

# Benefits of Information and Communication Technology (ICT) in the Successful Management of Schools in the World: Increasing the Efficiency and Quality of Education

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## ABSTRACT

In the era of digitalization, the use of Information and Communication Technology (ICT) has become a key factor for the successful management of schools. This paper examines the benefits of ICT integration in school administration, including improved operational efficiency, communication, and quality of education. Through analysis of existing literature and case studies, the paper explores how digital platforms and management software facilitate processes such as lesson planning, student data management, and communication between teachers, students, and parents. Also, the research paper emphasizes that the use of ICT contributes to the creation of a more interactive and flexible learning environment, thus helping to raise the quality of education. Finally, the improvements achieved through the use of ICT promote a more organized and transparent approach to school management, making the educational system more effective and adapted to the challenges of the XXI century. We can conclude that the integration of ICT has increased operational efficiency by allowing the automation of routine tasks such as student data management, absence registration, and real-time information sharing. These solutions have saved time and improved the accuracy and organization of administrative processes. It is recommended to invest in continuous staff training, ensuring stable and up-to-date infrastructure, developing clear policies for technology use, etc.

**Keywords** – Digitalization in education, ICT, operational efficiency, quality of education, school management.

## INTRODUCTION

In recent decades, the development of Information and Communication Technology (ICT) has transformed the way institutions and organizations operate around the world. Schools, as important centers of knowledge and education, are no exception to this phenomenon. The use of digital technologies has become an essential part of successful school management, helping to improve efficiency, communication, and quality of education. In many educational systems in the world, the implementation of ICT has been seen as a response to modern challenges, including increasing student numbers, the need for better data management, and demands for more personalized and learner-centered teaching.

The integration of ICT in school management includes a wide range of applications and platforms that facilitate administrative processes, lesson planning, and communication between key stakeholders of the education system, including teachers, students, and parents. Through the use of digital platforms, such as student data management software and real-time communication systems, schools can organize and manage assignments more accurately and effectively. In addition, digital technologies help improve the quality of

teaching through tools that allow easier access to different learning resources and support new methodologies, such as blended and personalized learning.

The use of ICT in school management is not only a trend of modern times but a necessity for meeting the challenges of complexity and efficiency in educational environments. Technology facilitates data management, improves communication between all parties involved, and offers new opportunities to advance teaching and learning. One of the main benefits is the ability to automate routine tasks, such as registering students, managing schedules, and monitoring the entire school system. This not only reduces the administrative burden of staff but also ensures greater accuracy and transparency in data management, making it easier for administrators to make decisions based on accurate and up-to-date information.

From the school principal's perspective, the integration of Information and Communication Technology (ICT) into school management presents an important opportunity to improve the efficiency and effectiveness of day-to-day operations. One of the main challenges that every director faces is the management of resources, be it time, staff, or information. By using data management software, principals can ensure that student records, exam results, and attendance are updated and stored securely. This not only improves accuracy but also facilitates strategic decision-making based on accurate and accessible data at all times.

Another key benefit for principals is improved communication within the school and with external parties. Online communication platforms allow important information to be shared quickly and efficiently with teachers, students, and parents. For example, instead of relying solely on physical meetings, principals can use digital tools to share announcements, and activity schedules, or communicate in real time with parents and staff. This significantly reduces the time spent on manual communication and increases transparency, enabling parents to be more involved in the educational process of their children. For principals, this means building a culture of collaboration and support, where technology acts as a key tool for successful management and the achievement of the school's strategic objectives.

The purpose of this paper is to examine the main benefits that ICT brings to school management, focusing on increasing operational efficiency and improving the quality of education. The paper will also explore the challenges that may arise during the integration of these technologies and present recommendations for their successful implementation in educational systems. Drawing on existing literature and practical examples from different schools, this study aims to highlight how technology can transform the way schools are organized and run, helping to create a more organized, engaged learning environment. and more successful for all participants.

In this way, this paper aims to contribute to the ongoing discussion on the role of technology in education and the importance of adopting digital innovations to improve the quality and effectiveness of school management.

The integration of Information and Communication Technology (ICT) in school management is an emerging field that has received considerable attention from researchers and practitioners worldwide. The use of ICT has brought significant improvements in administration efficiency, communication, and teaching quality.

### **Benefits of ICT in School Management**

Researchers have pointed out that ICT helps simplify administrative processes by enabling the automation of daily tasks, such as student registration, timekeeping, and attendance record management. This automatically improves accuracy and reduces errors that can occur during manual administration, making management more efficient and organized (Tulowitzki, Gerick & Eickelmann, 2022). In a study conducted to analyze the use of ICT in various international schools, it was observed that school leaders who use technology more report increased efficiency in resource management and significantly improved internal and external communication, especially with parents and the community (Eickelmann et al., 2022).

Another benefit of ICT is improved communication between staff and between parents and the school. Digital technologies, such as online portals and mobile applications, facilitate information sharing and make communication faster and more transparent (Karakose et al., 2022). This increases the involvement of parents

in the educational process and contributes to the creation of a more supportive and integrated educational environment.

The study of Cox and Marshall (2007) emphasizes the role of ICT in improving the teaching and administrative process in schools, mentioning that the effective use of technology increases the quality of communication between teachers and students and facilitates the administration of resources. Also, it was emphasized that increasing the confidence and competence of teachers in the use of ICT is essential for the effective integration of technology in the classroom (Cox & Marshall, 2007).

Authors Ghavifekr and Athirah (2014) explain that ICT integration is not only a means to modernize schools but also provides benefits for more personalized and engaged teaching. They argue that continuous training and technical support are key factors in enabling teachers to use ICT effectively, thereby improving student outcomes and school management efficiency (Ghavifekr & Athirah, 2014).

Agbatogun's (2012) study evaluates ICT use strategies in schools and proposes the development of continuous training programs for teachers and school administrators. He emphasizes that a clear policy on ICT integration is important to ensure that all parties involved understand and effectively use technology for classroom and school management (Agbatogun, 2012).

In Nakayima's (2011) study, it has been shown that the use of ICT can significantly improve the learning experience of students by making the process more interactive and engaging. The author also emphasizes the importance of staff training to ensure the sustainable and effective use of technology in schools (Nakayima, 2011).

### **Challenges in ICT Integration**

Although the benefits of ICT are many, challenges remain. One of the most common problems is the lack of technological competence among administrative staff and teachers, which often blocks the full use of these technologies (Tulowitzki et al., 2022). Surveys have shown that many directors face obstacles related to the lack of appropriate training and technical support, which makes it difficult for staff to adopt and effectively use new digital tools (Eickelmann et al., 2022; Karakose et al., 2022). The use of Information and Communication Technology (ICT) in school management faces several challenges that hinder its full potential. One of the most common challenges is the lack of training and technological competence of the staff. Many teachers and administrators face difficulties in using ICT effectively, as they have not received sufficient training to develop the necessary skills. Studies show that the lack of these skills often leads to limited use of technology in daily management and teaching processes (Balanskat et al., 2007; Alhawiti, 2013; Swarts & Wachira, 2010).

Another major challenge is the lack of proper infrastructure. In many schools, access to up-to-date equipment and stable networks is limited. This problem includes outdated equipment, poor internet connections, and sometimes a lack of stable electricity, which prevents the use of technology effectively (Bingimlas, 2009; Tanveer, 2010).

Another challenge is time management. Teachers are often faced with a lack of time to learn and integrate technology into their teaching practices. Planning and preparing lessons that include ICT can take more time than traditional lessons, which can cause pressure and decrease enthusiasm for using technology (Alhawiti, 2013).

To address these challenges, it is necessary to invest in continuous training for staff and in improving the technological infrastructure in schools. Also, the support of clear policies and plans for the integration of ICT can help overcome these obstacles and improve the use of technology in education and management (Bingimlas, 2009; Balanskat et al., 2007).

### **Strengths, weaknesses, opportunities, and threats (SWOT) Analysis of ICT in School Management**

The use of Information and Communication Technology (ICT) in school management has significant benefits, but also challenges that must be considered. The following SWOT analysis summarizes the main strengths,

weaknesses, opportunities, and threats related to the integration of ICT in schools.

### **Strengths**

1. Increasing operational efficiency - ICT enables the automation of administrative tasks such as student registration, timetable management, and monitoring of the entire school system. This improves accuracy and saves time for administrative staff (Tulowitzki, Gerick & Eickelmann, 2022).
2. Improving communication - Digital communication platforms facilitate interaction between teachers, students, and parents, making information accessible in real-time and improving transparency (Karakose et al., 2022).

### **Weaknesses**

1. Lack of technological skills - One of the main problems is the lack of technological competencies among staff, which often limits the full use of ICT in schools (Tulowitzki et al., 2022). The lack of regular staff training can be an obstacle to the successful integration of these technologies.
2. Cost of maintenance and updates - Implementing and maintaining technology requires significant investment. Schools often struggle to keep equipment up-to-date and functional, which can affect the quality of use (EdTech Hub, 2021).

### **Opportunities**

1. Improving the quality of teaching - ICT creates opportunities for more personalized and interactive teaching, using tools such as educational applications and online learning platforms. These tools help adapt teaching to the individual needs of students, improving the quality of education (EdTech Hub, 2021).
2. Expansion of distance learning - The COVID-19 pandemic showed the importance of ICT in creating platforms for distance learning, opening opportunities to continue education even in exceptional conditions. This experience prompted the development of new platforms and strategies for online learning (Independent School Management, 2023).

### **Threats**

1. Risk of dependence on technology - Increasing dependence on technological systems can create challenges, especially in cases where equipment fails or when there is a network outage. This can cause major problems in daily management and teaching (Science Gate, 2022).
2. Data privacy and security issues - As the use of ICT increases, so does the risk of student and staff data security and privacy breaches. Therefore, strong measures must be taken to protect sensitive information (EdTech Hub, 2021).

The SWOT analysis of ICT integration in school management shows that the potential benefits are great, but to fully benefit, schools must address the challenges involved. Investing in regular training for staff and improving infrastructure are important steps to maximize the potential of ICT in education.

## **METHODS AND MATERIALS**

This methodology aims to create a clear picture of the benefits and challenges of integrating ICT in school management, based on reliable and up-to-date information from existing sources, to provide practical recommendations for schools aiming to improve the use of technology.

### **Methodological Approach**

The research is based on a systematic analysis of existing literature that includes studies, academic articles, and

reports on the use of ICT in school management. This process involves gathering selected sources from scientific journals and other reliable platforms that provide up-to-date information on the benefits and challenges of ICT integration. In addition, successful case studies from schools and education systems that have adopted ICT are analyzed, drawing practical lessons that can be used to provide recommendations.

### **Literature Analysis Procedure**

The process began with the collection of scholarly articles from major academic databases such as Google Scholar, JSTOR, and IEEE Xplore, using keywords such as "benefits of ICT in education," "challenges of integrating ICT in school management", and "use of technology in schools". These sources were evaluated for their relevance and relevance, considering only studies published in the last five years to ensure that the information is up-to-date and reliable.

### **Selection of Case Studies**

To ensure a deep and applicable understanding, several case studies were selected from international schools and educational systems and from primary and lower secondary schools "River Heroes" Vërmicë / Prizren from the Republic of Kosovo, which have successfully integrated ICT in their management. These studies were used to illustrate how the benefits noted in the existing literature can be realized and to identify best practices that can be applied to other schools.

### **Analysis and Synthesis of the Literature**

Data collected from articles and case studies were analyzed through a synthesizing approach, identifying recurring themes and common findings. The analysis included the categorization of the main benefits of ICT, such as improved administrative efficiency and transparency, improved communication, and support for more personalized teaching. In addition, key challenges were identified, such as lack of teacher training, high maintenance costs, and data privacy issues.

### **Limitations of the Study**

This methodology is based only on existing literature and case studies, which may limit the general results. The analysis did not include the collection of primary data, such as interviews or surveys, which would have enabled a direct understanding of participants' perceptions and experiences in school settings. In addition, the selection of case studies may not reflect all types of schools, as some successful practices may not be applicable in all contexts.

### **Analysis of ICT Benefits in School Management**

The use of Information and Communication Technology (ICT) has significantly changed the way schools are managed and organized around the world. In this chapter, the main benefits brought by the integration of ICT in educational systems are analyzed, based on recent studies and selected literature to highlight the positive impacts of technology.

### **Improving Administrative Efficiency**

The integration of ICT in school management has led to a significant increase in operational efficiency. Data management software and digitized systems enable the automation of many administrative tasks, such as student registration, time management, and monitoring of the entire school system. These tools help reduce human error and improve data accuracy. A report by UNESCO (2023) states that the use of digital devices and platforms for data management has made schools process and update information faster, thus improving decision-making and transparency (UNESCO, 2023).

Internationally, a study shows that school leaders who use ICT for management and coordination report a higher efficiency in processing routine tasks and in sharing resources between staff and students (Tulowitzki, Gerick & Eickelmann, 2022). This increase in efficiency comes as a result of automating processes that



previously required more time and human resources.

### **Improving Communication and Cooperation**

Effective communication is one of the key factors for successful school management. The use of ICT has facilitated communication between teachers, students and parents. Technologies such as parent portals, mobile applications, and platforms for sharing learning materials have increased access to information and made communication faster and more efficient. A recent study by UNESCO (2023) points out that the use of tablet devices and online platforms for data recording helps improve the coordination and sharing of important information in real-time (UNESCO, 2023).

Increased collaboration is another important benefit. Digital communication platforms allow teachers to work together in preparing lesson plans and sharing ideas and useful resources. In many cases, these platforms have also been used to increase parental engagement in the teaching process, facilitating ongoing communication about student progress (Tulowitzki et al., 2022).

### **Support for Interactive Teaching**

Another key aspect of integrating ICT in schools is support for personalized teaching. Digital tools allow teachers to create learning experiences that are tailored to the individual needs of students, offering different modules that address different levels and learning styles. This benefit of technology is especially important for helping students with special needs or addressing learning gaps.

A recent report states that platforms such as ed-tech apps and interactive teaching tools have been successful in increasing student motivation and engagement, making them more involved in the teaching process (Global Education Monitoring Report, 2023).

### **Transparency and Performance Monitoring**

The use of ICT allows better performance monitoring in schools. Built-in student progress monitoring platforms provide a clear view of their progress in real-time, allowing teachers and parents to intervene quickly when needed. This transparency also helps in data-driven decision-making, improving educational policies and strategies.

According to a report by Emerald Insight (2022), principals using data management systems have a clearer picture of student and staff performance, enabling challenges to be addressed before they become problematic (Tulowitzki et al., 2022).

### **Briefing**

The benefits of ICT in school management are obvious and numerous. From automating administrative processes to personalized learning and improving communication, technology has changed the way schools operate, becoming an integral part of successful management. To achieve these benefits, schools must provide ongoing staff training and invest in the necessary technological infrastructure, thus ensuring a sustainable and effective use of ICT.

### **Case Studies**

#### **Case Study 1: ICT use in Schools in Odder, Denmark**

In the municipality of Odder in Denmark, all schools have embraced a comprehensive digitalization strategy, integrating technology tools and management platforms to improve teaching and administration. Each student and teacher has access to personal devices such as tablets or laptops, which are used to facilitate access to learning materials and support a more interactive and personalized learning environment.

This program also included upgrading the technological infrastructure with stable and fast networks in all

schools. The use of technology extended to the use of software for managing absences, records, and performance reports, reducing time and resources spent on administrative tasks. In addition, students' devices were used to develop digital skills that are important in the modern job market.

Lise Gammelby, school improvement coordinator at Odder, points out that integrating technology devices into schools helps students prepare for the future, developing skills such as communication, collaboration, and problem-solving in a digital environment. She also states that the use of these tools has made it possible for schools to increase their efficiency and provide a more student-oriented education (Computer Weekly, 2023).

In addition to administrative improvements, ICT has improved the quality of teaching in Odder's schools. Teachers have created richer learning experiences through interactive tools such as educational apps and online resources, which allow students to learn in ways that are tailored to their individual needs. This approach also helps increase student engagement, as learning becomes livelier and more tailored to their interests.

Through the use of digital platforms, schools have also increased parent and community engagement. Parents can track their children's progress in real-time, access important notifications, and communicate more easily with teachers. This transparency and easy access to information has significantly improved community interaction and involvement in the educational process, creating a more supportive environment for student development (Computer Weekly, 2023).

The case study from Odder, Denmark, shows that a comprehensive strategy for the use of ICT can transform the way schools are managed and taught. Through personal devices, sustainable networks, and digital management platforms, schools have become more efficient and student-centered. This approach has also improved transparency and community involvement, providing a successful model that can be adopted in other countries to improve the quality of education (Computer Weekly, 2023).

## **Case Study 2: ICT Integration at Crescent Girls' School, Singapore**

Crescent Girls' School in Singapore is one of the most successful examples of integrating Information and Communication Technology (ICT) to improve school management and teaching. The school has implemented the 21st Century Learning Design (21CLD) program, which aims to integrate technology into teaching to develop 21st-century competencies in students, including collaboration, knowledge construction, and effective use of ICT. Crescent Girls' School has taken a comprehensive approach to integrating ICT, including devices such as tablets and laptops, which enable students to have continuous access to learning resources and digital materials. This has improved the way of teaching, making it more interactive and suitable for every student. Through the use of technology for community-based projects and interactive activities, the school has helped students develop critical skills and creative thinking, which are essential in the modern digital age.

One of the great successes of this program has been supporting the professional development of teachers, ensuring that they are equipped with the necessary knowledge to use technology effectively in the classroom. The school has also promoted a clear and consistent vision for the use of ICT, ensuring that all teachers and staff have a common language and share responsibility for improving teaching through technology (ERIC, 2014).

To ensure that students engage and benefit from learning through technology, Crescent Girls' School has implemented innovative location-based knowledge-building tools. This approach includes the use of mobile applications that allow students to interact with learning materials outside of the classroom, helping them better connect with learning and develop independent learning skills.

In addition, the 21CLD program has fostered a teaching approach that focuses on collaboration between students, creating an environment that encourages learning through joint projects and structured discussions. The results of this approach showed significant improvements in students' performance and their ability to solve problems creatively (UNESCO, 2023; ERIC, 2014).

Crescent Girls' School's experience provides valuable lessons for schools seeking to incorporate ICT effectively. A commitment to teacher professional development is essential to the success of any ICT program,

as it helps teachers adapt technology to better suit the needs of students. Also, creating a sustainable infrastructure and support for the use of technology in various learning activities can significantly increase its effectiveness in the classroom. This case study from Singapore illustrates how a comprehensive and well-planned approach to ICT integration can create a vibrant and collaborative environment for teaching and school management (UNESCO, 2023; ERIC, 2014).

### **Case Study 3: The GIGA Program in Shibuya City, Japan**

The GIGA (Global and Innovation Gateway for All) program in Japan is an important initiative that aims to improve access to teaching and management through the use of digital technology in schools. One of the successful implementation cases of this initiative is in Shibuya City, Tokyo, where elementary and junior high schools have been equipped with tablets for every student and a powerful high-speed network infrastructure.

Before the program began, schools in Shibuya City had started providing tablets to students in 2017, creating an environment where learning can continue at home. The GIGA program, launched in 2019, accelerated this process by ensuring that all students, from primary school to junior high school, had access to dedicated learning devices.

This project was a direct response to the challenges caused by the COVID-19 pandemic when schools faced forced closures and the need for distance learning. Shibuya City became a model for using technology to ensure continuity of learning. Through tablets, students could continue lessons at home and interact with their teachers and peers in real-time, which contributed to a continuous and integrated learning experience (JapanGov, 2021; MEXT, 2020).

The program focuses not only on equipment but also on supporting new teaching methods that leverage technology to create more personalized learning experiences. Students use tablets to develop projects, collaborate with classmates, and access interactive learning materials. In art classes, they create digital animations, while in physical education classes, they use tablets to film and analyze their techniques. This approach has helped develop critical and creative thinking skills in students, as well as increased their motivation and involvement in the learning process (JapanGov, 2021).

Sakamoto Takayoshi, chairman of Shibuya City's Department of Educational Instruction, points out that the use of tablets has eased the burden on teachers, reducing the time they spend preparing materials and allowing them to spend more time with students, providing instruction personalized and support (MEXT, 2020).

The GIGA program has shown that investment in sustainable infrastructure and technological support is essential for the success of a modernized education system. One of the key points of success has been training staff to use technology effectively, ensuring that teachers are prepared to fully exploit the potential of digital devices in the classroom.

The experience of Shibuya City suggests that to achieve success in implementing ICT, schools must develop clear policies for the use of devices and provide stable high-speed network infrastructure. Given the experiences of schools in Shibuya, it can be said that a comprehensive and well-managed approach can create a learning environment that prepares students for the digital future and provides them with the necessary skills for the information age (UNICEF, 2020; JapanGov, 2021).

### **Case Study 4: The School Management Program in Kenya**

In Kenya, an initiative to integrate Information and Communication Technology (ICT) into the education system through a centralized school management platform showed significant results in improving school administration. This program, supported by the EdTech Hub (2021), focused on the creation of a digital system that enabled the administration of student data, attendance management, and improved communication between schools, parents, and education authorities.

One of the main benefits of the program was improved administrative efficiency. Before the implementation of the new system, many administrative tasks, such as registering students and keeping statistics of absences,



were done manually, which often caused errors and wasted time. With the introduction of the digital platform, these processes were automated, reducing errors and saving administrative staff time. School principals reported that the new platform enabled them to have a clearer view of data and better coordinate resources and activities in the school. Also, the platform enabled information to be updated in real-time, giving principals and teachers the ability to monitor student absences and performance at any time. This level of access to information helped in more informed and data-based decision-making, thus improving the effectiveness of school management (EdTech Hub, 2021).

Another essential aspect of this program was increased transparency and improved communication. The integrated platform enabled parents to track their children's progress, receive important notifications, and communicate directly with teachers and school administrators through dedicated communication tools. This not only increased the involvement of parents in the educational process but also created a more open and transparent environment, where every interested party had access to the necessary information without obstacles. While the platform helped increase parental involvement, it also played a key role in communicating with education authorities. Schools were able to share accurate and up-to-date data on absences, results, and other important statistics with the authorities, facilitating reporting and monitoring of the educational process. This function contributed to better monitoring of the quality of education on a large scale and helped to establish strategies for the overall improvement of the education system in the country (EdTech Hub, 2021).

The case study of the Kenya program shows that using a centralized school management system can bring great benefits in terms of efficiency and transparency. However, to achieve these benefits, schools must invest in staff training and ensure that all users have the necessary skills to use the new technology platforms. Also, for a successful use, it is important that the technological infrastructure is stable and well-maintained, to avoid technical problems and interruptions in use. Ultimately, this case study shows that with good planning and sustained support, ICT integration can significantly improve the way schools are managed and communicate with parents and education authorities, providing a successful model that can be adapted in other countries (EdTech Hub, 2021).

### **Case Study 5: ICT Integration in Los Angeles Unified School District (LAUSD) Schools, USA**

The Los Angeles Unified School District (LAUSD) is one of the largest educational districts in the United States that has undertaken a broad initiative to improve the use of Information and Communication Technology (ICT) in school management and instruction. As a district dealing with a large and diverse student population, Los Angeles Unified School District (LAUSD) has invested in technology programs to increase efficiency, improve instruction, and enable distance learning, especially during the COVID-19 pandemic.

As part of the Digital Transformation Program, Los Angeles Unified School District (LAUSD) launched an initiative to provide laptops and tablet devices to every student, creating a more technology-focused learning environment. This program aimed not only to improve classroom teaching but also to provide equal opportunities for all students to access online educational resources. This initiative was supported by the development of a centralized data management platform that helps manage attendance, academic performance, and communication with parents.

According to a recent report, the integration of technology has made it possible for teachers to provide more personalized instruction and help students in a more structured way. Through digital platforms, teachers can track student progress in real-time and adapt their teaching strategies depending on the individual needs of each student.

One of the main successes of the program is the improvement of communication between all actors involved in the educational process. Los Angeles Unified School District (LAUSD) has used technology to create portals for parents where they can track their children's progress, receive important notifications, and collaborate more closely with teachers. This level of transparency has helped increase parents' involvement in their children's education and address challenges more efficiently and quickly.

Los Angeles Unified School District (LAUSD) has learned some important lessons from this process. One of

the key lessons is the importance of ongoing training for teachers. At the beginning of the program, one of the main challenges was the lack of technological skills of the staff to use the new devices and platforms effectively. To solve this problem, the district provided extensive training and technical support, ensuring that teachers are prepared to use technology in an integrated way in the classroom.

In addition, the provision of stable infrastructure and technological support remains a key factor for the success of this program. Los Angeles Unified School District (LAUSD) has developed a fast and reliable network that covers all schools in the district, ensuring that students have continuous and uninterrupted access to their digital learning (Tulowitzki, Gerick & Eickelmann, (2022).

### **Case Study 6: "Petro Nini Luarasi" Gymnasium, Tirana, Albania**

The "Petro Nini Luarasi" Gymnasium in Tirana is a successful example of the use of Information and Communication Technology (ICT) to improve educational processes and school management. Through the national digitization strategies, the school has implemented digital platforms to automate administrative tasks and improve students' and teachers' access to learning resources.

The use of online platforms for recording absences and grades has improved transparency and accuracy, reduced manual errors, and saved staff time. In addition, the integration of technology has allowed teachers to develop more interactive teaching methods, using applications and tools that help develop students' digital skills.

Through dedicated platforms, parents have become more engaged in the educational process, enabling the tracking of their children's progress in real-time. This level of transparency has created a more collaborative environment where teachers and parents can communicate more easily and address issues promptly.

This case study from Albania shows the importance of technological infrastructure and staff training to ensure a successful and sustainable use of ICT in teaching and management. The adaptation of technology is an important step for improving the quality of education and preparing students for a digital future.

### **Case Study 7: Primary and Lower Secondary School "Heronjtë e Lumës" Vërmica/Prizren in Kosovo**

In the primary and lower secondary school "Heronjtë e Lumës" in Vërmicë, Prizren from Kosovo, the use of ICT through the integration of an electronic system for data management has had a significant impact on the efficiency of daily operations. A study conducted by Orhani, Saramati, and Drini (2022) evaluated the use of an e-diary (electronic diary) to facilitate administrative tasks. Findings showed that the e-diary system helped automate records and prepare statistical reports, saving staff time and reducing manual errors. Also, teachers and classroom guardians expressed satisfaction with using this system, as it enabled them to complete their tasks more easily and accurately. ICT integration not only improved administrative processes, but also increased transparency and efficiency in sharing information with parents and students, creating a more engaged and organized environment for all stakeholders involved.

In the "Heronjtë e Lumës" in Vërmicë, Prizren from Kosovo, the integration of technology has become a daily part of school management. One of the main tools used is Google Drive, which serves to organize and store teachers' lesson plans, enabling easy and secure access at any time. Also, Google Drive is used for online student assessment, enabling teachers to share assignments and provide feedback in an efficient and structured way. This approach has improved the transparency and efficiency of the educational process in the school.

In the "Heronjtë e Lumës" in Vërmicë, Prizren from Kosovo, the use of electronic forms has revolutionized the daily management of the school and improved the efficiency of administrative processes. Electronic forms have helped manage various operations, improving efficiency and organization. Absence registration forms allow staff and administration to monitor student and teacher attendance accurately and up-to-date. The fund of hours for teachers is managed through digital platforms, ensuring effective distribution and monitoring of hours held and missed.

The book catalog has been digitized to give teachers and students easy access to library resources. The

administration also uses electronic forms for scheduling hours and work experience of staff, keeping up-to-date data on their professional qualifications and experience. Staff evaluation is carried out through organized documents that help in the evaluation and professional development of teachers.

The school also uses digital formats for planning annual holidays, managing staff leaves and holidays, and maintaining transparency and efficiency. Through the formats for the distribution of hours, the administration ensures an accurate preparation of teaching schedules, while the forms for certificates and student data keep up-to-date information about the achievements and personal data of each student. In addition, staff CVs are stored in the system for a structured organization of employee information.

Finally, teacher performance evaluation provides an overview of their achievements and development needs, helping to continuously improve the quality of teaching. These digital solutions have made the administration more organized and data-oriented, helping to create a more efficient and clearer environment for everyone.

## DISCUSSION

The use of Information and Communication Technology (ICT) has brought about a profound transformation in school management and teaching, improving efficiency, communication, and access to learning resources. The discussion of the benefits of ICT based on the existing literature and case studies clearly shows its positive impact in different schools in the world and the challenges that need to be addressed for its successful use.

One of the main benefits of ICT is the automation of administrative processes and the reduction of errors. As shown in studies by Eickelmann et al. (2022), the use of digital platforms for managing student data and timetables has improved accuracy and saved administrative staff time, increasing the overall efficiency of schools (Eickelmann et al., 2022). For example, schools in Denmark have used software to monitor performance and reduce resources spent on administrative tasks (Computer Weekly, 2023).

Another benefit is improved communication between staff, students, and parents. Technologies such as parent portals and mobile applications allow real-time information sharing and the creation of a more collaborative environment. Studies by Karakose et al. (2022) point out that such platforms have facilitated interaction and created opportunities to increase parental involvement in the educational process (Karakose et al., 2022).

Despite the many benefits, ICT integration also faces significant challenges. One of the most common challenges is the lack of adequate staff training, as Swarts and Wachira (2010) point out, noting that many teachers face difficulties due to a lack of technological competence. This often leads to limited use of technology and insufficient support for students during learning (Swarts & Wachira, 2010).

The high cost of equipment and maintenance is another frequently cited barrier. Schools often face problems in updating their equipment due to high technology and infrastructure costs. As highlighted by EdTech Hub (2021), maintaining a sustainable infrastructure and its continuous improvement requires significant investment, which can be difficult for schools that have limited budgets [(EdTech Hub, 2021).

Examples from the case studies describe the different ways schools have addressed these challenges and benefited from ICT. The GIGA program in Shibuya City, Japan, is an example of a comprehensive strategy where student access to devices and the development of fast networks has significantly improved teaching and access to learning resources. This program has shown that a good infrastructure and technical support are key to the success of a modern education system (JapanGov, 2021; MEXT, 2020).

On the other hand, the Los Angeles Unified School District (LAUSD) in the US has demonstrated the importance of training staff to use technology effectively. Through ongoing training and technical support programs, Los Angeles Unified School District (LAUSD) has been able to improve access to and use of digital platforms for instruction and administration while addressing staff technology skills challenges (ScienceGate, 2022).

In the "Heronjtë e Lumës" school in Vërmica, the integration of Information and Communication Technology (ICT) has brought many benefits that have significantly improved the administrative management and the

teaching process. The use of Google Drive for storing and sharing lesson plans has facilitated access and collaboration between teachers, allowing the administration to monitor the preparation and implementation of lessons. In addition, electronic forms covering aspects such as staff and student absence registration, lesson planning, and book cataloging have improved the efficiency and accuracy of routine processes. This digital approach ensures that data is always up-to-date and easily accessible, thus increasing the transparency and efficiency of resource management. Through such structured management and centralized access to information, the school has created a more organized and supportive environment for teachers and students, providing a successful model for the use of ICT in schools.

In line with the benefits of ICT documented in the literature and practical examples, it seems clear that there is potential for further development in the use of technology to advance the quality of education. Also, staff training and investment in infrastructure remain essential elements for achieving successful integration. The recommendations of researchers, such as those of the Global Education Monitoring Report (2023), include the need to develop personalized teaching programs that use technology to address the specific needs of students (UNESCO, 2023).

The integration of ICT in school management has shown great benefits in improving efficiency, communication, and community involvement. To maximize these benefits and address the challenges, schools must focus on ongoing staff development and ensuring a sustainable and up-to-date technology infrastructure.

### **Response to Study Objectives**

The objectives of the study on the integration of Information and Communication Technology (ICT) in school management were focused on assessing the main benefits that ICT offers in improving operational efficiency and quality of education, as well as addressing potential challenges during this process.

#### **Increasing operational efficiency:**

The findings show that the use of digital platforms, such as those for managing student data and recording absences, has significantly improved administrative processes, saving time and resources. For example, in Los Angeles Unified School District (LAUSD) schools, the use of a centralized system for managing absences and academic performance facilitated communication and efficiency of daily processes (ScienceGate, 2022). Similarly, in the "Heronjtë e Lumës" school, the use of Google Drive and electronic forms has improved the organization and storage of important data (Orhani, Saramati & Drini, 2022).

#### **Improving the quality of education:**

The integration of ICT has enabled more personalized and interactive learning methods, which give students more opportunities to learn at their own pace. For example, Crescent Girls' School in Singapore uses digital devices to create personalized learning experiences and encourage collaboration among students (UNESCO, 2023). Similarly, the school in Vermica has used technology to increase parental involvement and provide a more organized learning environment (Orhani et al., 2022).

#### **Addressing ICT integration challenges:**

Although the benefits are obvious, challenges include the high cost of equipment and lack of staff training. Studies have shown that investing in regular staff training is essential to meet these challenges. In Shibuya City, Japan, the success of the GIGA Program was closely linked to the continuous training of teachers to use technology effectively (JapanGov, 2021).

#### **Ensuring a successful model:**

Case studies from different countries showed that a comprehensive approach to ICT integration can significantly improve school management. For example, the use of digital platforms for data management and communication with parents in schools in Denmark and Kenya has improved the transparency and efficiency of communication significantly (Computer Weekly, 2023; EdTech Hub, 2021).



In conclusion, the objectives of this study were achieved by analyzing the benefits and challenges of ICT integration in different schools, showing that technology is an essential tool for improving quality and efficiency in education.

## **CONCLUSION**

This study has examined the benefits and challenges of integrating Information and Communication Technology (ICT) in school management, analyzing new literature and different case studies. Based on the data collected, it is clear that ICT plays a key role in the transformation of teaching and administrative management in schools.

The integration of ICT has increased operational efficiency by allowing the automation of routine tasks such as student data management, absence registration, and real-time information sharing. These solutions have saved time and improved the accuracy and organization of administrative processes. Also, ICT has contributed to improving the quality of teaching, offering students personalized and interactive access to learning materials. For example, the use of educational apps at Crescent Girls' School in Singapore has helped develop 21st-century skills in students.

Among the main challenges, the high cost of technology and lack of staff training are some of the obstacles that schools face when trying to successfully integrate technology. Previous studies have highlighted the importance of regular training for teachers to improve their technological skills and ensure a consistent and effective use of ICT in the classroom.

Examples of success from case studies in Kosovo, Japan, the USA, and Denmark show that a comprehensive and well-planned approach to ICT integration can result in significant improvements in teaching and school management. Schools that have invested in robust infrastructure and ongoing staff training have experienced major improvements in the transparency and efficiency of their administrative and learning processes.

In conclusion, the benefits of Information and Communication Technology in school management are obvious and numerous, but to take advantage of them optimally, schools must address the challenges associated with technology integration. With careful planning and continued support, ICT can continue to play an essential role in transforming the global education system.

## **RECOMMENDATIONS**

Based on the analysis of the benefits and challenges of the integration of Information and Communication Technology (ICT) in school management, this chapter offers some recommendations for the implementation and further improvement of the use of technology in educational systems. These recommendations are intended to help schools, principals, and educational policies to make the most of the advantages that technology offers and to address the challenges that may arise during this process.

- a) Investing in ongoing staff training: One of the key factors for successful ICT integration is training staff to use technology effectively. Schools should provide regular and up-to-date training, focusing not only on basic technological knowledge but also on practical applications of technology for teaching and management.
- b) Ensuring stable and up-to-date infrastructure: To ensure that schools can use technology effectively, it is essential to ensure a stable and up-to-date technological infrastructure. This includes fast and reliable networks, well-maintained hardware, and up-to-date software.
- c) Developing clear policies for technology use: A structured and clear approach to technology integration can help avoid unnecessary problems and challenges. Clear policies that define the roles and responsibilities of teachers, administrators, and students for using ICT should be in place and regularly updated to reflect changes in technology and best practices. Additionally, these policies should include privacy protection and data security guidelines to ensure the protection of sensitive student and staff



information.

- d) Promoting cooperation between schools and the community: To increase the effectiveness of the use of ICT in schools, it is recommended to promote cooperation between schools, parents, and the community. Dedicated parent platforms and communication apps can help engage parents and provide transparency into student progress.
- e) Focus on personalizing learning through technology: ICT offers the opportunity to personalize learning, enabling students to follow courses and materials that match their needs and interests. Teachers should be encouraged to use technological tools to create learning experiences that are tailored to each student, using educational applications and interactive resources that stimulate learning and engagement.
- f) Regular monitoring and evaluation of the use of ICT: To ensure that the investment in technology is achieving the desired results, it is necessary to have a regular monitoring and evaluation system. Schools should collect data to assess the effectiveness of ICT use in the classroom and identify areas where improvement is needed. This regular process helps develop strategies for continuous improvement and ensures that technology is used optimally.

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