

Interactive Classroom Working Group

School strategies for fostering students' digital competences

Practical guidelines for school leaders

Case Study

Ecole Internationale Gaston Thorn · Luxembourg



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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>



Figure 1 - The Ecole Internationale Gaston Thorn in Luxembourg City

Introduction to Luxembourgish Context

With the introduction of a new school law in 2017⁽¹⁾, the Luxembourgish Ministry of Education⁽²⁾ has placed a clear focus on promoting media education in schools. Schools are now obliged to draw up a school development plan every three years that covers several areas, including media education. In 2015, the Digital4Education⁽³⁾ strategy was launched to bring together existing initiatives in the field of media education. One initiative is the One2One⁽⁴⁾ project, which introduced iPads in secondary schools. These mobile devices not only serve as teaching tools, but also enable individual support for pupils. Microsoft Office 365 was also made available to all teachers and students as part

of the Digital4Education strategy. These measures ensure that the necessary infrastructure and tools are in place for effective media education in secondary schools.

In order to promote and assess pupils' digital skills, the Digital Competence Framework (DigComp)⁽⁵⁾, a measure of the Digital Education Action Plan⁽⁶⁾, was adapted to the Luxembourgish education system as part of the einfach digital⁽⁷⁾ initiative. The Media Compass⁽⁸⁾ defines 15 competences divided into five broad areas. In 2022, this first version of the Media Compass was revised and expanded to include artificial intelligence and data-related skills.

1 <https://legilux.public.lu/eli/etat/leg/rgd/2017/03/14/a440/jo>

2 <https://menej.gouvernement.lu/en.html>

3 <https://men.public.lu/dam-assets/catalogue-publications/dossiers-de-presse/2014-2015/digital-4-education.pdf>

4 <https://portal.education.lu/cgie/ONE2ONE>

5 https://joint-research-centre.ec.europa.eu/digcomp/digcomp-framework_en

6 <https://education.ec.europa.eu/focus-topics/digital-education/action-plan>

7 <https://men.public.lu/de/grands-dossiers/systeme-educatif/digital.html>

8 <https://www.edumedia.lu/>

Another milestone – also in 2020 – was the introduction of the digital sciences course⁽⁹⁾ in the lower grades of secondary education. The activities in this subject are based on several key areas, including programming, gaming, artificial intelligence, but also the critical use of digital

Introduction to the school

Due to its diverse and long-standing international community, Luxembourg has established a wide range of schools over the years to meet the needs and wishes of families from different backgrounds. Efforts to diversify the range of schools have intensified in recent years, with the aim of providing public and free schools that are open to all residents, regardless of their cultural, social or linguistic background. Six public European schools have been established throughout the country.

The École Internationale Gaston Thorn (EIGT) is one of these six public European schools in Luxembourg. Gaston Thorn (1928-2007), after whom the school is named, was a Luxembourgish politician and the first Luxembourgish President of the European Commission from 1981 to 1985. Like all public international schools in Luxembourg, the EIGT follows the European school curriculum, which culminates in the European Baccalaureate. The focus is on multilingualism. The EIGT offers both primary and secondary education. Teaching is provided in three language sections: a French-speaking, an English-speaking and a German-speaking section. The school thus offers flexibility in language learning, thereby enabling better opportunities for academic success and social integration.

Why this school as a case study?

The school was chosen for its emphasis on democracy and the digital world, which are fundamental to its philosophy. Due to the focus on democracy, the school and, above all, the school management, attach great importance to democratic conditions and to fostering a culture

media. That way, students not only learn the technical aspects, but also the social and cognitive skills needed to become responsible citizens of tomorrow. Digital sciences is the logical continuation of a coding course⁽¹⁰⁾, which is integrated across all subjects in primary education.

The EIGT was only founded in 2022. The school is located in the centre of Luxembourg City. The EIGT shared the building with the Ecole nationale pour adultes (ENAD)⁽¹¹⁾ until the 2023-2024 school year. The classrooms are conventionally furnished. Modern technical aids such as projectors and computers are available.

There are currently around 70 teachers teaching 500 enrolled students. The school's philosophy is based on three main areas: democracy, music and digitality. The Conservatoire de la ville de Luxembourg⁽¹²⁾, located near the school, is a key partner in enhancing the musical aspect of the school's vision. Democracy is expressed in the school's openness. The school's development follows a democratic approach, which means that decisions are made collectively, taking into account the opinions and perspectives of the leadership team, the teachers, the parents and the students. They can actively participate in long-term and short-term planning. What the digital world aims to promote are digital skills by combining communication, critical thinking and creativity in a playful way within the framework of school activities. The school management describes the organisational structure of the school as transformational leadership: the power of distributed leadership.

of inclusion. The main goal is to promote the democratic competences of the students through participation. Furthermore, democracy is also a part of the school's development. Decisions are made collectively, and the opinions and perspectives of all those involved are taken into account.

9 <https://men.public.lu/de/actualites/communiqués-conference-presse/2021/05/18-digital-sciences.html>

10 https://gouvernement.lu/fr/actualites/toutes_actualites/articles/2020/10-octobre/12-coding-ecole.html

11 <https://www.enad.lu/en/homepage/>

12 <http://www.conservatoire.lu/>

During the school year 2022-2023, students, teachers and parents collaborated on the school's first school development plan, which stressed the goals of individual educational support and the promotion of psychosocial support.

The EIGT emphasises that this aspect of democracy plays a major role in everyday school life through its focus on the digital world. The secondary school students have iPads, there is a makerspace at the school and the school recently launched the school project titled Levelling Up Learning: game-based learning to enhance the development of the 8 key competences for lifelong learning. This

School leadership team

The school management team consists of the director, two deputy directors and six other members. The headmaster and the deputy headmaster form the centre of this team. The team has defined six areas of activity around them which are managed by the six people. One person is responsible for implementing the school's digital strategy.

The decision-making process goes through the following stages: 1) clear delegation, 2) joint decision-making, 3) empowerment and autonomy, 4) joint problem-solving, 5) continuous communication, 6) mutual support and accountability and 7) professional development and growth. The initiatives are evaluated by means of target group surveys or impact monitoring.

The members of the school management team take part in leadership courses. These take place at the Institute for Teacher Training IFEN⁽¹⁴⁾, in Brussels (organised by the OSG)⁽¹⁵⁾ or at another institution. The team meets every two weeks. Also, the school's digital strategy is regularly discussed and evaluated.

In order to do justice to the focus on democracy, the decisions of the school management team are

Vision-values of the school digital education strategy

Digital skills are inextricably linked to democratic values. This conviction has shaped the school's vision since its foundation two years ago. Digital

project complements the school development plan by offering students and teachers alternative and innovative learning and teaching methods during the school day. The project focuses on the European Commission's eight key competences for lifelong learning⁽¹³⁾.

This school thus offers a good starting point for the long-term integration of media in everyday school life and for the promotion of digital skills, as the initiatives in the field of technology integration are supported by all school partners through democratic processes.

clearly communicated to all school stakeholders. The reasons for the decisions are explained and opportunities for participation are given. This involves students, parents and teachers in the processes and motivates them to take responsibility. Feedback mechanisms such as surveys, regular parent and staff meetings, school development group meetings or the involvement of student representatives help evaluate the success of this communication and the willingness to collaborate. The school management team also works with other working groups, such as the teachers' subject groups, the student committee or other working groups. Depending on the subject area, distributed leadership can extend to the student level. The person responsible for the digital strategy on the school leadership team regularly attends subject group meetings, where teachers exchange good practices.

The leadership team is an open structure. Anyone can apply. After an interview with the headmaster and the leadership team, the decision on admission is made democratically by the team.

education not only includes the responsible use of media, but also promotes critical thinking and active participation in society. For this reason, it was

13 <https://op.europa.eu/en/publication-detail/-/publication/297a33c8-a1f3-11e9-9d01-01aa75ed71a1/language-en>

14 <https://ssl.education.lu/ifen/>

15 <https://www.eursec.eu/en>

natural for the school to develop a digital strategy from the outset. Since its founding, the school has been a phone-free environment..

When the school was founded, the focus was on the three central pillars: democracy, music and the digital world. From the outset, it was clear that these elements would form the core of the school's vision. Music was chosen as a focus because musical skills often correlate with leadership skills. These skills are essential for personal and professional development.

The digital component combines the teaching of democratic skills with the use of digital tools. This combination is intended to teach students not only technical skills, but also an understanding of the responsible use of digital resources. In the course of their development, these three focal points were elaborated in detail and integrated into the overall concept.

Focus and aims

One of the EIGT's key objectives is to develop future-proof learning cultures. Digital media are integrated in such a way that they enable active participation in the educational process and support students in their overall development. This means that technology is not only used to impart knowledge, but also to promote the social and emotional participation of all students.

The focus is on the inclusion of all students. To achieve this, the school follows the model of Universal Design for Learning (UDL)⁽¹⁶⁾. The aim is to design teaching and learning materials in such a way that all students, including those with special needs, are actively involved. Digital technologies play a central role in this, as they enable the creation of flexible learning environments that can

Infrastructure and funding

The learning spaces are still largely traditionally equipped. Some rooms, such as the learning honeycombs, allow students to withdraw to find peace and quiet. In particular, the makerspace in the secondary school is equipped with mobile furniture. This creative workshop promotes project-

The founding team consisted of three people who developed the vision. Over time, the team grew to twelve members, bringing a rich diversity of professional backgrounds and expertise. As the school was newly founded, it was able to plan freely without existing structures and incorporate the knowledge of all members. The input of experts from various educational and scientific fields was particularly valuable.

The school's digital strategy is based on insights from the DigComp framework and international evaluations of the use of digital tools. The experiences of the Covid-19 pandemic have provided important insights into attention spans and access to digital devices. 'The implementation of the One2One project guarantees that all students have access to digital devices and aids in executing the digital education strategy,' said the person responsible for implementing the school's digital strategy.

be tailored to the diverse needs of students. The connection between inclusion and digital media is therefore an essential part of the digital strategy.

The school's teachers are committed to continuous professional development in order to adapt their teaching practices to the principles of UDL. The idea of UDL was introduced by the teachers themselves. The school comprises over 65 nationalities, which presents a particular challenge. On the one hand, UDL reflects the school's values, such as democracy and the inclusion of all students. On the other hand, UDL can help to ensure that teaching is more appropriate for all students and that students receive the best possible support in the learning process.

based learning. There is currently no makerspace in the primary school, but it is planned in the near future.

A central element of the digital infrastructure is the iPads that are provided to the students.



Figure 2 - Learning honeycombs: a place of retreat for pupils

These devices are provided by the Centre de Gestion de l'Informatique de l'Éducation (CGIE)⁽¹⁷⁾ and are used in daily lessons. Since the students have iPads as a tool, mobile phones are banned at this school. Although there was initial resistance to this ban, a solution was found in collaboration with the student committee that emphasises the benefits of digital tools rather than their mere use. A responsible coordinator from the school management takes care of the pedagogical orientation and questions regarding the integration

of media in the classroom. A person from the CGIE is responsible for technical support for the iPads, managing the devices, and serving as a point of contact in case of problems.

The iPads are funded by the state, as the school is a public institution. The equipment and further development of the makerspace are financed from the school's budget which is provided from the Ministry of Education. Long-term planning over the next five years is envisaged to stagger the purchases and ensure that all necessary resources are continuously available.

Role of AI and other emerging technologies

Artificial intelligence (AI) and other emerging technologies are playing an increasingly important role in teaching. These technologies are being integrated to enrich the learning process and prepare students for the demands of the modern world.

As part of game-based learning, VR will be incorporated in certain classes to teach complex topics in an engaging and interactive manner. For instance, students might experience a virtual walk through the ISS. Additionally, VR will be used to

quickly showcase various locations around the world. Games like SIMS will be utilised in language lessons to help students practice vocabulary; they will build their house in the game and then describe it. Another innovative approach includes using the discovery mode in Assassin's Creed, which disables violent interactions, to create an interactive method for teaching history related topics.

Students can visit the makerspace every Tuesday and Thursday after their regular school classes. Teachers are continuously working on integrating

the visit into their lessons to fully exploit the benefits of the makerspace. This integration is supported by forward planning, in which teachers plan together how media and technologies can best be incorporated into the curriculum. A forward plan helps to guarantee not only that all necessary objectives will be covered in a certain year/cycle, but also that a logical order will be followed. In addition, the makerspace is open to students outside school hours on Tuesdays and Thursdays. This offer is used a lot by students.

The school takes an open approach to AI. AI is not banned. Discussions are held with students about the meaningful use of this technology. It does not prescribe the use of media. Instead, the aim is to strike a balance between the key competences and the three pillars – democracy, music and the digital world. AI is seen as an exciting and forward-looking topic, and the school community is currently looking for specific practical applications.

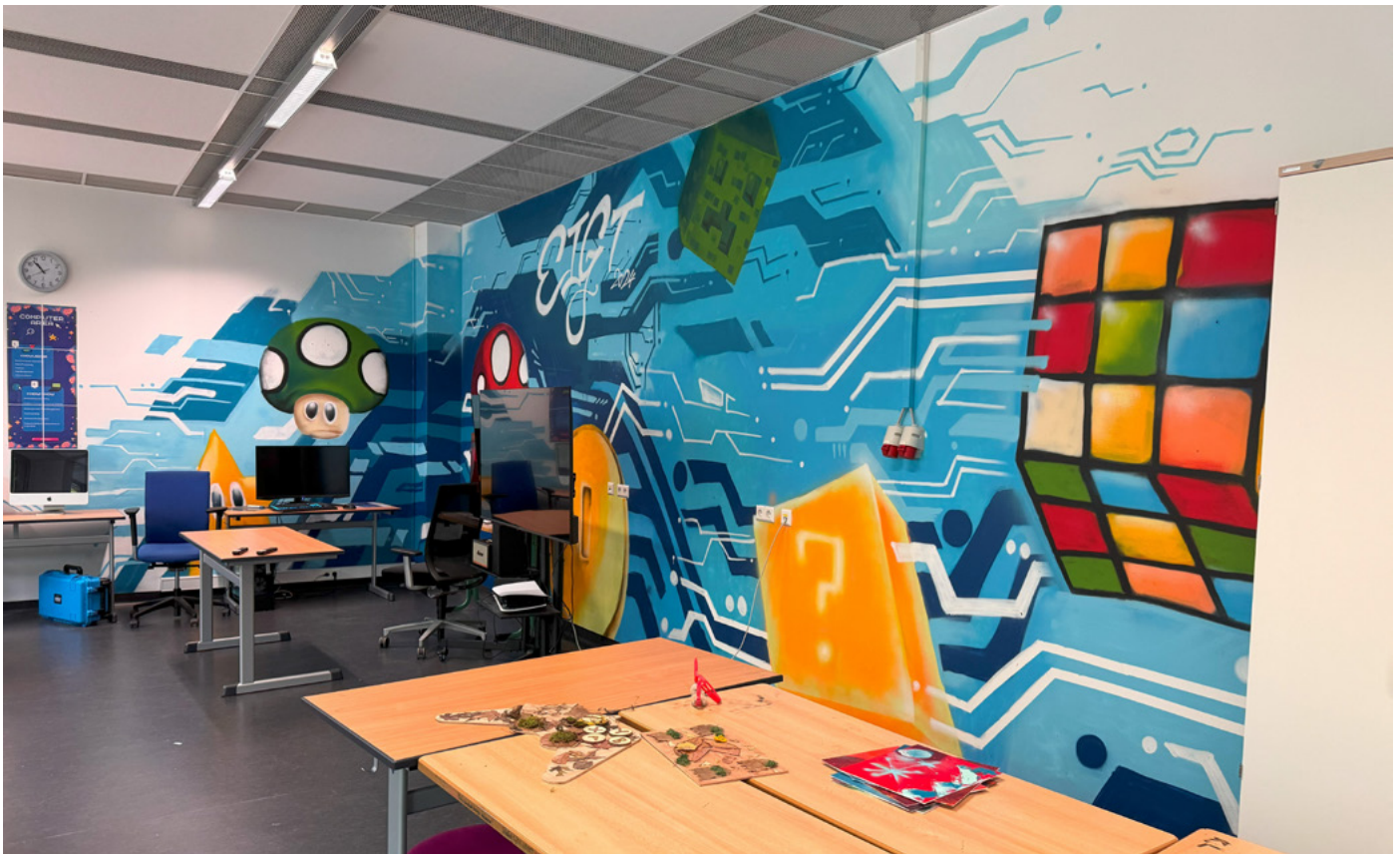


Figure 3 - Wall paintings in the makerspace done by students

Added value and impact

According to the headmaster, it is still difficult to assess the full added value of the digital strategy and the integration of new technologies after only two years since its inception. Nevertheless, some positive developments are already evident. One advantage is the significant reduction in paper consumption. This is because communication within the management team is completely digital and interaction with parents also takes place largely via the school's web portal, rather than through traditional paper forms. Despite the early stage, it is clear that students accept and want to

use iPads as part of their learning environment. However, using iPads in class has revealed some challenges. While students know how to operate the devices technically, they lack the basic skills to use the iPads effectively as work tools. It is clear that strategies are needed to teach students how to learn efficiently, take notes and organise themselves. Many students are distracted by the wide range of uses of the iPads, as they tend to use them for leisure activities and do not yet have the maturity to use them as pure learning tools.

For this reason, the school will re-evaluate the iPad concept. The students surveyed also said that iPads could be used more effectively from S4 class onwards, as students then develop the necessary maturity to use the devices not only for leisure but also as serious work tools.

valuable insights into their views and expectations regarding the use of iPads in the classroom. The headteacher is considering conducting such a survey to gain a broader understanding of the impact and needs. A full evaluation of the leadership team and digital strategy is still premature at this stage.



Figure 4 - Mobile furniture in the makerspace

The students consider the iPads to be very useful, particularly for presentations and for reducing paper consumption. A survey of parents could provide

Challenges

The implementation of the digital strategy in schools faces several significant challenges. One of the biggest is convincing all staff of the benefits and necessity of digital technologies. This requires a great deal of patience and a high level of support. It is important that teachers are continually provided with materials and training opportunities. In addition, administrative tasks must be taken over as far as possible so that teachers have time to familiarise themselves with the new digital skills.

Introducing innovation into schools requires patience, goodwill and time. Everyone involved must be brought on board to achieve full acceptance and integration of new technologies.

The school is now experiencing a period of many adjustments and further developments, following a turbulent start.

Another challenge is the use of iPads and the expectations of parents. Many parents mistakenly assume that their children can already use iPads effectively as learning tools because they are familiar with these devices in everyday life. In reality, however, students often only know how to operate the devices, but not how to use them productively for school tasks. In collaboration with parents, the school will discuss and develop solutions for its digital strategy to effectively introduce students to the meaningful use of these technologies.

Based on these findings, the school plans to reconsider the use of iPads in the lower grades of the secondary school. In these lower grades, iPads

will be used less in the context of the one-to-one model and instead only for specific tasks that offer clear added value. For younger students, the focus should be more on traditional learning methods that promote the learning of learning strategies and organisational skills without the constant use of iPads.

Sustainability and improvement of strategy

A key aspect of the sustainable implementation and improvement of the school's digital strategy is the continuous training of its staff. It is essential that teachers are brought to a common level of competence in order to awaken their enthusiasm for working with digital media and to promote the exchange of ideas among them. This willingness must be developed within the team, ideally in a playful way, in order to make the learning process pleasant and motivating. The school offers numerous internal training courses and training sessions, like the professional development day (journée pédagogique). These training courses are designed to continuously expand the knowledge and skills of teachers. In addition, department coordinators act as multipliers who promote the transfer of knowledge within the teaching staff.

They support their colleagues by disseminating new methods and techniques, and helping to integrate them into the classroom.

Older students, on the other hand, can utilise iPads as tools for note-taking and as substitutes for traditional classroom books, notes, and other school materials in their daily routines. Additionally, they can leverage iPads for research, organisation, and collaboration, enhancing their educational experience through digital convenience and efficiency.

Another important part of the strategy is regular exchanges between teachers and school management, the so called 'team time'. It is important to the school not to leave the teaching staff alone and to avoid the feeling of being overwhelmed. Therefore, a lot of emphasis is placed on discussions in subject departments and on exchanges, especially with those who feel insecure. Through these supportive measures, all teachers should feel that they are part of a strong network that supports them and helps them to develop. Job shadowing is a proven way to learn from each other and share best practices. These visits are well received and foster a culture of collaboration and mutual learning.

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



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