

Interactive Classroom Working Group

# School strategies for fostering students' digital competences

Practical guidelines for school leaders

Case Study  
Agrupamento Freixo · Portugal



**Case study:** Agrupamento de Escolas de Freixo, Portugal

**Publisher:** European Schoolnet (EUN Partnership AIBSL), Rue de Trèves, 61 – 1040 Brussels, Belgium

**Author(s):** Luis Ferreira and Fernando Franco, Members of the Educational Resources and Technologies Team of the Directorate-General of Education, Portugal

**Editor(s):** Milica Pupavac, Project officer in the field of school, VET and adult education, Foundation Tempus; Konstantinos Andronikidis, European Schoolnet

**Acknowledgements:** Dr. Jorge Dias, Director and Dr. João Cunha, Deputy Director

**Design:** Mattia Gentile, European Schoolnet

**Picture credits:** Agrupamento de Escolas de Freixo

#### COPYRIGHT

Copyright © European Schoolnet 2024. All rights reserved.



This report was produced under the [Creative Commons Attribution-NonCommercial-ShareAlike 4.0 International \(CC BY-NC-SA 4.0\)](https://creativecommons.org/licenses/by-nc-sa/4.0/) license.

## Introduction

School digital strategies refer to the plans and frameworks developed by educational institutions to effectively integrate digital tools, technologies, and practices into the learning environment. Sustainable and inclusive digital education strategies require a balanced approach that considers diverse learner needs and promotes equitable access to technology. Rather than simply integrating new technologies in school practices, effective digital education strategies require a well-considered idea of how technology can improve educational outcomes, address inequalities, and support the wider educational mission of the school. It is a continuous process of identifying key priorities, allocating resources for targeted initiatives, monitoring progress, and achieving the different objectives.

This case study is one of 15 developed from interviews with members of school leadership teams who have contributed to the development of effective, sustainable, and inclusive school strategies to foster students' digital competence. The case studies focus on strategies that have successfully improved digitalisation of school and teaching practices and supported the development of digital competences in their students, in a sustainable and inclusive way. The schools are located in eight countries i.e. Czech Republic, Ireland, Italy, Luxembourg, Portugal, Serbia, Slovenia, and Switzerland. The interviews were part of research carried out by European Schoolnet's Interactive Classroom Working Group on the schools' experiences, the lessons they have learnt and the good practice they have developed. This research has informed the development of the publication 'School strategies for fostering students' digital competences. Guidelines for school leaders'. Find the publication and other case studies here: <https://fcl.eun.org/icwg>

## Introduction to Portuguese Context



The Portuguese Ministry of Education has made a substantial investment in the digital sector through the Digital Transition Plan (DTP). The investment, aligned with the strategies of the Action Plan for Digital Education (2021-2027), Portugal, through the Directorate-General of Education (DGE), has developed a comprehensive set of actions and initiatives related to digital transition in schools. These initiatives focus on three key areas: training digital teachers, digital development of schools and the creation of digital educational resources.

The DTP has already distributed over one million pieces of equipment and established 1,300 Digital Education Laboratories (LED) equipped for programming and robotics, STEM, arts and multimedia. Furthermore, around 70% of teachers have received digital training, and a national plan to produce digital educational resources (DER) for all subjects in the curriculum is being implemented,

### Introduction to the school

The Freixo School Group serves a diverse population of 580 students, supported by a dedicated staff of 75 teachers, 3 senior technicians, 6 technical assistants and 36 operational assistants.

The school offers a comprehensive range of educational programmes, including pre-school education and the 1st, 2nd and 3rd cycles of

along with the development of a national educational web platform called the Learning Ecosystem.

A critical component of these efforts is the digital development of schools, which aims to develop and implement Action Plan for the Digital Development of Schools (APDDS). This plan, based on the SELFIE application tool (SELFIE for TEACHERS, 2024), serves as a strategic tool for reflecting on and transforming practices within educational organisations. It supports decision-making and monitors progress in the digital realm within schools. The APDDS aligns with the School Digital Education Strategy (SDES) highlighted in this case study, often associated with the overall digital strategy for schools.

All these coordinated initiatives are expected to have a direct impact on improving students' digital competences.

basic education (CETI 1 and CETI 2). Its curricular focus is aligned with the National Basic Education Curriculum and this ensures a high standard of academic compliance and quality.

The Freixo School Group plays an important role in the community in which it operates. It is one of the main employers in the region, and its contribution

to the formation and promotion of social equity is important. Considering that the school is in a rural area, in which access to services such as culture, sports and education are limited, this institution's contribution is essential to mitigate such asymmetries. By promoting cultural events in which students are the main actors, the school promotes both interest in and monitoring of the activities promoted among families.

### Why this school as a case study?

The Freixo School Group has made significant investments in enhancing its physical infrastructure, particularly by innovating and creating dynamic learning environments. A notable example is the development of a robust network infrastructure and the integration of digital devices such as computers. The school has established various collaboration and learning spaces, including makerspaces, a multimedia studio, a meteorology club, and a dedicated computer room. These tailored environments are designed to seamlessly integrate digital technologies into the learning process and classroom activities.

The reasons that led the school to invest in innovative learning spaces and equipment are duly based on the implementation of its own digital development plan. All this investment aims to promote the improvement of the quality of student learning, not only in formal environments, but also in informal learning environments, using current tools that allow students to fully benefit.

Also, in terms of sports training, the school plays a fundamental role in promoting the dynamism of the practice of different modalities within the scope of school sports by taking advantage not only of its own infrastructure, but also of the community's infrastructure, under the supervision of the municipality. The creation of partnerships and protocols between the school and environmental entities favour efficient resource management for the community's benefit.

The fact that the school's geographical location is not central is also considered a non-constraint for the student community. The leadership team believes that by investing in digital education and in innovative and collaborative spaces, the school can provide an adjusted response to current social needs and demands. The director states that it is his understanding that the school must be attentive to the evolution of society and must seek to follow this same evolution.

Moreover, the school's leadership, particularly the director, also places a high priority on enhancing digital literacy across the entire school community. Despite current limitations in investing in emerging technologies, there is a clear commitment to adopting these technologies universally once they become more standardised and integrated into educational practices.

This proactive approach underscores the Freixo School Group's commitment to leveraging technology to enrich learning experiences and prepare students for a digitally driven future.

### School leadership team



The Freixo School Group complies, in organisational terms, with what is recommended in legislation regarding public education in Portugal. The leadership team consists of the director, the deputy director, and two further deputies. The director has served in a leadership capacity for 11 years, while the deputy director has held their position for 7 years.

The director seeks to involve all teachers in the discussion, planning and implementation of measures that are fundamental and promote the improvement of the quality of the provision of educational services. A digital development team was appointed which was responsible for preparing the structuring document (the Digital Development Plan), promoting its implementation, and monitoring and evaluation. At a later stage, an improvement plan will be drawn up. All teachers are invited to participate in the monitoring and evaluation of the measures foreseen in the DDP. Decisions are always taken by the pedagogical council, after listening to the different departments and considering their opinions. The mid-level leadership ordinarily meets on a monthly basis at the pedagogical council. This is the body of the school responsible for decision-making. The director and his team discuss daily all matters that are relevant to the proper functioning of the school, including those related to the transition and digital development.

Some of the director's institutional tasks are to:

- ▣ implement the applicable legislative measures required by the group director of schools, and submit for approval – the school educational project, internal regulations, an annual and multi-annual activity plan, an annual activity report, and proposals for signing so called 'autonomy contracts';
- ▣ approve and update the training plan for teaching and non-teaching staff;
- ▣ define the operating regime of the school group or non-group school;
- ▣ prepare budget projections;
- ▣ supervise the formation of classes and the preparation of timetables;
- ▣ distribute teaching and non-teaching services;

- ▣ designate school or pre-school education coordinators;
- ▣ propose candidates for the position of curriculum department coordinator and designate class directors;
- ▣ plan and ensure the execution of activities in the field of school social action;
- ▣ manage facilities, spaces and equipment, as well as other educational resources;
- ▣ establish protocols and conclude cooperation or association agreements with other schools and training institutions, local authorities and communities;
- ▣ ensure the necessary conditions for carrying out performance assessments of teaching and non-teaching staff;
- ▣ manage administrative, technical and technical-pedagogical services at a higher level, and represent the school;
- ▣ exercise hierarchical power in relation to teaching and non-teaching staff;
- ▣ exercise disciplinary power with regards to students in accordance with applicable legislation.

In this institution, the deputy director's tasks are fundamental to the smooth running of the institution, and include:

- ▣ assisting the principal in the administrative management of the school – this includes dealing with bureaucratic issues, such as distribution of services, schedules and other administrative processes, namely, management of school management IT platforms (schedules, students, annual activities plan, student plan, etc);
- ▣ working in close collaboration with coordinators and teachers to ensure the quality of teaching.

The deputy director often deals with disciplinary issues, such as inappropriate student behaviour, and helps organise school events, including parties, sports competitions, presentations and other activities. Additionally, the deputy director

supervises clubs and extracurricular projects, and represents the school before the local community in meetings with parents, local authorities and other school partners.

The shared responsibilities within the school's digital education strategy involve various structures.

- ▣ At the highest level of leadership, the director, supported by their team, holds ultimate responsibility and reports to the general board of the school.
- ▣ The pedagogical council, constituted as per internal regulations, includes curriculum department coordinators and relevant stakeholders. This council, chaired by the director, plays a pivotal role in coordinating pedagogical aspects of the strategy.

- ▣ Within each department, the teachers contribute to the implementation of the strategy and educational objectives.

Stakeholders involved in designing the digital education strategy include school management, teachers, students, parents and non-teaching staff. Engagement with business and institutional entities at the organisational level is also crucial for strategic alignment and resource support.

Students are the primary beneficiaries of the strategy, supported significantly by parents and guardians who contribute through involvement and essential support, which is crucial to the strategy's success. Overall, leadership and responsibility are shared across these structures, ensuring a collaborative and effective implementation of the digital education strategy. Leadership comes with the assumption of shared responsibility and the involvement of everyone in decision making.

## Vision and values of the school digital education strategy



The European Commission emphasises the importance of digital education, and aims to transform education and training under the 2021-2027 action plan. This plan focuses on fostering digital skills universally, promoting inclusivity and by addressing challenges in educational digital transformation. Therefore, the school's digital education strategy aligns with these priorities, democratising information access. Mastery of digital technologies empowers individuals to access relevant information independently, which promotes autonomy among students and fosters

social inclusion with equal access to digital resources for all.

The main values that guide the school digital education strategy are:

- ▣ freedom,
- ▣ responsibility and integrity,
- ▣ citizenship and participation,
- ▣ excellence and demand,
- ▣ curiosity, reflection and innovation,

- ▣ inclusion and equity skills,
- ▣ development of digital responsibility,
- ▣ collaboration and participation,
- ▣ continuous adaptation.

Management leads the strategy design process by defining the vision, objectives and priorities for digital education. The coordination team, self-assessment

## Focus and aims

The focus of the school digital strategy includes the adaptation of learning spaces (such as makerspace and other non-formal environments), the integration and use of digital technology in the curriculum, digital technologies for inclusion, training and professional development of teachers and non-teaching staff, and practical communities of teachers.

The school believes that since we live in the digital age, where technology is present in every aspect of our lives, it is essential to prepare students for this environment. The integration of technology in teaching allows students to develop skills relevant to the current and future world. The strategy also focuses on training responsible digital citizens. This involves online ethics, respect on social media and combating misinformation. Students must learn to use technology ethically and conscientiously. Digital education aims to ensure that all students have equal access to digital opportunities. Focusing

## Infrastructure and funding

Regarding the investment in the main infrastructures, the school has significantly improved its network infrastructure and the connectivity of digital devices. Furthermore, the school has created diverse collaboration and learning environments, featuring a makerspace, a multimedia studio, a meteorology club and a dedicated computer room. These initiatives aim to enrich the educational experience and support innovative learning approaches within the school community.

The makerspace is a space for the development of activities within the scope of mechanisms and robotics, a subject created in the school itself within the scope of the national curricular

team and external consultants or experts in digital education bring specific knowledge, experience and best practices to the table.

Teachers play a crucial role in shaping the strategy by leveraging their insights into student needs, pedagogical practices and technological capabilities. Administrative and technical staff contribute significantly, particularly in managing infrastructure and providing technical support.

on this aspect is essential to avoid inequalities and ensure that no student is left behind.

The main aims of the school digital strategy implementation are to support the continuous digital professional development of teaching and non-teaching staff, to promote a culture of collaboration and sharing among teachers, to promote the development of transversal digital skills in students, which are essential for lifelong learning, and to promote students' scientific and technical knowledge associated with information and communication technologies. Moreover, the school aims to integrate digitalisation in a sustained and consistent way into teachers' pedagogical practices, to promote digital innovation in the pedagogical, organisational and technological dimensions, and to promote the digital literacy of guardians and families.

Finally, the school aims to improve the existing digital infrastructure, equipment and internet access, in conjunction with institutional and business partners.

autonomy and flexibility project for students in the 7th and 8th grades. In this space, the robotics club also operates. It is equipped with the resources provided by the Digital Education Laboratories (LED): laptops, 3D printers, electronics starter kits, sensors, Arduino kits, STEM learning kits, among others. There is also other equipment such as printing machines and laser cutters, which allow students to develop creativity within the scope of pedagogical or personal projects (website of the makerspace: <https://fablabfreixo.wordpress.com/>). The multimedia studio is the privileged space for the operation and operationalisation of the digital school newspaper. Here, students produce

television news, interviews, podcasts and reports, which enrich their publication *Comunica - Digital School Newspaper* (<https://aefreixo.pt/comunica/>). In this space we can find the multimedia equipment distributed by the national LED project (speakers, screens, cameras, audio and video mixing tables, microphones, etc.).

The meteorology club (<https://aefreixo.pt/meteofreixo/>) is a non-formal space for the development of learning. It is a space where science is promoted in a school context, but with an impact on the community. The students collect, analyse and process meteorological data, which they share with the entire community, not only locally, but also nationally. In addition to consisting of two meteorological stations (one analogue and one digital), there is also a seismograph, an air quality assessment station and a water quality analysis kit. With these resources, students develop knowledge, critical thinking and sensitivity to environmental issues.

The computer room – not exclusively used for teaching computing – is equipped with 20 laptops, which allows practically all students in a class to have their own device. It is also equipped with a smartboard and a smart TV. The existing furniture in this space allows great flexibility and adaptation to different work contexts (individual work, peer work and/or group work). For an effective and efficient use of these resources, the school is equipped with an internet network with enough bandwidth for hundreds of digital devices to be connected simultaneously.

To manage and support this digital infrastructure, the school has a team of teachers responsible for its maintenance and operation.

The school funds itself through its own income and additional revenue from funded projects it applies

## Role of AI and other emerging technologies

The school has not yet implemented emerging technologies such as artificial intelligence (AI); however, there is a definite intention to integrate these advancements into its operations in the near future. Also, AI and other emerging technologies are not used in the administration process. According to the director, the focus remains on utilising Microsoft Teams and all available tools.



for, alongside funding from projects promoted by the municipality and the state budget.

The school currently uses PowerBI tools from Microsoft to analyse data. This software provides insights into student performance. Teachers identify areas for improvement and adapt their approach. During assessment, data can be used to monitor students' progress over time. Furthermore, using Microsoft Teams is a daily practice and rooted in the community. There are some attempts at gamification

and using game elements to make learning more engaging. Scores, rewards and competition can motivate students. However, some of the school's teachers have been incorporating pedagogical

## Added value and impact

The school has focused on improving technical and structural conditions to enable more effective use of digital resources. It has also enhanced organisational efficiency, administrative processing efficiency, and enriched teaching and learning experiences. These efforts aim to prepare students for the future while promoting inclusion and equity. With the implementation of the digital education strategy, students can access online resources, participate in video meetings and collaborate virtually regardless of their location or circumstances. Digital platforms foster increased collaboration among students, enabling them to engage in group projects, share ideas and learn from their peers. In addition to the significant benefits that digital education brings to students, there is an increased awareness of the potential of digital devices and their effective utilisation. This has led to a greater dynamism of innovative educational environments. Moreover, promoting activities in non-formal settings facilitates interdisciplinary learning that integrates various subjects across the curriculum. It has been identified that students have greater autonomy in their use of technological resources. This makes the role of educators more demanding, as constant guidance from students is necessary so that the use of technological resources is responsible, healthy and civic-minded. Students already demonstrate greater skill in using digital devices and applications. They have become more proficient at tasks such as online research, creating presentations and communicating virtually. Furthermore, students are more involved in online activities related to learning, they have greater autonomy and express their creativity with greater ease.

## Challenges

The primary challenges in developing and implementing the school's digital education strategy include overcoming financial limitations, addressing resistance to change, and achieving a balanced

resources using virtual reality (VR) and augmented reality (AR) technologies. These resources include 3D models, gamification elements and hybrid teaching approaches.

The implementation of the strategy, by allowing the typology of educational environments to be diversified, contributes to the student's comprehensive training, not only at a pedagogical and curricular level, but also, transversally, at a civic and socio-emotional level.

The reception of this transition was generally positive. It is the school's ongoing objective to promote actions that bring those responsible for education closer to the digital practices being developed. However, some teachers may face challenges such as a lack of adequate training or resistance to change. But, in general, all teachers are open to integrating technology into the classroom. They recognise the potential of digital education to improve teaching and learning.

Most students are receptive to digital education. They grew up in a digital world and are familiar with devices. Students generally appreciate the flexibility, interactivity and variety of digital resources available. Parental receptivity varies. Some are excited about digital education as they see the benefits for their children. Others may be concerned about screen time, online safety or the quality of digital content.

It is important to note that the school promotes activities that involve parents, such as the Digital Academy for Parents, a project where students are selected and trained to be parent trainers in developing digital skills. It should be noted that training on the effective use of digital platforms is also promoted among parents, which complements school manuals. Finally, parental awareness is also implemented in the field of digital media security.

approach in teacher training that integrates both technological proficiency and pedagogical equity. It is also important to ensure the maintenance of technological devices available to students,

ensuring they are technically functional with updated operating systems, charged batteries, and no issues with screens or keyboards, among other considerations. Another challenge is ensuring the effective integration of digital practices into the subject curricula, as some teachers face difficulties in finding practical ways to incorporate technology into their classes. The school also needs to prioritise student data protection, ensure secure platform usage and promote the ethical use of technology. Finally, 'Technology should enhance the learning

experience, but not completely replace face-to-face interaction between teachers and students.'

The school overcomes the challenges in implementing digitalisation through institutional partnerships, commercial collaborations and the promotion of effective communication channels with the community to showcase their work. Continuous teacher training is crucial, ensuring educators stay updated on the latest technological trends and teaching methodologies.



## Sustainability and improvement of strategy

It is significant to note that the school is focused on the implementation process of the digital transition action plan. The school emphasised the outcomes achieved through the deployment of the SELFIE tool (SELFIE for TEACHERS, 2024), across three dimensions: technological and digital, pedagogical, and organisational. This consistency underscores a unified approach and shared vision in leveraging digital technologies to improve educational practices and enhance organisational effectiveness within the school community.

Within the technological and digital dimension of their action plan for digital transition, the school has undertaken several key initiatives. They established a specialised team to manage and maintain the Office 365 platform, ensuring efficient digital communication and collaboration tools for students and staff. Additionally, the school invested in upgrading network equipment to improve internet access across campus, facilitating seamless connectivity for online learning and administrative tasks. Another critical step was the formation of a dedicated technical support team tasked with

overseeing and maintaining all technological devices, and ensuring their optimal functionality. Recognising the importance of skill development, the school provided technical training sessions for non-teaching staff on equipment maintenance. Moreover, they prioritised regular updates to their technological infrastructure by acquiring new equipment, particularly in IT, multimedia, audiovisual, and robotics areas, to support innovative educational practices and enhance learning environments. These efforts underscore the school's commitment to leveraging technology effectively to support teaching, learning and administrative operations.

In the pedagogical dimension of their action plan for digital transition, the school has implemented various initiatives.

- ▣ They have integrated digital tools into assessment practices, enhancing the efficiency and effectiveness of evaluating student progress. Training sessions have been conducted to educate students on the importance of respecting copyright laws when using digital resources.
- ▣ In the ICT disciplines, students have received comprehensive training in Office 365, providing them with essential skills for digital collaboration and productivity. Furthermore, the Office 365 platform is regularly utilised as a learning management system across different subjects, promoting digital integration in various aspects of the curriculum.
- ▣ The school encourages student engagement in extracurricular clubs that focus on technologies, robotics and multimedia, and foster hands-on learning experiences and skills development in these fields. Moreover, students actively participate in national and international activities aimed at promoting digital literacy and citizenship, broadening their understanding and application of digital skills in a global context. These efforts underscore the school's commitment to enhancing pedagogical practices through meaningful integration of digital technologies.

In the organisational dimension, the school has implemented several initiatives.

- ▣ They have organised a series of webinars focused on digital collaborative tools and their application in various learning environments to promote continuous professional development among educators.
- ▣ They have also conducted training workshops and sessions for guardians and parents on the effective use of these digital tools, enhancing their involvement and support in students' digital learning journey.
- ▣ To foster collaborative practices and explore digital resources, the school has integrated dedicated time slots into teachers' schedules to facilitate teamwork and innovation in teaching methodologies.
- ▣ Additionally, the school has established a repository of original educational resources that comply with copyright regulations. These resources are disseminated on the municipality's educational platform, enriching the learning experiences of students across different schools.

These organisational efforts highlight the school's commitment to enhancing operational efficiency and promoting a cohesive digital learning environment that benefits all stakeholders involved. It's important to note that the school began the implementation of the Digital Transition Plan three years ago.

The school leadership team encourages all departments and teaching staff to explore digital tools in their pedagogical practices. They promote the sharing of innovative teaching methods and the integration of digital technologies in assessment and teaching-learning processes. Classroom observations, teacher feedback and the evaluation of outcomes are integral parts of monitoring and follow-up efforts to ensure the effective implementation and continuous improvement of the digital education strategy.

The school utilises Microsoft Forms as a diagnostic tool to prepare and apply monitoring questionnaires effectively. These questionnaires are distributed

to various stakeholders to collect feedback and evidence. Monitoring processes include capturing different types of data to assess the effectiveness of educational practices.

Annually, the data gathered from semi-annual or annual monitoring cycles provides information for the development of improvement plans, which ensures continuous enhancement of educational strategies and outcomes.

Moving forward, the school aims to consolidate practices that have proven to be efficient and effective, and to leverage identified strengths. Continuous periodic monitoring will ensure ongoing assessment and refinement of educational strategies. Additionally, there is a focus on identifying new areas for intervention and defining improvement plans to enhance overall educational outcomes.

## References

SELFIE for TEACHERS. (2024, May 2). European Education Area. <https://education.ec.europa.eu/selfie-for-teachers>

As technologies like virtual reality (VR), augmented reality (AR), and artificial intelligence (AI) continue to evolve, the school plans to explore their potential to enrich the learning experience. For instance, VR could be used to take students on virtual tours of historical sites, while AI could personalise reading recommendations based on individual interests and learning styles.

Furthermore, the school recognises the importance of educating students about privacy, cybersecurity and responsible online behaviour. Specific programmes will be developed to empower students with the knowledge and skills necessary to navigate the digital world safely and responsibly. These initiatives reflect the school's commitment to innovation, continuous improvement, and preparing students for future challenges and opportunities.

The case study complements the European Schoolnet's publication 'School strategies for fostering students' digital competences. Guidelines for school leaders'.

Find the publication and other case studies at [fcl.eun.org/icwg](http://fcl.eun.org/icwg)



Future  
Classroom  
Lab



Oide

Technology  
in Education

**INDIRE** STITUTO NAZIONALE DOCUMENTAZIONE INNOVAZIONE RICERCA EDUCATIVA



LE GOUVERNEMENT  
DU GRAND-DUCHÉ DE LUXEMBOURG  
Ministère de l'Éducation nationale,  
de l'Enfance et de la Jeunesse



REPÚBLICA  
PORTUGUESA



EDUCAÇÃO, CIÊNCIA  
E INOVAÇÃO



FONDACIJA  
TEMPUS



REPUBLIC OF SLOVENIA  
MINISTRY OF EDUCATION

**movetia**

Austausch und Mobilität  
Echanges et mobilité  
Scambi e mobilità  
Exchange and mobility