer teachers and the material is presented in a consistent manner. The advantage with digital technologies therefore is that they are endlessly patient; allow for distance learning, research via online libraries or search engines and meet special needs of learners.

The question that arises however is that, why is it that the domain of education seems to be the most solicited by this paradigm-shift? The response is that education is the foundation of all human societies. Even though this pedagogically transformative endeavor is usually marred by a given number of impeding factors, it has been ascertained that no nation can effectively develop without a technology-based educational system. It is nowadays regarded as fuel of development and digital technologies-oriented instruction is the essential ingredient in developing new ideas in course content and curriculum and in the creation of materials and methods of teaching and learning.

Context

In an increasingly digital world, education systems must adapt to this transformation in order

to prepare learners for the challenges of the twenty-first century[6]. This is because the advent of digital technologies has profoundly transformed education systems worldwide, generating growing interest in integrating these technologies into teaching and learning practices. This educational transformation is guided by digital education policy, which encompasses the strategies and actions implemented to integrate digital technologies into education, both in terms of pedagogical practices and educational infrastructure and resources. Its objective is to harness the potential of digital technologies to improve learning, teaching, and the digitalization of education systems. In this context of rapid digitalization, educational policies play a crucial role in guiding and regulating the adoption of digital technology in schools.

In the same vein, the African Union (AU) has published several policies and strategic frameworks to promote the digitalization of teaching and learning across Africa. Among the main initiatives is the Digital Education Strategy (2023-2028), which aims to accelerate the adoption of digital technologies in education. This strategy is built around three major intervention areas: digital connectivity, online and offline learning, and teacher training. The AU also introduced the DOTSS framework (Digital Connectivity, Online and Offline Learning, Teachers as Facilitators and Motivators of Learning, Safety Online and in Schools, and Skills-Focused Learning) to guide digital education policies across the continent.

Furthermore, the African Union Digital Transformation Strategy (2020-2030) seeks to promote the adoption of digital technologies across all sectors, including education. The Continental Artificial Intelligence (AI) Strategy and the African Digital Compact are all anchored in Agenda 2063, which seeks to transform Africa into an integrated, prosperous, and peaceful continent. These policy documents and strategic frameworks demonstrate the African Union's commitment to promoting the digitalization of teaching and learning across Africa in order to improve the quality of education and prepare learners for the challenges of the twenty-first century.

In Cameroon, policy makers and researchers view the pedagogical integration of Information and Communication Technologies (ICTs) into education as a solution to the various shortcomings of the education system, with the ambition of reducing mass school failure and modernizing the educational system, among other objectives[7]. Indeed, Cameroon is a dynamic country, striving to align itself with global standards in both education and technology. Its education system has a unique characteristic. It is divided into two subsystems: Anglophone and Francophone, reflecting its colonial heritage. Law No. 98/004 of 14 April 1998, which serves as the Framework Law on Education, makes schooling compulsory for children until the age of 11, corresponding to the completion of six years of primary education.

Since the early 2000s, Cameroon has made primary education free of charge, although parents are still required to provide school uniforms, textbooks, and other necessary learning materials. During the same period, the country also embarked on an ambitious policy aimed at integrating ICT into education. In 2001, President Paul Biya inaugurated the first Multimedia Resource Centers (MRCs) at Lycée Général Leclerc and Lycée Bilingue d' Essos in Yaounde. The project aimed to modernize secondary education by providing teachers and students with easy access to digital technologies and by anticipating the emergence of a knowledge-based economy through the provision of technological equipment, including computers and tablets.

A further milestone was achieved in 2011 with the nationwide introduction of ICT and the generalization of Computer Science as a subject in secondary education, thereby reinforcing the ambitions initiated in the early 2000s. Another significant initiative took place in 2016 when 312 digital tablets were distributed to students at Lycée Général Leclerc (LGL) at the beginning of the academic year. More recently, these efforts have been strengthened through the Secondary Education and Skills Development Support Project (PADESCE). In April 2025, the project equipped 100 secondary schools, including Lycée Général Leclerc, with interactive digital whiteboards. These devices feature advanced functionalities such as videoconferencing, integrated artificial intelligence, multimedia tutorials, and Windows-based applications, and their deployment was accompanied by

teacher training sessions. Another important milestone was the inauguration of a digital classroom on 3rd March 2026, attended by Mrs. Nalova Lyonga, Minister of Secondary Education, and Mrs. Fouda Mengue Judith, Principal of Lycée Général Leclerc. At present, the school has three multimedia laboratories, each equipped with approximately 40 computers, although barely 20 are operational, as well as a video projector and an interactive whiteboard.

Researchers generally agree that integrating ICTs into education significantly improves both teaching and learning practices, thereby enhancing the overall quality of education[8][9]. However, other scholars point out that despite these advances, considerable challenges remain[10]. Much of the available equipment has become obsolete; for example, many schools still rely on Cathode-Ray Tube (CRT) monitors, and the student-to-computer ratio is often 10:1 or even worse. Moreover, although computer laboratories exist in many schools, access remains limited; teacher training is insufficient, and only a small proportion of teachers regularly use digital technologies in their classrooms. Lycée Général Leclerc is therefore not an isolated case, as most, if not all, secondary schools in Cameroon continue to face significant challenges in integrating digital technology into the teaching-learning process[11]. This comes at a time the government is making considerable efforts to implement its digital education policy.

This apparent contradiction raises several important research questions; viz: how is the digital education policy concretely reflected in the digitalization of the teaching-learning process at Lycée Général Leclerc? To what extent is the digital education policy effective in promoting the digitalization of teaching and learning? What are the benefits and drawbacks of this technological innovation within teaching-learning process? Finally, what measures are needed to improve the integration of digital technologies and ensure the successful management of teaching and learning?

The main objective of this study is to assess the effectiveness of the digital education policy in promoting the digitalization of the teaching-learning process by identifying its underlying intentions and implementation mechanisms. On a specific note, the study seeks to: analyze the extent to which the provision of technological infrastructure influences the digitalization of the teaching-learning process; examine the extent to which training provided to teachers and students in the use of digital technologies influences the digitalization of the teaching-learning process; and assess the extent to which the availability of digital resources for teachers and students affects the digitalization of the teaching-learning process at Lycée Général Leclerc in Yaoundé, Cameroon.

Digital infrastructure and the digitalization of the teaching-learning process

Within the educational context, infrastructure refers to the physical and technological facilities that support teaching and learning, including school buildings, classrooms, libraries, and laboratories. Technological infrastructure, more specifically, includes computer networks that enable teachers and students to access the Internet and share educational resources; digital devices such as computers, smartphones, tablets, and other electronic equipment that provide access to digital learning materials; online learning platforms that facilitate communication and collaboration among educational stakeholders; and Learning Management Systems (LMSs) that enable teachers to manage courses, students, and educational resources. According to Karsenti, the Internet constitutes one of the minimum and indispensable conditions for the successful integration of ICT into education[12]. Consequently, Internet connectivity is regarded as a fundamental prerequisite for integrating digital technologies into the teaching-learning process.

The integration of digital technologies into education encompasses two complementary dimensions: physical integration and pedagogical integration[13]. Citing Raby, Ngono explains that physical integration consists of making technological equipment available to teachers and students so that they can use it occasionally to meet specific pedagogical needs within the school environment. In other words, physical integration involves equipping schools with adequate technological infrastructure and digital devices, since it constitutes the foundation upon which pedagogical integration is built.

Pedagogical integration, on the other hand, concerns the effective and regular use of these

technological tools in teaching and learning activities, particularly by students. Regarding technological infrastructure, Cameroon has established an online distance-learning platform developed by the Ministry of Secondary Education (MINESEC), known as Distance Learning. Initially designed for examination classes (Form Five, Lower Sixth, and Upper Sixth) during the COVID-19 pandemic, the platform ensured pedagogical continuity while schools were affected by the health crisis. Kouakem and Djidji Doudou[14] state that the platform is accessible to both teachers and students and that all uploaded resources are official materials produced by MINESEC and its decentralized services, fully aligned with the national curriculum. The process leading to the publication of these resources includes the following stages: commissioning, content development, lesson recording, storage, and online dissemination for users' access.

Teachers and students' training in digital technologies and the digitalization of the teaching-learning process

The objective of placing learners at the center of the learning process had not previously been sufficiently achieved, despite the introduction of the Competency-Based Approach (CBA). Teachers largely continued to rely on objective-based teaching methods, while students did not actively engage with the new learner-centered approach[15]. Similarly, the digitalization of education has encountered challenges comparable to those experienced during the implementation of competency-based education, particularly regarding the training of educational stakeholders. In response, school administrators introduced programs granting each class scheduled access to the Multimedia Resource Centers (MRCs). Under this arrangement, every class is allocated two-hour sessions twice a week in the multimedia laboratories, enabling students to become familiar with digital tools and techno-pedagogical resources that support their learning. This initiative reflects school administrators' strong commitment to integrating ICTs into education.

In the same vein, Diakité[16] argues that if we genuinely seek to improve the quality of technology use in education, it is necessary to create a virtuous, balanced, and coherent cycle among all these components, beginning with the human dimension. Furthermore, Karsenti and Tchamegni Ngamo, cited by Saha Fobougong[17], identify four levels of ICT integration in education: teaching ICT as a subject; enabling students to appropriate ICT skills; teaching school subjects through ICT; and enabling learners to acquire diverse forms of knowledge through ICT.

Availability of digital resources for teachers and students and the digitalization of the teaching-learning process

The availability of digital resources refers to the existence of technological tools within schools, as well as the personal digital devices owned by teachers and students, or a combination of both. Following Ngono, availability also encompasses the effective use of these resources, particularly the pedagogical integration of digital technologies into teaching and learning activities. Indeed, meaningful use of digital technologies is only possible when such resources are available. These resources include Multimedia Resource Centers, computers, video projectors, interactive whiteboards, and other digital devices.

Beyond their availability, the quality of digital resources is equally important. This concerns whether the available technologies are equipped with software that meets teaching and learning needs, whether such software is regularly updated, and whether Multimedia Resource Centers provide adequate infrastructure, including reliable electricity and sufficient seating capacity. It also involves adapting digital technologies to local realities, whether in rural or urban settings, by promoting compatible solutions such as basic mobile phones and offline technologies that are better suited to areas with limited digital infrastructure[18].

Resources designed to meet specific educational needs can also promote inclusive education. For example, ICT tools adapted for learners with disabilities make it possible to personalize learning experiences, allowing these students to access the same educational content as their peers while progressing at their own pace and according to their individual needs, thereby fostering educational equity and improving learning outcomes[19]. A similar example is Ubongo, a Tanzanian social

enterprise that provides educational programs and interactive learning content for young Africans through widely accessible technologies, particularly television. Ubongo delivers its educational content in eight local languages across eighteen Sub-Saharan African countries[20], thereby helping to overcome language barriers in education. The availability of appropriate digital resources therefore plays a crucial role in educational success at multiple levels. It is not merely a question of providing computers or Internet connectivity but also of ensuring that digital resources are accessible, relevant, effectively integrated into teaching practices, and equitably distributed among learners.

Theoretical considerations

This study is anchored in two theoretical perspectives: Kurt Lewin's Theory of Change (1947) and François-Xavier de Vaujany's Theory of Technology Appropriation (2005).

Kurt Lewin's Theory of Change (1947)

The theory of Change was propounded by Kurt Lewin in 1947. It explains the process of change by outlining causal linkages in an initiative in the short-term, intermediate, and long-term outcomes. The links between outcomes are explained by statements of why one outcome is thought to be a prerequisite for another. The theory makes a distinction between desired and actual outcomes and indicates that change can begin at any level of an initiative.

François-Xavier de Vaujany's Theory of Technology Appropriation (2005)

François-Xavier de Vaujany's Theory of Technology Appropriation views technology appropriation as a complex process that involves not only adopting new technologies but also integrating them into everyday organizational routines and professional practices. Technology appropriation is conceived as a dynamic, multi-stage process that begins with the discovery of a technology and gradually progresses toward its full integration into organizational practices. Throughout this process, individuals and organizations continuously negotiate the meaning, value, and usefulness of technology while adapting it to their specific needs and contextual realities. These two theories are relevant to the present study in that they are all focusing on dynamism; the process of change and its implications; which in this case is the digitalization of the teaching-learning process in Lycée Général Leclerc.

From literature reviewed, it can be realized that even though a lot of research has been carried out on the pedagogical integration of digital technologies in education, the debate is yet to abate as much still needs to be talked about, especially in the context of Cameroon digital education pilot secondary schools. Apart from Béch  and few others who have researched on this topical issue, the phenomenon remains virgin and warrants in-depth explorations. This explains why literature relating thereto is skeletal. This vacuum therefore serves as a scientific leitmotiv for the present study, specifically in Lyc e G n ral Leclerc, Yaounde-Cameroon.

2. Materials and Methods

This study adopts a correlation and exploratory research design and employs a mixed-methods approach, combining qualitative and quantitative research methods. The qualitative component consisted of semi-structured interviews conducted with 07 teachers and 08 parents, complemented by direct observations carried out at Lyc e G n ral Leclerc. The quantitative component was based on questionnaires administered to 52 students, resulting in a total sample of 67 participants purposefully sampled using the Krejcie, Morgan model.

Table 1. Summary table of participant selection criteria

Actors selected	Students	Teachers	Students' parents
Selection criteria	Age, class and sex	Subjects taught, teaching experience and sex	Sex and profession

Source: Field survey (2026)

Table 1 presents the summary of participants as well as their selection criteria. Regarding the teachers, the study involved interviews with 07 teachers: 01 Mathematics teacher with 30 years of teaching experience, 01 Life and Earth Sciences teacher with 14 years of teaching experience, 01 Computer Science teacher with 13 years of teaching experience, 01 History-Geography-Citizenship Education (ECM) teacher with 12 years of teaching experience, 02 Spanish teachers, each with 5 years of teaching experience, and 01 French teacher with 3 years of teaching experience. With respect to parents, 08 parents participated in the interviews. The sample comprised 03 home makers, 02 traders, 02 nurses, and 01 gendarme officer (member of the National Gendarmerie).

Table 2. Summary table of students surveyed

Class	5 ^{ème}	4 ^{ème}	3 ^{ème}	2ndeA&C	1 ^{ère} ACD	Tle ACD	Total
Girls	11	0	3	0	4	9	27
Boys	5	1	3	1	8	7	25
Total	16	1	6	1	12	16	52

Source: Field survey (2026)

Table 2 provides information on students and their characteristics which served as a major criterion for their selection. Students constituted the primary target population of this study because they are at the core of the digitalization process. It should be noted that the final sample was determined by participants' availability. Although more than 120 students, 15 teachers, and 25 parents were invited to participate, not all of them accepted the invitation or responded. The quantitative data were analyzed using Microsoft Excel 2016, with frequency and percentage distributions as the main statistical technique. The qualitative data were analyzed through *content analysis*, anchored on Kurt Lewin's Theory of Change and François-Xavier de Vaujany's Theory of Technology Appropriation as the analytical frameworks.

3. Results

The findings of this study are presented in the light of digital infrastructure, teachers and students' training in digital technologies and the availability of digital resources for teachers and students.

Informants' opinion on digital infrastructure

All the teachers interviewed unanimously agreed that the digitalization of the teaching-learning process represents a fundamental change in teaching practices, requiring a genuine transformation in both mindset and pedagogy among educational institutions as well as teachers and students. They also acknowledged that digitalization has the potential to improve both teaching and learning. However, they stressed that its successful implementation depends on the availability of appropriate technological infrastructure. One respondent stated that *we have infrastructure such as computer laboratories and the associated equipment, but many of the computers do not have updated software, and some are not even operational. As a result, we are forced to have four or five students share a single computer. It is therefore essential to upgrade our computers so that they meet current technological standards.*

This statement suggests that, according to De Vaujany's Theory of Technology Appropriation, technology adoption cannot be fully achieved because, although digital technologies are available, they are not sufficiently adapted to current educational needs or technological realities. At the same time, teachers' willingness to move away from traditional teaching methods supports Lewin's (1990) Theory of Change, since digitalization entails both organizational transformation within educational institutions and the consolidation of new pedagogical practices.

Teachers and students' training in digital technologies

To examine the influence of teachers and students' training on the digitalization of teaching and learning, the study relied on the following frequency table.

Table 3. Students' opinions on training in digital technologies

Questions/answers	Yes	No	No idea	Total
Q6	42.31%	51.92%	5.77%	100%
Q7	67.31%	32.69%	0.00%	
Q8	84.62%	7.69%	7.69%	

Source: Field survey (2026)

In table 3, questions (Q6, Q7, and Q8) entitled respectively as: *Have you received training in the use of ICT tools? Have you needed assistance from other people (parents, older siblings, or classmates) to use ICT tools? and Does the regular use of these tools improve your skills?*, provide valuable insights into students' opinions on ICT training. The frequency distribution reveals a dual pattern regarding users' training in ICT. Only 42.31% of the respondents reported having received formal training in the use of ICT tools, whereas 51.92% indicated that they had acquired these skills through self-learning. Nevertheless, although the majority (51.92%) reported being self-taught, 67.31% acknowledged that they had needed assistance from parents, older siblings, or classmates to use these tools more effectively in their learning process. Furthermore, an overwhelming majority (84.62%) agreed that the regular use of ICT tools contributes to improving their competencies.

These findings suggest that students recognize the importance of receiving training in the use of ICT tools, even though most respondents emphasized self-learning. It is nevertheless important to acknowledge that ICT proficiency does not depend solely on formal training. It may also be influenced by individual aptitude as well as by the socioeconomic background of students' families. In other words, students who have access to ICT devices, particularly computers at home generally demonstrate a better understanding and mastery of digital technologies than those from less privileged households.

Availability of digital resources for students and teachers

Based on field observations, it is difficult to conclude unequivocally whether digital resources are truly available, since digitalization involves not only the availability of ICT equipment but also its effective use in teaching and learning, as emphasized by Mbangwana, Ondo, cited by Ngono. Questions Q1, Q2, and Q4, entitled respectively *Do you own ICT devices? Were the ICT devices you use provided by your parents or relatives? and Are these devices suitable for your learning needs?*, provide information on the availability of digital resources. See table below.

Table 4. Students' opinion on the availability of digital resources

Questions/answer	Yes	No	No idea	Total
Q1	90.38%	7.69%	1.92%	100%
Q2	61.34%	32.69%	5.77%	
Q4	82.69%	13.46%	3.85%	

Source: Field survey (2026)

Table 4 indicates that 90.38% of the respondents have access to at least an ICT device, while 82.69% stated that these devices meet their learning needs. Furthermore, although the majority of these devices (61.34%) were provided by parents or relatives, a substantial proportion of students (32.69%) reported that the devices they use were obtained through other means.

Although these findings appear encouraging, they should be interpreted with caution, as the majority of the digital resources referred to are students' personal devices, which are generally used at home. The technological equipment available at Lycée Général Leclerc is largely obsolete and no longer meets contemporary technological requirements. Its age and deterioration considerably

reduce its effectiveness and make it inadequate for addressing the increasingly complex demands of modern education. While innovation and modernization are central to scientific and technological progress, Lycée Général Leclerc remains constrained by outdated equipment that lacks the flexibility, performance, and processing capacity required to achieve the objectives of digitalization, particularly the improvement of teaching and learning quality.

Additional challenges include the high costs associated with acquiring and maintaining digital equipment, poor Internet connectivity, and the instability of electricity supply. Regarding the effectiveness of digitalization, a Spanish language teacher stated that *ICT tools are highly effective for teaching Spanish because they provide a wide variety of resources, facilitate the integration of different learning materials, offer access to authentic cultural content, and promote the development of language skills. We increasingly digitalize our lessons by projecting images, videos, and audio recordings, as these resources enhance students' understanding and enable them to acquire both knowledge and language competencies. In short, ICT tools are extremely important in the teaching-learning process.*

4. Discussion

Discussions are made in the light of the specific variables of the study and are anchored on empirical and theoretical underpinnings.

Digital technology infrastructure as an ingredient in the digitalization of the teaching-learning process at Lycée Général Leclerc

Integrating digital technologies into teaching and learning practices requires not only the availability of adequate equipment but also the promotion of responsible, ethical, and safe use of digital tools. In this context, each stakeholder should be able to recognize the specific benefits that this innovation can provide. For teachers, digital infrastructure can strengthen their sense of self-efficacy, promote the development of new pedagogical competencies, and increase their motivation to adopt innovative teaching practices. For students, it serves as a catalyst for motivation, learners' autonomy, and the development of digital skills that are essential in the 21st century. Parents, on their part perceive digital infrastructure as an opportunity to improve the monitoring of their children's academic progress while preparing them for the demands of an increasingly digital society.

Nevertheless, field observations reveal a noticeable gap between these generally positive opinions and the actual state of digital infrastructure in this institution. Despite the satisfaction expressed by the different stakeholders, the available facilities remain insufficient, sometimes outdated, and often inadequately aligned with the real needs of teaching and learning. This discrepancy suggests that stakeholders' positive opinions are based more on an appreciation of the progress achieved than on an objective assessment of the quality, accessibility, and adequacy of digital infrastructure.

In other words, the reported satisfaction appears to reflect an adaptive response to existing constraints rather than a genuine correspondence between the available infrastructure and current pedagogical requirements. These findings highlight the need for greater investment in digital infrastructure, supported by strategic planning that considers the specific needs of educational institutions, continuous professional development for teachers, appropriate support for students, and active parental involvement to ensure the sustainable and effective integration of digital technologies into the education system.

Stakeholders' training in digital technology as a catalyst to the digitalization of the teaching-learning process at Lycée Général Leclerc

The digitalization of the teaching-learning process at Lycée Général Leclerc represents an educational innovation that faces challenges similar to those encountered by many other innovations. One of the most significant obstacles is the fear of the unknown, as described by Rogers, which is reflected in the resistance of many stakeholders to changes introduced by new technologies. In this context, teachers, as the principal actors responsible for digital transformation, must

demonstrate not only proficiency in the use of ICT tools but also the ability to integrate them effectively into their teaching practices. Resistance to change may stem from inadequate training and insufficient motivation among teachers.

The training of teachers and students in digital technologies at Lycée Général Leclerc relies largely on self-directed learning rather than on structured institutional training programs. In Cameroon more broadly, the limited availability of specialized ICT training programs compels many teachers to develop their digital competencies independently through personal experience and peer collaboration[21]. In this context, self-learning becomes an important strategy for technology appropriation. Nevertheless, this situation may result in limited or insufficiently pedagogical uses of digital technologies, as teachers do not always possess the instructional competencies required to integrate these technologies effectively into their classroom practices.

Availability of digital resources as a catalyst to the digitalization of the teaching-learning process at Lycée Général Leclerc

The stakeholders interviewed reported that digital resources are available; however, their use remains irregular. Moreover, the resources most frequently used are personal rather than institutionally provided. This finding reflects a common challenge affecting ICT integration across many African education systems: the mere availability of digital resources does not guarantee their effective educational use. Numerous studies have shown that the pedagogical use of digital resources depends largely on their institutional accessibility, adequate teacher training, and the availability of appropriate technological infrastructure. When schools lack institutional digital platforms or digital libraries, teachers tend to rely on their own materials, including personal documents, downloaded resources, and informal digital content[22].

In the Cameroonian context, although several initiatives have been launched to provide digital educational resources and online learning platforms, the irregular use of digital resources observed in this study may be explained by insufficient institutional organization and the absence of a stable educational digital ecosystem. Overall, these findings reveal a significant gap between national policies promoting digital education, stakeholders' opinions, and the actual conditions under which digital technologies are used. Improving ICT integration in education therefore requires not only adequate technological infrastructure but also structured teacher-training programs and stronger institutional support for the development, management, and dissemination of digital educational resources.

5. Conclusion

The main objective of this study was to assess the effectiveness of the digital education policy in promoting the digitalization of the teaching-learning process at Lycée Général Leclerc in Yaoundé, Cameroon. To achieve this objective, a mixed-methods research design combining qualitative and quantitative approaches was adopted. The findings indicate that current digital education policies are not fully aligned with the actual conditions under which digital technologies are used. The study highlights the need for greater coherence between technological infrastructure, structured training for educational stakeholders, and stronger institutional support for the provision and the digitalization of digital technology resources. Such alignment is essential to ensure the effective implementation of digital education policies and to enhance the quality of teaching and learning not only at Lycée Général Leclerc but in Cameroon educational institutions at large. Based on the findings of this study, it is recommended that future research involve a larger sample of participants and extend to secondary schools across the entire territory of Cameroon. Such broader coverage would provide a more comprehensive and representative understanding of the digitalization of teaching and learning throughout the country. Furthermore, the Government of Cameroon should develop and implement a comprehensive strategy for integrating ICTs into both teaching and learning practices. This strategy should include adequate funding for the putting in place of 21st century digital technological infrastructure, the design and implementation of structured teacher-

training programs as well as the acquisition of digital equipment. In addition, both the technological equipment provided and the training programs offered should be adapted to the specific realities of individual schools and their local contexts. This requires taking into consideration factors such as the availability and reliability of electricity, the quality and accessibility of Internet connectivity, and teachers' readiness and capacity to adopt and effectively use digital technologies in their professional practice.

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