STAND

SUPPORTING CONTINUED ACCESS
TO EDUCATION ENHANCING
SCHOOLS' DIGITAL READINESS

PR2- Methodological guide:
Strategies and principles for effective digital education

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CENTRO SVILUPPO CREATIVO DANILO DOLCI · DANMAR COMPUTERS · STIMMULI for social change · es co la bòb la · BLUE ROOM INNOVATION · SZKOŁA PODSTAWOWA im. św. Jana Kantego w Będziemyślu · ΑΡΙΣΤΟΤΕΛΕΙΟ ΚΟΛΛΕΓΙΟ

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THE 'STAND' PROJECT

STAND – Supporting continued Access to education enhancing schools' Digital readiness is a 2-year European project, financed by the Erasmus+ program, KA2 Cooperation Partnerships in the field of school education, started in January 2021, which responds to the emerging needs of the education sector to adapt to the sudden digital transformation required by the emergency of the COVID-19 pandemic.

STAND is coordinated by the Centro per lo Sviluppo Creativo "Danilo Dolci" and is carried out jointly by a team of 4 organizations and 4 schools from 4 different European countries (Italy, Spain, Poland and Greece).

STAND aims to equip teachers and school staff, as well as students and their families, with the skills, tools and personalized support needed to facilitate the digital transition of EU school systems. This effort is designed to prepare them to effectively address the long-term challenges posed by the COVID-19 pandemic.

The STAND project has trained primary and secondary school teachers and staff, through specific ICT / digital support and new training opportunities to acquire digital skills and tackle digital learning and teaching. The project responds to the need of students aged 6 to 12 to have equal access to education while being protected against future risks of social exclusion and other risks inherent in the virtual world. The project also focuses on families and their need for basic digital skills and tools in order to support their children in digital learning and homework.

ACTIVITIES and RESULTS

Massive Open Online Course (MOOC)

A free online course for teachers to develop and strengthen their digital skills has been developed and is available to anyone In September 2022, trainers from partner organizations met in Poland to prepare for to the teaching of the STAND course.
During the 2022/2023 school year, more than 150 teachers have participated in the piloting of the MOOC STAND.

Methodological guide

Together with the participating schools, the partners have developed a methodological guide with strategies and principles for effective digital education: the document you are reading right now. The content of this guide will be delivered to teachers through workshops on digital pedagogical methodology integrated through practical and non-formal activities.

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Manual of data protection and security in distance education

STANDS offers additional resources on data protection and safety in digital learning for teachers, parents and students: 6 information sessions are organized in each country to raise awareness about the responsible use of digital tools, online safety and Data Protection.

STAND Alliance platform

The STAND Platform will remain available as a free space for teachers and parents for peer support, interaction and peer learning. A final conference in Spain and final events in Italy, Greece and Poland will take place at the end of 2023 to present the final results and outcomes of the project.
All results and more information are available on the project website https://standproject.eu/ in 5 languages (English, Italian, Greek, Polish and Spanish).

INTRODUCTION: What is this Methodological Guide?

In recent years, the education sector has had to adapt its methods and approaches to new technological and digital forms.
The European digital transformation is pushing the education sector towards an increasingly digital environment: the COVID-19 pandemic has accelerated the process and forced school systems in different countries around the world to suddenly move from traditional to new digital school approaches, from face-to-face teaching to virtual or semi-face-to-face methods.

In the long term, this new digital approach to education can improve flexibility and the ability to customize learning methods and ways, inspire students' creativity and transversal skills, improve collaboration and interpersonal skills, while improve their technological knowledge, rationalize unnecessary costs and environmental impact by adopting paperless solutions and make education more accessible to all.
However, in order to provide effective digital education, teachers must be equipped not only with technical knowledge about ICT and digital literacy, but also with methodological support on how to integrate digital practices into teaching traditional, sensitizing them about the principles for an inclusive, accessible and sustainable digital education.

To this end, the second result of the project, the STAND Methodological Guide, aims to provide methods and principles to carry out a comprehensive digital education strategy.
This guide is primarily aimed at teachers and educators who work with students aged 6 to 12, but its content is relevant to teachers at all school levels.

The guide is the result of a co-creation process involving teachers from STAND's partner schools during design meetings held with the support of partner organizations.
A total of 27 teachers participated (9 in Italy, 6 in Spain, 6 in Greece, 6 in Poland), who responded to a written questionnaire with the first contributions that were then discussed during face-to-face focus groups - the so-called design meetings - to jointly design the content of this guide.
The purpose of these meetings was to analyze the main needs and obstacles faced during distance education and share success measures adopted by teacher education institutions to collect first-hand good practices, experiences and lessons lessons from the experience of the pandemic. We believe that these good practices, developed and tested by teachers, can represent positive learning outcomes to improve the effectiveness and efficiency of the teaching and learning experience through digital tools even after the end of the health emergency, in an educational environment that will nevertheless remain and digitize and digitize and drive technologically over time.

STAND wants to promote the valorization of learning – even in a sudden and often improvised situation like the COVID-19 emergency – to capitalize on the experience of teachers during distance learning and maintain positive results for more effective digital education.

To support teachers in the comprehensive planning and implementation of an effective strategy for digital education, the following topics are addressed:

1. Methods and approaches to integrate digital practices in traditional education
2. Digital tools and communication
3. Digital tools, accessibility and inclusiveness
4. Digital tools and environmental sustainability

This guide is complementary to the content provided in the e-learning platform STAND (Project Result n.1) available on the website of the https://standproject.eu/ free registration project, which has provided the teaching staff with content of technical orientation related to teaching and digital learning.

This guide has been prepared thanks to the support of Maria Elisa Trovato, teacher and expert in didactics and psychopedagogy.

LEARNING OBJECTIVES OF THIS GUIDE

Through this Methodological Guide: Strategies and Principles for effective digital education, teachers will be able to:

Learn about the benefits of using e-tools in teaching
Reflect on how best to use digital tools in teaching
Learn didactic methodologies to make teaching more attractive and participatory
Learn didactic methodologies to effectively use digital tools not only as support for face-to-face teaching, but by integrating them into innovative teaching practices
Learn about the benefits of using digital tools to improve communication inside and outside the classroom
Reflect on how to promote good communication using digital tools and reflect on potential risks
Learn how to use digital tools that ensure accessibility and inclusion for everyone
Reflect on the environmental impact of the use of digital tools, learning practices for environmental sustainability.

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1. METHODS AND APPROACHES TO INTEGRATE DIGITAL PRACTICES IN TRADITIONAL TEACHING

The use of e-Tools during and after the COVID-19 emergency

During the COVID-19 pandemic, teachers have used digital tools to support distance learning. Involving and keeping distance students motivated was quite a challenge, as they had to adapt to a new learning environment, learn to manage time and responsibilities, deal with a situation of strong emotional stress and deal with the technical difficulties caused by the sudden. change imposed by confinement. In addition, online learning environments have often failed to compensate for the lack of interpersonal interactions: all of this has affected people's well-being and contributed to a sense of isolation and decreased motivation. Distance learning required discipline and self-control: students had to start organizing their work, stick to a schedule and be responsible for their own progress in an extremely monotonous context that, in many cases, affected their commitment and motivation. Students - and teachers - have also encountered technical problems with the use of software, malfunctioning Internet connections or the use of learning platforms. Then the students had to do without the social interactions with peers and teachers, which constitute a fundamental part of the school experience.
On the other hand, however, the use of technology, in addition to giving the possibility to continue with teaching activities, also had a protective function, since distance learning was a source of discussion and tranquility in a difficult period giving girls and boys the opportunity to share. his feelings

"Trying to engage the class during distance learning has been a challenge. We are not used to experiencing such emotionally intense moments or not having any contact with others."

"Living a long time away from the rest of the world, the immediate disruption of daily activities, the isolation in our homes have really affected the well-being of the class."

"Now we no longer need to motivate students because they are always happy when we propose that they use digital tools in class."

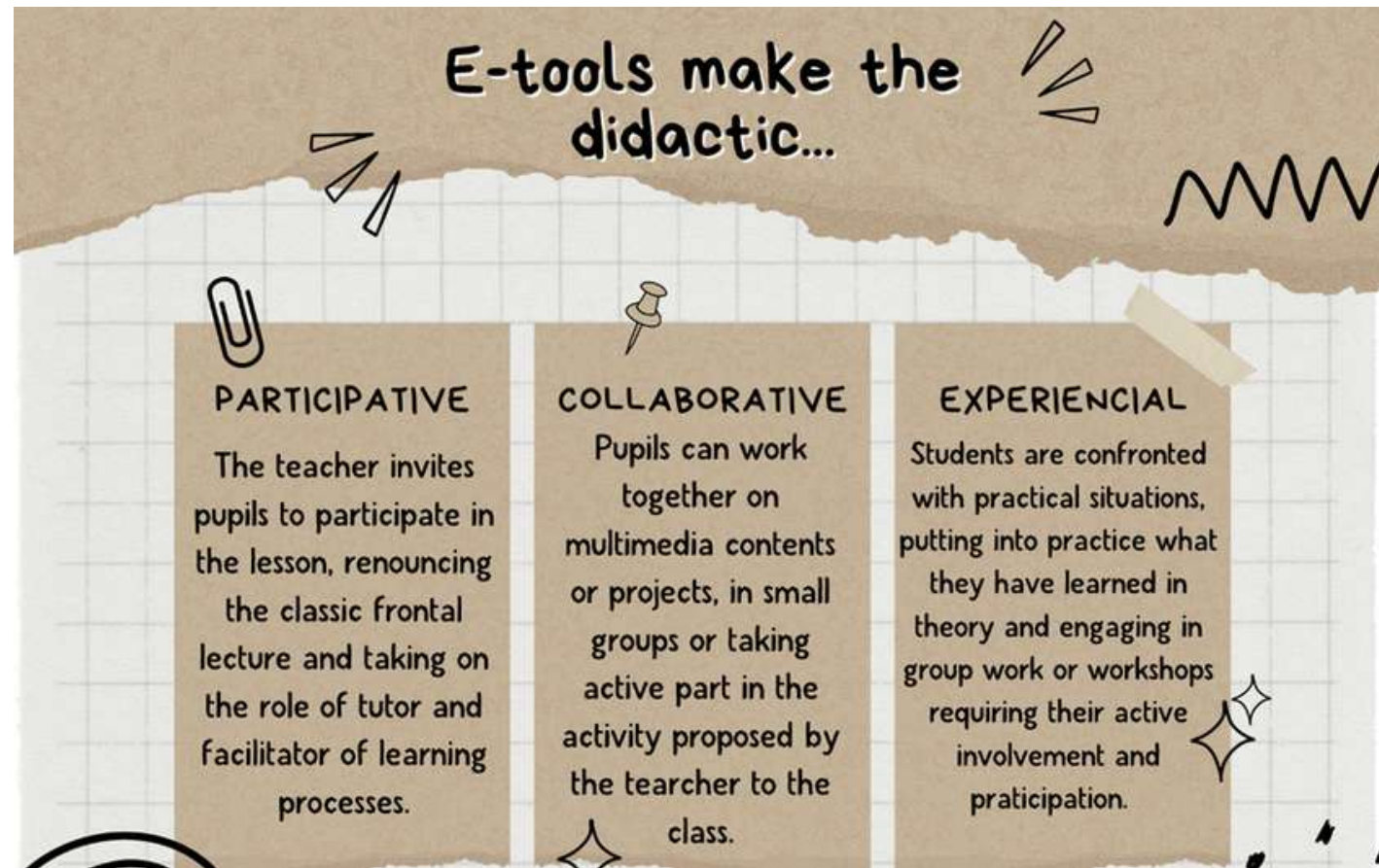Opinions of the teachers involved in the meetings

Fortunately, the health emergency is now behind us. However, the use of digital tools in the classroom and at home has become increasingly common as teachers have become more familiar with these tools during the pandemic, discovering and valuing their educational potential. Compared to distance learning with all its technical and emotional difficulties, the use of digital tools in school at this time can become a powerful tool to increase student motivation, as well as facilitate their involvement and direct participation.

In the first phase of the pandemic, IT tools, such as Zoom, Teams or Google Classroom, were mainly used to support face-to-face teaching.

Over time, the teaching staff has been able to introduce and experiment with different tools, platforms, programs and computer applications with the aim, initially, of continuing the teaching activity by adopting slightly different methods, and then appreciating the advantages and opportunities they offer to maintain the engaged students. and motivated, making lessons less boring and more interactive, promoting personalized learning and supporting students with learning difficulties. The use of digital tools enhances creativity, social skills and collaboration in the classroom, allows us to assess better, limit environmental impact and promote more inclusive and accessible learning.

Figure 1: Didactic and digital tools

The image above shows the main IT tools used by the teachers involved in the project during the distance learning phase.

In STAND MOOC you can find instructions, video tutorials and guidelines for using them in order to create videos, presentations, make lessons more attractive and interactive, activate new projects, assign group work or tasks, design more enjoyable tests and fun .

During the pandemic, the main trend was to use digital tools only as a support for traditional teaching, which remained frontal and not particularly interactive. This was due to the sudden transition to distance learning that did not allow us to adapt the style and methods, nor to properly take advantage of the potential offered by digital tools.
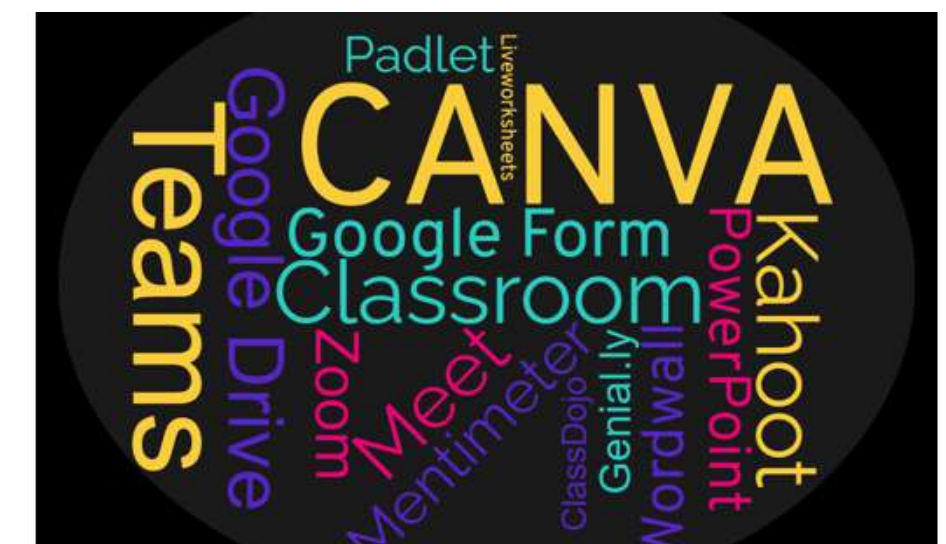

Figure 2: Main computer tools used by teachers in distance learning

USING DIGITAL TOOLS IN THE CLASSROOM...

Improves students' performance, combining knowledge with experience, theoretical aspects with practical actions, informal and formal learning moments, enhancing motivation and active engagement!

Stimulates creative and critical thinking, offering new perspectives and possibilities, to find unexplored solutions to problems!

Encourages the interaction of different groups of students, Promotes their ability to engage in group decision-making, maintain interpersonal relations, involve in teamwork, develop personal and social skills!

REMEMBER...
- Make the lessons fun and pleasant using e-tools: the pupils will feel your enthusiasm and benefit from it!
- Share your work with colleagues: fuel the enthusiasm of discovering new ways to work with pupils!
- Use e-tools to build serene, relaxing and creative learning environments: learning comes from feeling good in the classroom.
- Change the approach to 'homework': why not train it with exciting individual or group challenges?
- Be careful though: e-tools must be facilitators and not distractors!
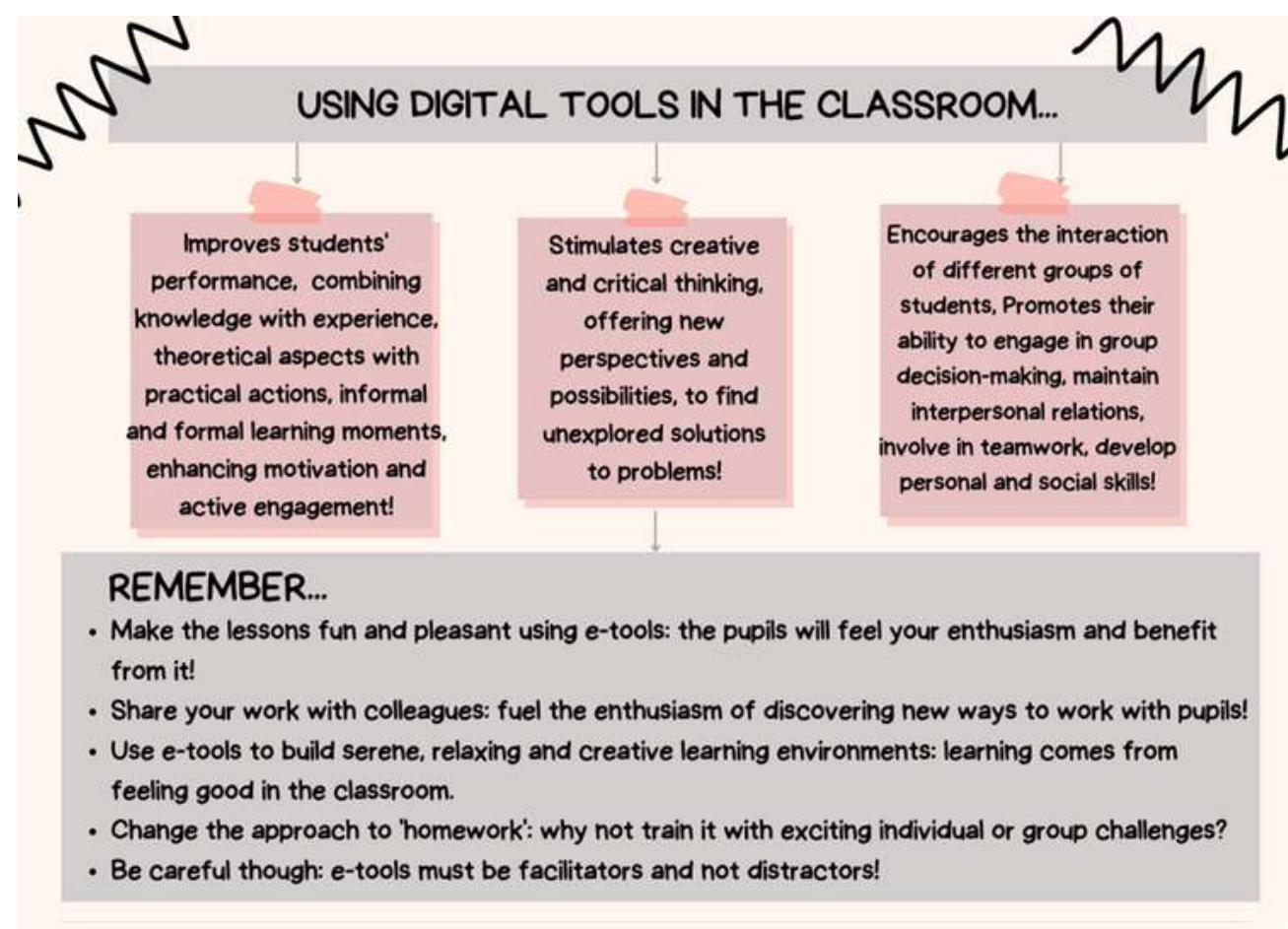
Figure 3: The use of digital tools in the classroom

However, there are many methods and approaches aimed at really integrating the use of digital tools into teaching activities and making it interactive, fun and really efficient.

Fortunately, the pandemic has passed, but that doesn't mean that some of its lessons aren't still useful, and that digital tools can't now be put to full use with a little more time available to prepare.

There are numerous benefits to using digital tools in the classroom, you just need to study, experiment and plan better!

In this guide you will find an overview of teaching methodologies capable of making learning more attractive, participatory and inclusive and favoring the acquisition of digital skills. These approaches and guidelines allow teachers to integrate digital tools into traditional teaching so that they do not only constitute emergency resources to be used on a timely basis, but a more useful support for daily teaching activities.

Teaching methods to promote participatory learning

The use of digital tools must always be foreseen within a flexible and, at the same time, precise plan, the result of a careful analysis of the needs of the class. In fact, the use of ICT in school is fundamental because it allows the application of the socio-constructivist pedagogical model according to which learning is encouraged through experience, collaboration, personalization and the construction of knowledge as well to prepare students for adult life and the world. .

In the planning phase, the teacher must always verify that the tools to be used respond to the learning needs of the class. Therefore, it is important to choose tools and devices that are accessible, effective and in accordance with the needs of the students so that the educational intervention is valid. Alternative teaching methods include a reduction in face-to-face class time in favor of cooperation, tutoring and shared use of ICT.

Obviously, the teacher's job is to learn how these methods work and identify which ones to use depending on the context.
In this way, the computer tools can be used with the whole class and everyone's skills can be improved by working, for example, on the same materials, but at different levels to respond to the students' learning styles and needs.

Digital tools are interesting in the eyes of children: their use stimulates their curiosity, thus increasing motivation, attention and participation in school.

The educational potential of new technologies lies, in fact, in the possibility of reorganizing classes in a participatory sense, allowing students to interact with each other and with the teacher, share knowledge and activate complex cognitive skills aimed at solving problems.
IT tools give the possibility of immediate feedback on work, knowledge and mistakes that can be used functionally to reflect and improve.

By using these resources for educational purposes, students learn to manage their learning process, as these tools allow them to follow the path of knowledge acquisition and processing. By doing so, they can become aware of their choices and face problems more consciously, thus developing the ability to learn to learn.
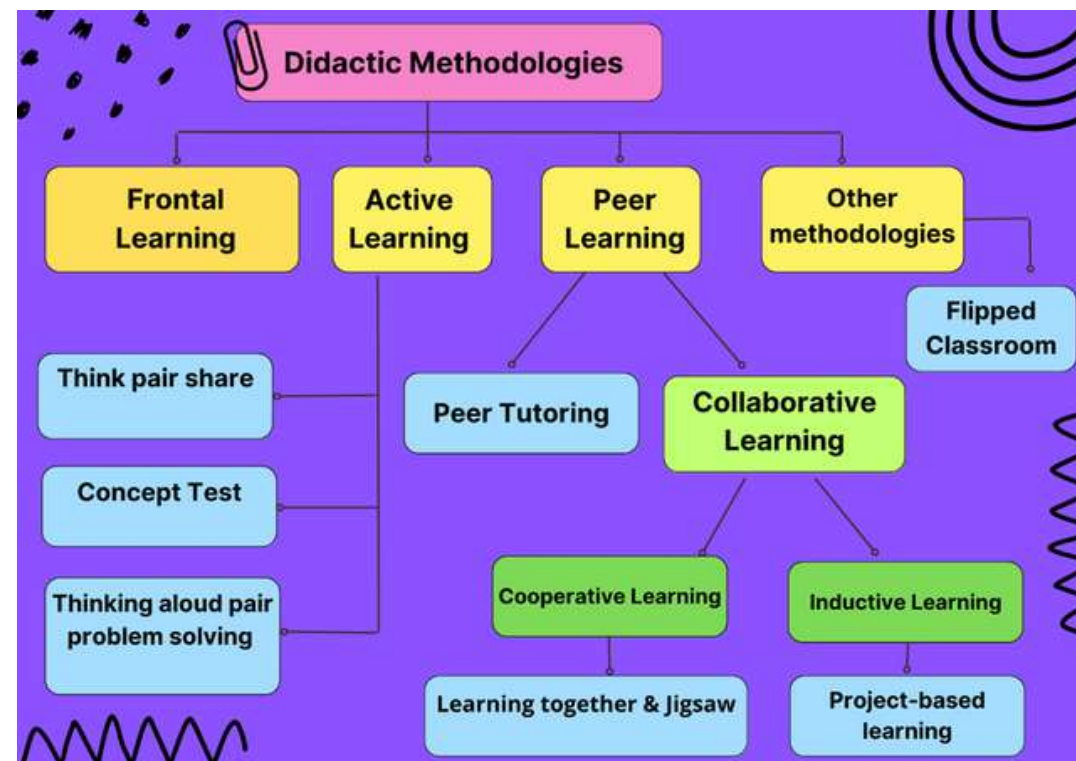

Figure 4: Teaching methodologies

"In some work carried out in class, I have observed that the use of programs such as CANVA and PowerPoint, and devices such as tablets or mobile phones to take photos or videos, favors the students' metacognition and documentation processes. The presentations created by and by the students that contained images and texts helped them to retrace the path taken to develop that content and were a valid learning support, orienting a reflection on the processes activated to solve the different situations".

Maria Elisa Trovato, teacher and expert in teaching and psychopedagogy

There are numerous teaching methods to be used in these cases, which is why we have chosen to catalog and group them based on some common characteristics (see Figure 4).

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FRONTAL TEACHING

Although it can be considered outdated, it is still one of the most used and effective methods to convey a lot of knowledge in a short time.
Master classes are the simplest and most intuitive teaching method, the most traditional and used. Sometimes face-to-face teaching can be boring and not always effective in keeping the interest of the class alive and allowing the students to assimilate the information the teacher conveys.
Digital tools can be very useful to overcome this problem and make lessons more engaging, fun and inclusive. How?

It is possible to create graphically interesting infographics and presentations with CANVA, interactive with THINGLINK, adding videos, in-depth texts, images and playful elements. With WORDWALL, for example, you can create many exercises and games to help students learn and test their knowledge, making face-to-face classes more interactive.

Among the playful elements that can be added to a presentation to combine face-to-face teaching and interactivity or to assign more creative tasks, we remember:

drag and drop exercises;
Missing words;
flash card;
cataloging;
Crosswords;
random selection tools;
anagrams;
multiple choice quiz.

ACTIVE LEARNING

Active learning is a methodology that assigns the teacher the role of support and guide, but it is the student who discovers new knowledge by carrying out the different activities.

Among these methods we mention:
1. Think-share it
2. Concept test
3. Think aloud to solve problems in pairs

Think-Pair-Share

Think-Pair-Share (TPS) a collaborative learning strategy in which the class works together to solve a problem or answer a question. Discussing an answer with a partner serves to maximize participation, focus attention and engage students in understanding the text.

Operation

The student thinks alone about the proposed question Then discuss the solution with your partner.
Finally, the pair shares the solution with the class.

When to use it

Think of a solution to a problem Have the class reflect on a text Produce original ideas

SUGGESTIONS

In distance learning this type of activity can be carried out using "Zoom" or similar tools.
Different tools can be used in the classroom depending on the problem to be solved, the task to be completed or the questions to be answered. For example: Initially, students can answer the questions themselves in Kahoot!, then repeat the quiz at the end of the discussion to check the answers.

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Concept test

Operation

Each student takes a multiple choice test with "distractors" (called answers) in a very limited time Then calmly faces their partner.
Finally, the pair must identify the correct answers.

When to use it

Test your prior knowledge on a topic Remove preconceptions Give immediate feedback to the class

SUGGESTIONS

It is important to use different "distractors" that can help each student eliminate incorrect prior knowledge.
To make the activity more interesting we suggest using Kahoot!, Google Forms and other digital tools to create quizzes and quizzes.

Thinking aloud to solve problems in pairs

We find it among the didactic methodologies aimed at favoring the personalization of learning and it is included among the peer teaching techniques used for specific training needs.

Operation

The pair of students are given a topic to think about.
Each member of the pair should take on one of the following roles: the problem solver explains what he thinks about the topic, while the listener asks questions.
After the first phase, the solutions predicted by the pairs are heard and the roles are reversed, to finally hear another type of solutions.

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When to use it

Understanding how students think Understanding how students think about a topic.
It allows each student to hone their thinking skills.

SUGGESTIONS

You can ask students to play an infographic or presentation using CANVA, Google Slides, or another similar tool to present their thoughts to the listener and vice versa. In this way, students can learn from each other while benefiting from support that facilitates understanding and the learning process.

LEARNING among peers

Peer learning is an educational practice that involves the interaction of students with their peers in order to achieve educational goals. Collaborative, cooperative and inductive learning methods fall into this category and there are different methods and strategies that can be carried out with or without the support of digital tools.

learning together

This methodology allows for the development of interdependence between team members and helps to create a team spirit.

Operation

The students are divided into groups of 4 or 5 people, and each group only receives one copy of the teaching material.
By sharing the material they are forced to work together.
Very specific roles are defined within the group (reading, notes, writing, revision, final presentation) The assessment is done in the group as such, based on the product delivered, not the individual student, in this way it is strengthened collaboration and the value of common work.

When to use it

To do an in-depth analysis Approach the reading and analysis of a text

SUGGESTIONS

These are some of the tools that can be used in this case: Google docs, Padlet, Jamboard...

JIGSAW

This methodology favors collaborative learning and favors interdependence, peer learning, group work, reducing conflicts between students.

Operation

Form groups of 5-6 people.
Divide the text to be assigned into 5-6 parts or the lesson into 5-6 parts.
Assign each member of the group the part to study and give the class time to memorize it.
Create "expert" groups by mixing students and bringing together members from different groups who have been assigned the same part so they can discuss and share ideas and knowledge about their segment.
Give each group time to prepare a presentation, video, infographic or speech to present their segment and rehearse the presentation (every group member should be able to present their part).
Ask the students to return to their original group and invite them to present the segment and the others to ask questions.
Take a final test to check that the content is clear.

When to use it

To understand a complex text To compare different points of view on a topic When you want to improve interdependence in the classroom

SUGGESTIONS

You can use Zoom rooms to conduct this type of activity remotely.
In face-to-face lessons, you can use a QR code to assign groups to different segments and ask them to prepare a presentation using CANVA or other digital presentation tools to upload to PADLET to collect all the pieces and get an overall picture.

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INDUCTIVE LEARNING

Peer learning is an educational practice that involves the interaction of students with their peers in order to achieve educational goals. Collaborative, cooperative and inductive learning methods fall into this category and there are different methods and strategies that can be carried out with or without the support of digital tools.

PROJECT-BASED LEARNING

Project-based learning is a well-known methodology that can be used for different purposes; projects can be carried out individually or in groups, with or without the use of digital tools.

When to use it

Transfer the acquired concepts to other contexts and practice different skills

Operation

Give the students the task of creating a product on the topic discussed during a lesson: a presentation, a poster, a flyer with texts and images with CANVA, a video with Animaker or Powtoon, a strip in Pixton.
Upload all products to PADLET to show the rest of the class or create a booklet with Bookcreator.

SUGGESTIONS

Project-based learning is the perfect way to use digital tools and make lessons more practical and interesting. We suggest you check module 1 of the STAND MOOC to get ideas, read the experiences of other teachers and receive instructions on using digital tools.

OTHER METHODOLOGIES – FLIPPED CLASSROOM

There are other methods that can help make the learning process more engaging in both distance and face-to-face classes, with or without digital tools.
One of the most famous methods is the Flipped Classroom, which inverts the traditional learning cycle: lesson-individual study at home-test in class.

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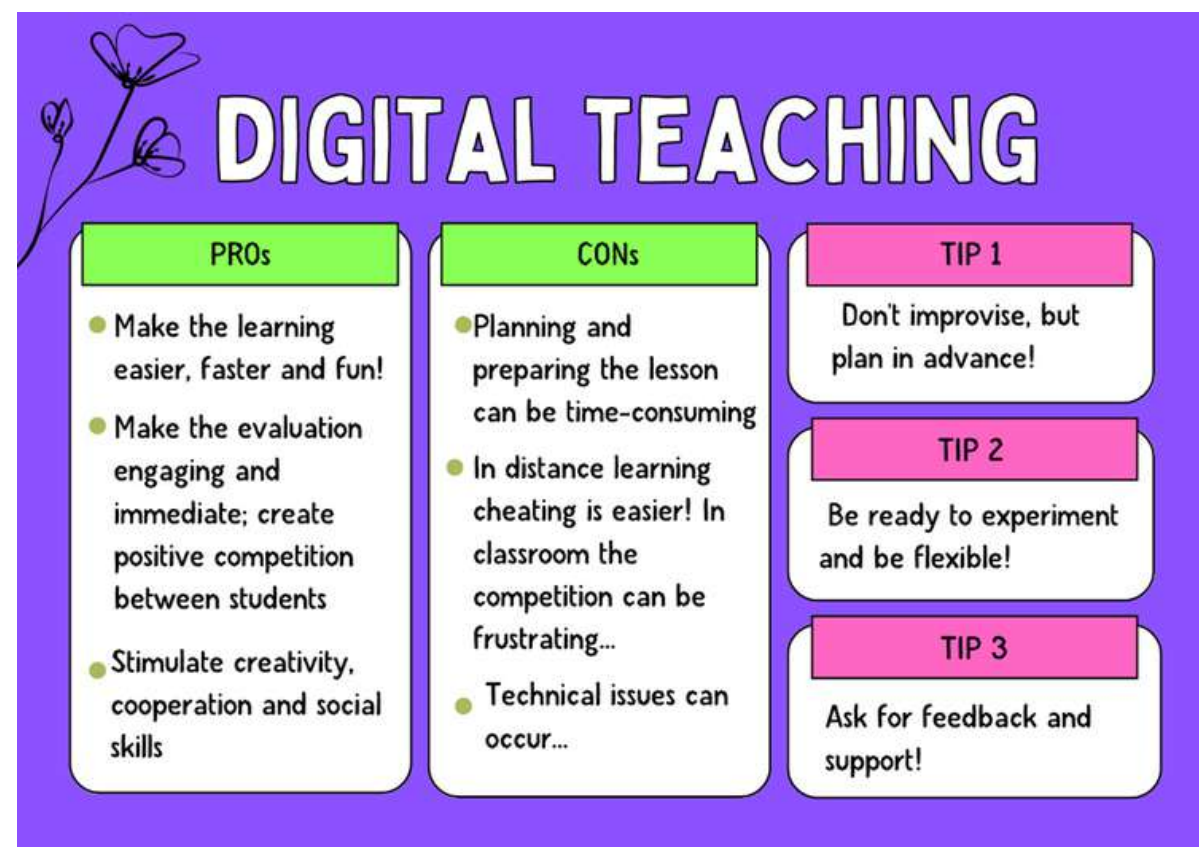DIGITAL READINESS OF SCHOOLS

Figure 5: Pros and cons of digital education

With this method, the lesson becomes homework, while the time spent in class becomes an opportunity for active learning, sharing experiences during which collaborative activities, discussions and group workshops can take place .

Flipped teaching lends itself well to the use of digital tools, both at home for individual study through video lessons, interactive presentations created in CANVA, Google Slides, PREZI or GENIAL-LY, LMS (management systems of learning), interactive digital classes in EDPUZZLE or THINGLINK; both in class with quizzes about MINIMETER or KAHOOT! Finally, these tools are also used to involve students in fun competitions, or to assign the creation of projects and products related to project-based learning.

Digital tools and learning assessment

Digital tools are particularly effective in monitoring and evaluating student progress and learning outcomes. They make the assessment process more fun by reducing the associated fear, thanks to the inclusion of playful elements.

Through the game, students can review, practice and consolidate their knowledge, while the teacher can get a clear idea of their performance. In addition, through online assessment tools, it is possible to give immediate feedback, favoring the adaptation of the learning path to the rhythm of each student, identifying gaps and needs to be covered.

It is true that with digital tools it is not always easy to assess the most obvious interpersonal and transversal skills in oral tests, such as self-confidence, the ability to express yourself; some disciplines require the assessment of practical skills, such as art, science or physical education, tests for which may be difficult to conduct in a digital environment. Digital tools can and should therefore be a support to make learning experiences more fun and effective, but they cannot fully replace traditional methods. A good idea may be to combine online and face-to-face tests to engage students and make lessons less boring.

Among the tools that can be used for this purpose we remember: Kahoot!, Google Forms, Mentimeter, Liveworksheets, Wordwall... in Module 1 of the STAND MOOC you will find a table with many different tools and ideas.

2. DIGITAL TOOLS AND COMMUNICATION

During the COVID-19 pandemic, digital tools have been a valuable ally in staying in touch with students, parents, peers and colleagues, communicating and continuing to teach. Of course, it wasn't easy! Communicating online is different from meeting in person, and teachers have had to face enormous difficulties to create an atmosphere of empathy, closeness, intimacy with their classes, important elements especially when work with girls and boys.

"The empathy that is created in the presence through a hand placed on the shoulder, a caress on the face or a smile exchanged looking into the eyes, all this is impossible to recreate through a screen, consequently, I often asked my students how they did it. felt… showing closeness, calling girls and boys by name and asking how they were doing was essential. Our video lessons always started with: How are you? Everything is OK?"

"I saw my students cry because they didn't know how to use their devices to get online in class, and parents felt the same frustration."

Opinions of the teachers involved in the meetings

Being separated from the filter of the screen was not easy, and although distance learning has been a valuable ally, it will never replace face-to-face classes. However, technology tools can help make these lessons more engaging and effective! There are many potentialities and opportunities opened up by the pandemic in terms of the use of digital tools that have contributed to improving communication inside and outside the classroom.
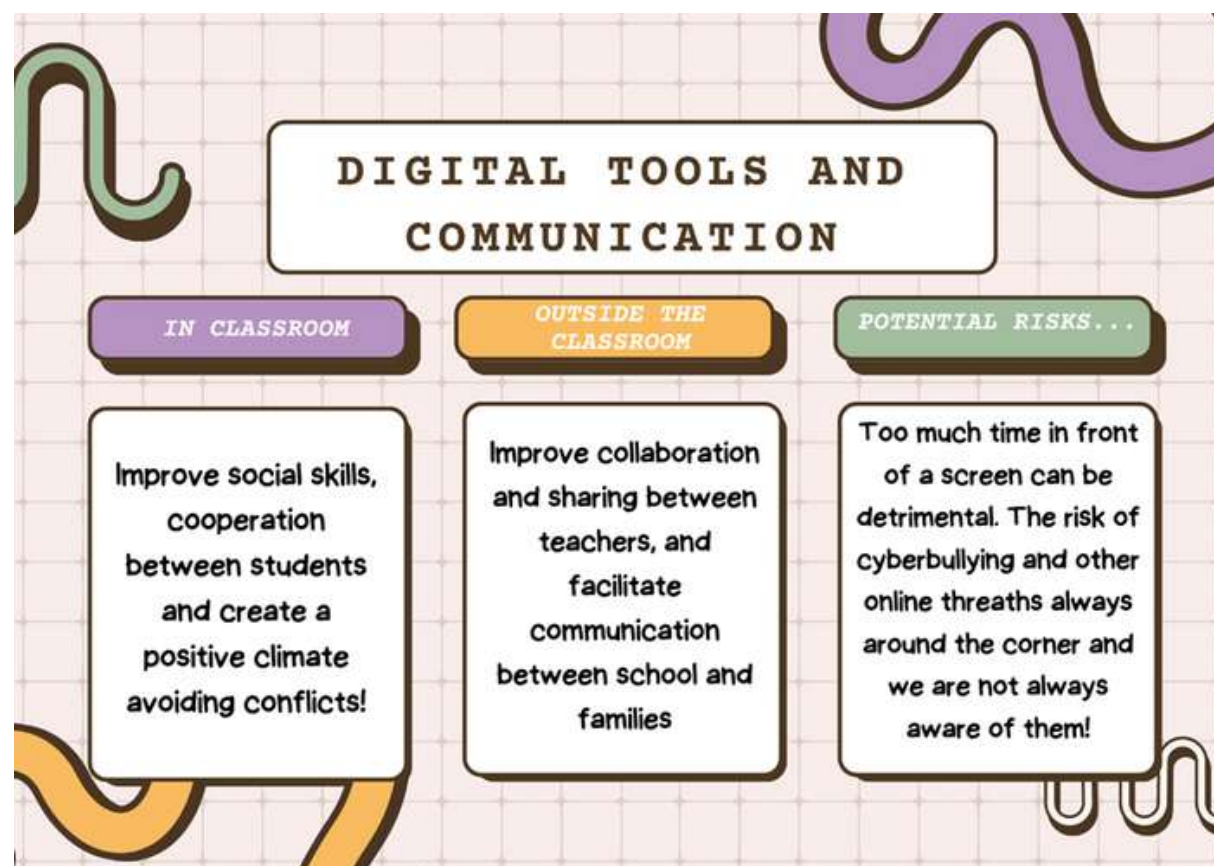
DIGITAL TOOLS AND COMMUNICATION

IN CLASSROOM	OUTSIDE THE CLASSROOM	POTENTIAL RISKS...
Improve social skills, cooperation between students and create a positive climate avoiding conflicts!	Improve collaboration and sharing between teachers, and facilitate communication between school and families	Too much time in front of a screen can be detrimental. The risk of cyberbullying and other online threaths always around the corner and we are not always aware of them!

Figure 6: Digital tools and communication

As we have seen, digital tools facilitate communication, collaboration and group work between students, allowing everyone to contribute and express themselves, stimulating creativity and critical thinking. By using collaborative learning methods and/or sharing documents and materials, students learn to work together, depend on each other, exchange and compare ideas and decide together, avoid or resolve conflicts together to achieve a common goal.

This allows them to acquire greater awareness, self-esteem, social skills and communication skills.

The use of digital tools facilitates group work at home, as it allows to eliminate physical distances that are often difficult to bridge. The teacher's role is to guide the process and ensure that no one is left behind, but again, digital tools are only a support and cannot replace the teacher's educational role.

Since the pandemic and still today, digital tools have made it possible to improve communication between colleagues, introducing new methods of sharing and collaboration that have made work more efficient. Consider using Google Drive or other sharing tools to exchange materials and monitor class performance (syllabi, class test results, tables); to the new habit of organizing online meetings to adapt to everyone's needs; the possibility of planning and co-designing interdisciplinary courses of different subjects using some digital tools for classes, assignments and tests.

In addition, in terms of school-family relations, digital tools enable communication, offer new channels to stay in touch and exchange information more quickly and efficiently. In many schools, electronic records are already a reality, but sometimes parents are not used to using digital tools to communicate with schools, check emails and connect to sharing spaces. In these cases, social networks (Facebook, WhatsApp or Viber) can often be useful, even if - especially for teachers - this leads to a blurring of the boundaries between work and everyday life. All of this can become a problem and lead to over contact and stress!

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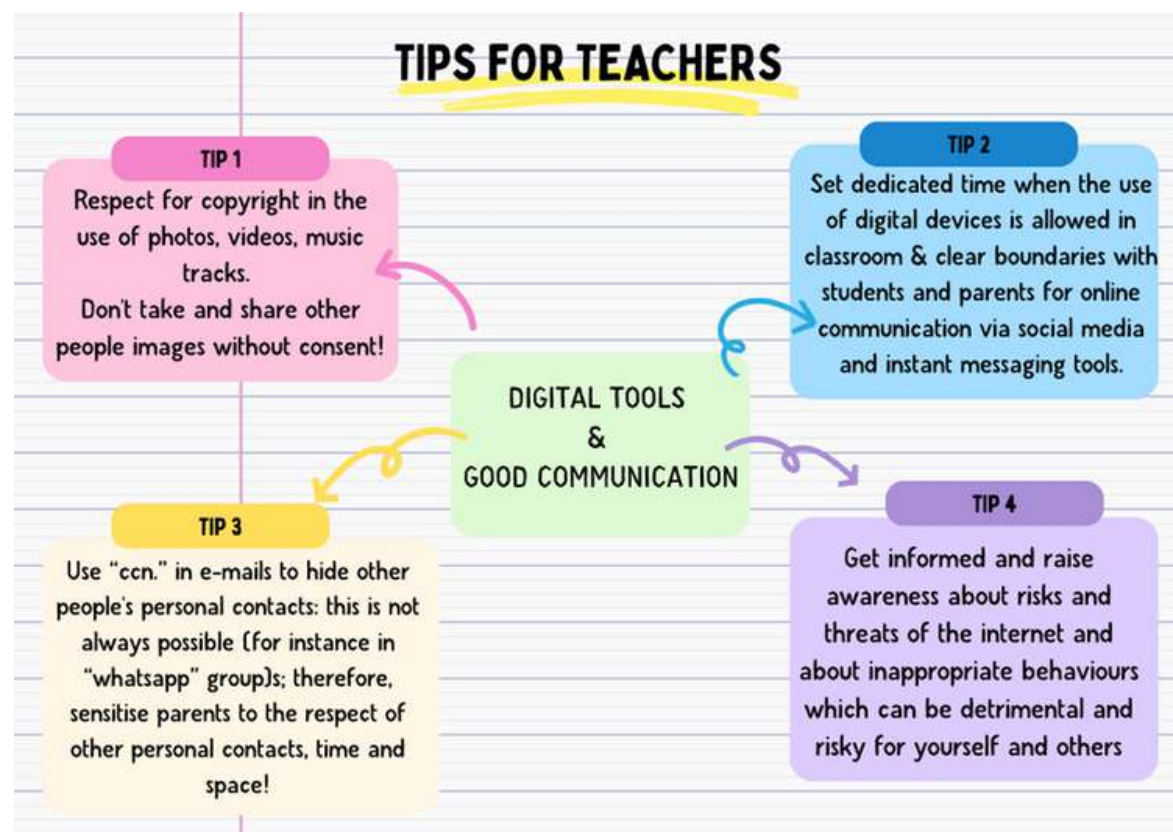DIGITAL READINESS OF SCHOOLS

Figure 7: Good use of digital tools, tips for teachers

Speaking of communication, it is important to remember that privacy is fundamental, as well as respect for others' time, space, image and data. The following infographic offers some tips on how to communicate well online using digital tools.

The STAND manual (Outcome n.3) contains more information on the subject of privacy, regulations on personal data protection, cyber threats and cyber security, cyber harassment, risks and advice for the appropriate use of digital tools aimed at training the teachers, informing parents and involving students, allowing them to delve deeper into these topics thanks to ready-to-use lesson plans.

3. DIGITAL TOOLS, ACCESSIBILITY AND INCLUSION

As we have seen in the previous sections of the guide, digital tools are becoming essential to make the learning environment more interesting, stimulating and comfortable. Using digital tools in the classroom has numerous advantages and is helpful in developing self-control and interpersonal skills. An important aspect to consider in order to make the learning environment truly inclusive is to ensure that every student can participate fully.

In addition, many digital tools can also be used by students with learning difficulties or special educational needs, disabilities such as blindness, dyslexia, low vision, deafness or hearing loss, learning difficulties, cognitive limitations , movement limitations, articulatory difficulties, photosensitivity or a combination. of these. In these cases we are talking about assistive technologies that include a wide range of tools such as screen readers or writing devices. Today, assistive technologies can help students with disabilities learn better.

However, despite the existence of tools designed to support students with special needs, many devices and, in general, content on the Internet are often not fully accessible to people with disabilities or vision problems. For example, in order for a website or digital tool to be truly accessible to people with dyslexia, a dark background should be used, as lack of contrast is one of the most common obstacles. In addition, a specific font should be used that can improve the readability of the text, as well as divide the different paragraphs. The Web Content Accessibility Guidelines (WCAG) contain a wide range of recommendations for making Internet content more accessible: https://www.w3.org/WAI/standards-guidelines/wcag/.

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Figure 8: Digital tools and inclusion

Digital tools can simultaneously promote inclusion and generate discrimination. They can represent a useful resource in supporting children with learning difficulties and providing access to peer support; they allow group work on shared topics and materials, including students with different skill levels and assigning roles and tasks based on their needs, abilities and inclinations. In addition, when working with minors with special educational needs and learning difficulties, digital tools allow us to remove some barriers and facilitate the adaptation of teaching material to specific learning needs and the required level of accessibility.

However, the use of digital tools can produce discrimination if there is no adequate thought and preparation for their use. In fact, online materials may not be accessible to all students and, in general, families do not always have the necessary devices. In contexts characterized by strong economic inequalities, the digital divide and the scarcity of resources available to some families make a difference and can reproduce discrimination.

Especially during the pandemic and in the distance education phase, the digital gap between families has generated enormous difficulties and accentuated class differences, highlighting the profoundly unequal character of the school system.

Virtual learning environments have highlighted inequalities in access to resources and opportunities among students, indicating the need to strive for greater inclusion and promote equality of opportunity in the education sector.
During the pandemic, great efforts have been made to support families, for example by distributing computers and tablets, but even today the use of digital tools in the classroom only makes class differences evident, for example when asking to students who use mobile phones, or when to assign homework that requires the use of devices and an Internet connection that is not always available or of good quality.
Each teacher must be aware of these aspects, create accessible teaching materials and adapt activities based on the resources available in the class in order to make the learning experience truly inclusive.

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Figure 9: Environmental sustainability and use of digital tools

4. DIGITAL TOOLS AND ENVIRONMENTAL SUSTAINABILITY

Digital technologies are a great support for teaching activities: after all these pages we can only agree! But are they really sustainable?

The environmental impact of digital tools has not yet been the subject of debate and most teachers seem to be completely unaware of this aspect.
We think that the use of digital technologies in school is an advantage for the environment, and rightly so, as it allows us to reduce paper consumption and the carbon footprint of travel-related emissions, but every action digital has its impact on the environment linked to the use of electricity and related CO_2 emissions. In addition, the manufacture and disposal of the devices must be taken into account, as well as the energy consumption caused by the servers. Digitization, in fact, has led to a significant increase in greenhouse gas emissions that contribute to climate change and global warming. Digital technologies are responsible for 4% of emissions. We know that digital devices are essential today in many areas of our lives, and very useful in the field of education, as we have argued in these pages, but every action, even a digital one, has an impact, and it is important to be aware of this.

What can be done then? Should we avoid using digital tools altogether? Not at all! Follow our advice (see Figure 9).

CONCLUSIONS

Without a doubt, digital tools are a huge support in the field of learning: thanks to them, during the pandemic, the school system has managed to withstand the impact of unprecedented restrictions and discovered new ways to promote col· collaboration, communication, commitment and learning. The pandemic years were challenging and led to an acceleration of digital transformations amid difficulties and new ideas.

Digital tools can be used daily in teaching activities using new methods capable of promoting active and cooperative learning. Teachers must be aware of the potential and risks linked to these tools to carry out truly effective learning processes, communicate and increase inclusion and accessibility while taking into account environmental sustainability.

The STAND team hopes that this guide can help every teacher to reflect and make these aspects their own so that they can effectively use digital tools in school.

If you haven't already, we invite you to discover the project resources, the MOOC for teachers, the handbook for teachers and parents on data protection and security in digital learning in order to learn more about your knowledge on the matter

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PR2- Methodological guide:
Strategies and criteria for
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