

Educational Ventures

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**WP2 - 2.1 RESEARCH****Immersive & collaborative learning:
an analysis of educational practices in Italy**

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INTRODUCTION

This document represents the starting point of the Erasmus+ project “Educational Ventures” and is proposed as a journey to discover education in Italy through the many facets of immersive and collaborative learning. The aim is to understand current educational dynamics and promote innovation and cooperation, to develop a cooperative school model that can shape students’ transversal skills and enhance their cultural heritage.

This research, which ranges from the cultural to the educational and technological spheres, aims to identify places of interest, outline the profiles of the target groups and identify the fundamental competences for the future of school and society. It is not just a matter of developing an educational prototype, but of establishing a synergistic combination between educational innovation and the cultural identity of a territory; in this way, the partnership aims to contribute substantially to the evolution of education, where innovation encourages and supports cooperation and cultural understanding.

This study aims to build the scientific basis for a model capable of enhancing communication skills, problem-solving, conflict management and collaboration of selected groups, reducing stress and improving the emotional well-being of students, who will have the opportunity to immerse themselves in their own territory, acquiring tools to face new challenges.

The report begins with an analysis of the importance of experiential and collaborative learning, highlighting key skills such as critical thinking, creativity, collaboration, and cultural awareness. The importance of identifying the peculiarities of each place is emphasized to enhance its identity and involve students in meaningful learning. It also talks about the evolution of education using mobile technologies, which adapt to modern educational needs.

Reticular teaching emerges as an innovative approach that favors the personalization of learning, promoting collaboration between students and enhancing the active role in the construction of knowledge.

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Finally, the fundamental role of emotions in learning is explored, highlighting how stimulating the emotional aspects of education is important to engage students and transform educational experiences into concrete skills for the real world.

During the presentation, the importance of incorporating meta-competencies and soft skills into the educational context to prepare individuals for success in life emerges; this approach not only fosters the development of effective cognitive, emotional, and social skills, but also contributes to shaping a more inclusive, innovative and resilient society.

In addition, investing in metacognitive education and the acquisition of skills to adapt to constantly changing contexts is essential to face emerging challenges with intelligence and wisdom. The interplay between the natural environment, technology and teaching methodologies reveals a potential for meaningful change in the context of contemporary education, offering engaging and stimulating experiences that promote learning and collaboration.

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Analysis of the Italian territory to identify the places of interest and the topic to be researched

Spatial analysis is a useful tool for gaining an in-depth understanding of a given geographical context, whether it is a neighborhood, a city, or a region. It is a process that aims to identify and define the potentials, aspirations and needs necessary for sustainable human development in the social, economic, and environmental spheres. “Educational Ventures” intends to use territorial analysis to examine the educational needs of the target groups, identifying key topics and methodologies for the development of their model. In this context, the territorial analysis carefully considers the interconnections between different policy sectors and the multidimensional nature of social and territorial well-being and development; therefore, the data collected is objective and, at the same time, able to reflect the subjective perceptions of the community.

A comprehensive assessment of the Italian territory to identify places of interest and define the research topic requires an in-depth analysis of demographic, geographical, cultural, and economic data, along with an understanding of contemporary needs and regional challenges. The multidimensional approach provides an information basis for in-depth and meaningful research. Each key phase of the analysis aims to foster a complete and detailed overview, on which to build the “Educational Ventures” model; in fact, the opportunities accessible to an individual are closely influenced by the territory in which they live: the quality and quantity of goods and services available depend largely on the characteristics of the place and its community.

Through this study Wide intend to reflect on how the territory can become the space for the realization of the individual and collective aspirations of present and future generations, increasing the social, educational, and economic opportunities of young residents, without neglecting anyone.

At the base of the transformation of educational, technological, and territorial dynamics lies the need to live and rediscover spaces: streets as intertwining relationships and public places as symbols of community, through the enhancement of history, culture and ties with the territory. Being part of a territory means coming into contact with spaces associated with social knowledge and practices. The image of a territory is shaped by the perception of those who observe it and

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those who live there; feeling involved in the redevelopment process would guarantee positive results both for the place and for the community. The possibility of feeling an integral part of a territory promotes inclusion, social cohesion, the development, and application of key skills. Observing places and related practices leads to an understanding of the territory, highlighting the very meaning of living, with greater attention to the needs of the individual.

The task of the researchers of “Educational Ventures” is to develop a study capable of exploring both the relationship between the territory and culture, and the possibility of initiating virtuous participatory processes of technological and innovative teaching; develop practices in which culture, spaces and the integration of digital tools contribute to increasing the sense of belonging and quality of life. The aim is to demonstrate how these tools and methodologies can ensure the development of fundamental skills to benefit from this interaction between individuals, context of belonging, cultural identity, and technological progress.

Currently, there is a crisis of the city that is commonly referred to as an impoverishment of ideals and values, both culturally, socially and environmentally. To cope with this scenario, a model of land enhancement that can provide students with a pathway to educational and human growth, linked to the surrounding environment, is proposed to be implemented. The first step towards achieving this goal is to identify and enhance the main historical, artistic and meeting buildings and places, as authentic representatives of identity and culture, thus acting as spokespersons for individual and collective uses, traditions and behaviours.

Italy, with its rich history, vibrant culture, and stunning landscapes, presents unique treasures, ranging from ancient Roman ruins to charming coastal towns. Living, learning about and exploring these places not only satisfies historical and artistic curiosity, but also contributes to the development of essential soft skills.

Among the most famous places of interest in Italy, the Leaning Tower of Pisa, the Cinque Terre, Florence, Venice, Pompeii and Herculaneum deserve to be mentioned. Each of these places tells a significant part of Italy’s history and cultural richness, offering a unique opportunity to enrich one’s understanding of the past and present.

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The writing company, WIDE Srl, has its headquarters in Rome; therefore, a reference to the places of interest of the Italian capital is inevitable. Among these, the Colosseum, symbol of the Roman Empire, stands out; the Roman Forum, the political, religious, and commercial epicenter of Ancient Rome; Vatican City, which houses St. Peter's Basilica and the Vatican Museums, including Michelangelo's famous Sistine Chapel; the Spanish Steps and the Trevi Fountain; the Pantheon, renowned for its hemispherical dome and for being one of the best-preserved ancient architectural works; Piazza Navona embellished with Baroque works such as the Fountain of the Four Rivers by Gian Lorenzo Bernini; Trastevere, a charming medieval neighborhood with charming cobbled streets and an authentic, lively atmosphere; finally, the Borghese Gallery, a container of works by illustrious artists such as Caravaggio and Bernini.

In the contemporary imaginary of the city, there is an identification of the territory as the protagonist of change and development of the creative and knowledge sectors. In general, these development processes are conditioned by the traditions and cultures of the context in which they occur. Every city and place are distinguished by the elements that constitute its identity, and it is very important to identify and enhance these peculiarities.

Often, the perception of interest in a place is linked to a sentimental or identity involvement rather than to the mere objective meaning of aesthetic beauty or historical relevance. It is the participation, involvement, and attractiveness of a place that makes it a powerful habitat for learning, engaging all the senses and promoting increased concentration, reduced stress, and the deep rooting of information in memory.

There are many ways to observe and appropriate the surrounding environment, making it essential to identify the skills necessary to translate knowledge into practical behaviors. It is about acquiring notions, personal characteristics, and skills regarding participatory democracy, with particular attention to inclusive processes that involve children in innovative decisions in the social, technological, environmental, cultural and value fields. The context described contributes greatly to the improvement of communication skills, critical thinking skills, conflict management, and the promotion of collaboration, as well as reducing stress and improving emotional well-being.

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Students who have the opportunity to consciously immerse themselves in the complexity of the places of the past, the culture and sociality of their territory acquire the necessary tools to face new experiences. They improve their cultural sensitivity and ability to communicate in different contexts, learn to maximize shared experience, evaluate and interpret critically, manage their time efficiently, and develop the ability to adapt quickly to new circumstances.

Educational opportunities experienced outside the school must be integrated with the characteristics of the territory and the social and cultural context in which the school is inserted; this is why the educational offer should include a preparatory phase of study of the territory and the target audience. Outdoor teaching is not limited only to experiences conducted in natural contexts, but also extends to educational paths conducted in urban contexts, ensuring a direct and concrete relationship with the real world and the full involvement of learners. In a city like Rome, urban environments offer a wide range of application opportunities: museums, squares, city parks and archaeological sites abound, arousing the spontaneous interest of students.

In addition to this, thanks to the use of innovative technologies, students have the opportunity to explore in a dynamic and stimulating way the fundamental aspects of the history and culture of their territory, also appreciating the elements of the Italian cultural heritage and other European realities. This model can contribute to the education and training of aware and active citizens, to the enhancement of local heritage, to respect for the environment understood as a common good to be preserved, used, and transformed in a sustainable way and to the promotion of interculturality for the respect of other cultures and diversity.

The territory, like humanity, is constantly evolving and changing; for this reason, the development of a knowledge development program based on the increase of skills, leveraging the combination of environment and digital, promises to be innovative and advantageous for the entire educational and social system.

AN OVERVIEW OF THE LITERATURE REFERRED TO THE MODELS OF OUTDOOR LEARNING



The concept of Outdoor Learning has become increasingly important in the panorama of contemporary European educational strategies. This is followed by an in-depth analysis of the literature on Outdoor Learning models, focusing on a detailed study of the new Outdoor Learning method. In particular, the main currents of thought, the pedagogical approaches associated with this model will be exposed, and the way in which it is possible to incorporate technological virtual paths in instructional design will be explored, emphasizing the importance of this synergy to enrich learning.

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Outdoor Learning is based on the idea that the outdoor environment can serve as a stimulating educational context, offering unique opportunities for learning through interaction with nature. The existing literature has amply demonstrated the benefits of this approach, highlighting improvements in the cognitive, social and emotional skills of the students involved. Outdoor Learning promotes motivation, focus, and a deeper connection with the world around.

Before exploring contemporary theories regarding this new learning method, it is important to consider the historical context that marked the beginning of the evolution of Outdoor Learning. The roots of this open-air pedagogy lie in the ideas of the German pedagogue Friedrich Wilhelm August Fröbel and the philosophy of the American philosopher and pedagogue John Dewey on experiential learning. The development of this discipline is also permeated by contributions from enlightened thinkers who have recognized and deepened the unique value of learning outside traditional classrooms.

In the 19th century, Fröbel laid the foundations for education in nature with the invention of the kindergarten for children aged 3 to 6. As far as the age group of primary school is concerned, towards the end of the eighteenth century, a model with school times rigidly marked in indoor classrooms is established, where teachers give lectures educating, emphasizing obedience, and learning exclusively from books and blackboards. This scenario prevailed until the early twentieth century, when the movement of research and institutional innovation of open-air schools began to spread in Europe. Outdoor schools are mainly created for health and hygiene reasons and are aimed at poor and fragile children, who are more susceptible to tuberculosis. The educational program includes the introduction of activities that can be conducted outdoors, such as the management of vegetable gardens and the care of animals, together with educational moments related to the main school subjects.

Fundamentals are the concepts of Baden-Powell, the visionary founder of scouting, who inaugurated the scout movement in 1907, in England, through an innovative experimental camp. Baden-Powell integrates nature into his educational thinking, conceiving adventure as an essential vehicle for the moral, physical, and social growth of everyone. The inspiration for outdoor education originates from Scouting, aiming to develop the socialization skills of each

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child within a context based on mutual respect and care, with particular attention to the surrounding environment.

It was only in the 1920s that the idea began to spread that this pedagogical model could be extended to all students; however, there was still a solid preference for an indoor educational space, considered more reassuring for teachers and characterized by a more schematic and repetitive structure in its didactic rhythms.

Subsequently, it was Maria Montessori who reconsidered the triangular dynamic between adult, child, and environment, attributing to the latter a role as a co-protagonist of the educational process; this implies a design intentionality on the part of the educator and emphasizes the autonomous relationship that the child establishes with the environmental elements. In her 1949 text, “The Discovery of the Child”, Montessori emphasized the importance of spending time outdoors and in the sun for the well-being of all children.

John Dewey’s contribution to international pedagogical reflection is equally remarkable for his analysis of experience. He defines experience as the acceptance of all that is experienced and argues that it leads to an understanding of nature, and vice versa, in a single human life process.

Although there have been some laudable attempts to reform the ancient school structure, there is a persistent tendency over the centuries to keep the system unchanged, leaving out opportunities for improvement that could have greatly enriched early education. Because space and freedom have the power to instill a sense of calm and tranquility in children, the importance of the environment in which children read and its impact on the acquisition of language skills and beyond is often overlooked.

The indoor educational space, characterized by its limiting and repetitive nature, can prevent explorations, discoveries, and authentic life experiences, hindering the development of an interdisciplinary, creative and adaptable teaching approach.

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Today, the idea of an open-air school is gaining increased ground, admitting the importance not only of the cognitive aspect, but also of contact with nature and relational and emotional aspects, which function as a driving force for the learning process.

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A Study of the new method of Outdoor Learning

The new Outdoor Learning approach constitutes a significant advancement in the design and execution of state-of-the-art, inclusive, and efficient educational programs. This methodology integrates the most recent discoveries in learning psychology, active pedagogy, and innovative teaching methodologies, contributing to the creation of a dynamic and engaging educational environment. The analysis of the literature related to this research provides a critical picture of the positive impact that the new method has on the learning process, highlighting both the successes and the challenges related to this innovation.

Several theoretical currents promote Outdoor Learning, including Constructivism, Mental Ecology Theory, and Cognitive Learning. Each of these theories offers an essential conceptual basis for developing practical models that are adaptable to the specific needs of students in outdoor learning situations.

Constructivism, a psychological theory that took shape in the 1950s based on the conceptions of George Kelly, James Paget, and Seymour Papert, advocates the idea that cognition derives from individual experience rather than from the mere transmission of external information or the representation of an objective reality. According to constructivists, the consciousness of the world is not objective and absolute, since it is the individual who creates it through his own experience. The social component plays a crucial role, since the meanings attributed to reality are modelled, evaluated, and verified through comparison and collaboration with other human beings; therefore, learning does not develop exclusively on a personal level but also embraces a collective dimension, giving rise to the concept of “cooperative learning”.

If the environment is considered a space of action that favors cognitive processes, it becomes essential to create the optimal contextual conditions for their exercise. This perspective entails a revolution in the traditional logic of education. The centrality of teaching, understood as the transmission of a training determined by the teacher, gives way to learning, which enhances the learner’s point of view. Consequently, the teacher cannot directly influence learning, but can only

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offer stimuli and indications to the student engaged in a path of growth in line with his or her individual history. There are no longer fixed and standardized techniques, nor ready-made knowledge that the teacher transmits, but rather a flexible and recurring collaboration.

In 1972, the British psychologist and anthropologist Gregory Bateson introduced a new ecological approach, based on issues such as biological evolution and the crisis of relations between man and the environment. This perspective in understanding the dynamics between organism and environment is called “Ecology of Mind”. At the heart of Bateson’s thinking on the ecology of mind is the belief that one cannot speak of a species or an individual in an abstract way; to understand how it works, it is necessary to consider the organism in the environmental context. Bateson proposes the consideration of three distinct worlds: the digital world of physical quantities, the analog world of biological evolution, and the world of ideas in mutual relationship. The mind, seen as a set of ideas, adopts ecology as a method, privileging the whole over the individual parts. As in biological evolution, there are reasons in ideas why some of them vanish while others are transformed. The meaning of an idea develops in relation to its context, emphasizing the importance of the principle that the environment and multiple contexts of life significantly influence individual behavior. The individual’s participation in different environmental situations contributes to enriching and making more flexible his cognitive and social skills.

Jean Piaget’s cognitivist theory focuses on the analysis of the process by which children acquire and develop knowledge. Piaget argues that cognitive development is an active process, in which the human mind constantly adapts, processes, and reorganizes information from the external environment in a unique way. This theory focuses for the first time on the subject as an active agent in his environment, constantly evolving and developing his mental capacities.

The human mind is the result of a constant exchange of information between the subject and the surrounding environment. The subject is not passive in the face of data and knowledge from the world outside; on the contrary, he is able to process them and transform them into a personal and unique wealth of knowledge. Every piece of data, every experience contributes to modifying the subject, influencing his knowledge, and modifying his way of interacting with it. It is through his personal processing of external stimuli that the subject determines his own behavior.

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Piaget emphasizes the importance of active learning, personalizing teaching, creating more effective and meaningful learning environments, and promoting collaborative learning. The theory emphasizes, therefore, the centrality of the process of personal construction of knowledge in the formation of the subject.

The literature on Outdoor Learning introduces state-of-the-art pedagogical methodologies, strategically designed to awaken intellectual curiosity, stimulate reflection, and promote a complete connection with the surrounding environment; it is an invitation to overcome established patterns and embrace new models of learning, challenging the traditional conception of the classroom. Immersing yourself in nature, in addition to enhancing focus, motivation, social skills, and creativity, leads to tangible improvements in emotional well-being, promoting environmental awareness, adhering to conservation efforts, and encouraging inclusivity.

The theme of inclusivity emerges as a key element of Outdoor Learning, as this educational approach is naturally accessible to all students, regardless of their physical abilities or socioeconomic conditions.

The outdoor educational approach aspires to offer a tangible and firsthand educational experience. Through direct exploration and interaction with their surroundings, students are able to make a deeper connection with nature, while also encouraging environmental awareness. Outdoor activities represent an opportunity for concrete experiences, allowing students to perceive the elements of their environment through all their senses: seeing, hearing, touching, smelling and tasting, thus creating an immersive multi-sensory experience. In addition, outdoor work facilitates collaboration and communication between individuals, contributing to the development of social skills and teamwork skills. The flexibility and adaptability of outdoor learning allows teachers to modulate lessons according to the opportunities and discoveries that emerge during outdoor activities. This approach also promotes student well-being through exposure to sunlight, the outdoors, and the natural environment, helping to reduce stress and encourage a positive approach to learning.

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The implementation of outdoor education is an opportunity to foster the development of a wide range of core skills for students:

- promotes the ability and pleasure to collaborate and recognize individual resources for the achievement of group objectives;
- promotes acceptance and integration into the group context, creating a collaborative and inclusive environment;

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- encourages personal autonomy by encouraging the assumption of responsibility and individual initiative;
- stimulates curiosity in observing the world, prompting the search for explanations and insights;
- encourages experimentation and research as learning tools;
- enhances critical and creative capacity in individual expression;
- promotes respect and care for the environment, both natural and man-made;
- develops the ability to design and plan educational activities;
- teaches the importance of effective teamwork;
- It fosters the development of empathy, which is essential for positive interpersonal relationships.

The opportunities offered by Outdoor Learning manifest themselves through an increase in students' attention, an enhancement of the ability to concentrate and the freedom to explore in an informal environment. In this context, criticism and error play a fundamental role in promoting stimulation, inquiry, the courage to dare and the willingness to try again, thus fostering deeper and more meaningful learning.

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Technological virtual paths to be included in the didactic planning

A key element in this research is to explore technological virtual pathways as an integral element in the instructional design for Outdoor Learning. The use of technologies such as Virtual Reality (VR) and Augmented Reality (AR) is a catalyst for new opportunities to enrich the student experience, allowing them to virtually explore natural, historical or scientific environments. These tools can be used effectively to broaden learning possibilities by promoting creativity and conceptual understanding.

Today's educational landscape is increasingly characterized by the increasing integration of digital technologies into classrooms and learning processes. This transformation creates new challenges in instructional design, challenges that can be effectively addressed by exploiting the full potential offered by virtual pathways. Augmented Reality is an approach that amplifies some perceptions of reality using technological devices; It involves one or more of the five senses, allowing those who use it to live experiences and nuances of reality that would otherwise not be accessible. Due to the pervasiveness of technologies in everyday life, it can be said that the theoretical distinction between Virtual Reality and Augmented Reality is now almost non-existent. Devices such as smartphones, computers, video game consoles and VR headsets allow people to experience new access to reality.

There are also practical challenges in the implementation of Augmented and Virtual Reality in education, including issues related to accessibility, teacher training and the need to balance the use of technology with direct experience with the surrounding environment. In educational activities based on Augmented Reality, the teacher assumes the role of mediator, structuring the experience to be proposed to students. The new generations, digital natives, conceive of technologies as tools integrated into daily life; for them, a world without Augmented Reality is inconceivable; therefore, it is essential that educational institutions adapt to the new needs of young people, integrating the use and teaching of new technological tools into the educational context. The inclusion of digital virtual paths in the educational design represents an approach that not only maximizes the potential of technologies, but simultaneously promotes critical thinking, highlighting the risks and boundaries of Virtual Reality.

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In the previous chapter, it was talked about Outdoor Learning, often conceived as an educational approach aimed at leading students into nature and distancing them from the digital technologies to which they are strongly accustomed. However, it is necessary to overcome the perception of opposition between outdoor and technology, since these elements can, on the contrary, mutually support and enhance each other. Educating to the critical and functional use of digital tools not only prevents dependence on them, but also offers the opportunity to integrate diversified languages, thus stimulating active participation. This synergy manifests itself more easily in an *outdoor* context, which requires full sensorimotor activation. In this scenario, the use of technology takes on a proactive role, becoming a genuine tool and not an end in itself. The goal is to read the world more deeply, encouraging the conjunction of practice and theory. Such an approach not only opens new educational perspectives, but also fosters the acquisition of skills that go beyond mere theoretical knowledge, promoting a more complete and interactive vision of learning.

The educational role of schools is configured as an entangled combination of disciplinary and transversal skills, ranging from individual empowerment to socialization, from the exercise of respect and care to the consolidation of collaborative skills and conflict management. To accomplish this task, teaching must allow students time to observe, reflect, and experience emotions. Outdoor classrooms are not simply physical spaces, but represent the opportunity to conceive, compare, debate, and build knowledge in a context of creative freedom that not only stimulates curiosity, but also promotes inclusion through the recognition of the other as an active resource in the group context.

In recent decades, one of the predominant trends in the education sector is the use of the technological potential of mobile devices to support the educational process. The new generations naturally use any type of device, having grown up immersed in a world of applications and technological tools of various kinds, unable to imagine a life without them. As generations evolve along with the mind and its processes, education, being an intrinsic necessity of the individual and society, must constantly adapt to remain relevant and effective.

The new generations are characterized by a predisposition to acquire skills through direct experience, exploring the world with their senses. Learning takes place through action and

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experimentation, making traditional educational tools obsolete and limited to transmitting academic notions.

Educational institutions, including schools, must adapt to new educational needs that have radically transformed over time. Learning involves the assimilation and modification of knowledge, skills, and competences in different areas, but it is a complex and multifaceted process that involves multiple aspects of the human being.

Learning is neither linear nor simple to achieve; on the contrary, it is a multifactorial process that involves the multiple facets of the individual. There are different approaches to learning, each characterized by specific modalities that influence the way in which the educational process develops.

There are different ways of learning: linguistics, which favors the use of written and read words; spatial/visual, which makes use of images, photographs and observation; auditory, based on listening; physical/kinesthetic, involving the body and movements; logical/mathematical, which employs logical processes and reasoning; social/interpersonal, which develops in groups with several people; intrapersonal, preferring solitude and autonomy for the assimilation of notions.

Augmented Reality integrates perfectly into this structured context, offering answers to the various facets of learning. In the field of education, Augmented Reality allows the use of mobile device screens to view and interact with digital content superimposed on the real environment, such as texts, animated objects, videos, and sounds generated by technology. The user can distinguish between what is real and what is added (*overlay*).

Augmented Reality represents a coherent and effective solution to bridge the gap between traditional education systems and new needs in the field of education.

Contemporary education requires a focus on fundamental pillars such as the development of critical thinking and problem-solving strategies, capable of analyzing situations from different perspectives, in line with the complexities of the modern world. In this context, Augmented Reality in education emerges as a catalyst for transmitting essential knowledge to young minds, in tune with current educational needs.

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Augmented Reality in education offers numerous advantages:

- provides direct exploration of the workings of the world,
- facilitates the storage and retrieval of information,
- promotes collaboration among students, creating a shared learning environment,
- it is engaging and motivating, stimulating the desire to learn and the repetition of the rewarding experience,
- It proves to be a valuable tool to meet the needs of students with special educational needs.

AR technology has the potential to become a standard tool in education, becoming an essential resource adopted at school level and in the education system. This technology makes it possible to transform the traditional passive teaching model into an active and participatory approach, actively involving students, teachers, and the classroom in the learning process. In this way, people move from observers to protagonists, embracing a concept of "augmented learning" that aims at students' independence and the stimulation of their creative and communicative abilities.

Unlike Augmented Reality, Virtual Reality (VR and MR) reproduces a three-dimensional and interactive digital environment created by computer, which offers the user the opportunity to explore and experience it firsthand.

Virtual worlds offer realistic or fantasy environment simulations, fully immersing users in new scenarios. This total immersion can create confusion between what is real and what is virtual, as is often the case in video games. VR devices can include headsets and gloves with sensors that enable the visual, auditory, and manipulation of virtual elements.

Through virtual worlds, it is possible to carry out specific activities within scenarios designed for educational purposes. An innovative approach is to use apps during outdoor activities to take notes, putting the surrounding environment at the center. This allows external experiences to be recorded and then reviewed in class, linking exploration with moments of reflection. The virtuous cycle between field experience and classroom discussion stimulates the expressive capacity and dialogue between students.

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The synergies between nature and technology in the field of learning project an optimistic vision, highlighting the transformative and enriching potential that such approaches can bring to the contemporary educational landscape. A tangible example of this perspective is represented by the “Eleonora Pimentel Fonseca” Comprehensive Institute in Pontecagnano Sant’Antonio in the province of Salerno, Italy, which has launched and consolidated over time a large school innovation project.

This project focuses on an unprecedented reconsideration of physical spaces, teaching methods and methodological approaches, integrating cutting-edge technologies into educational scenarios. The school has implemented a “connected community” model, conceiving the community as an open and inclusive educational environment, capable of welcoming people of all ages with engaging and diversified educational proposals. The community is characterized by an authentic connection with local realities and an open vision to the world, embracing linguistic and cultural diversity, social networks and interpersonal relationships.

Through a well-structured and shared renovation plan, the “connected community” has transformed the school into a permanent, open and inclusive laboratory, which innovatively combines digital potential with innovative teaching and educational approaches. This approach aims to respond to the needs of contemporary society, ensuring equal educational opportunities for all.

The introduction of digital technologies and resources within classrooms has been considered fundamental to create dynamic and inclusive learning environments, requiring a redefinition of physical spaces to adapt them to new methodologies. Technologically advanced environments have been set up, including interactive learning environments, creative spaces and laboratories accessible to all students.

Each school complex of the Comprehensive Institute has been equipped with 3.0 classrooms with state-of-the-art digital equipment to encourage an innovative approach to teaching. Lecturers have been trained to guide students in these new digital and laboratory learning experiences. Internal testimonies confirm that the use of technology is leading to a transformation of traditional teaching models.

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Cloud-based applications, interactive devices, and advanced robotic technologies offer ample scope for innovation in educational methods and practices, introducing alternative tools to traditional teaching methods. The integration of technological virtual pathways into instructional design is a significant step towards improving education, but it requires careful planning, targeted training for teachers, and constant adaptation to the changing needs of society and the education sector.

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THE INNOVATIVE IMPACT OF RETICULAR LEARNING

In the education landscape, many educational institutions are progressively integrating technologies and online resources to optimize students' learning journey. This process embraces the use of digital platforms, multimedia materials, virtual forums and other forms of interactive learning supported by connectivity and networks. The evolution of education is a constantly evolving process, influenced by both new discoveries in the field of cognitive neuroscience and the advancement of educational technologies.

One of the most significant advances of the last ten years is represented by Reticular Learning, an educational model based on the analysis of the cognitive bases of the Reticular Activating System (RAS).

Reticular learning is an innovative approach that promotes the personalization of learning processes, promoting interaction and collaboration between students. This teaching method is based on the idea of overcoming traditional linear and sequential models, creating open and flexible learning environments that encourage a reticular approach to knowledge.

Reticular teaching focuses on the centrality of students' learning, enhancing their active role in the construction of knowledge. This approach aims to foster collaboration, cooperation and knowledge discovery through the use of diverse resources, including digital ones. Reticular teaching not only promotes interaction between students and teachers but also encourages a personal re-elaboration of the contents learned, emphasizing the importance of the connection between reading, study and writing as a tool to consolidate the knowledge acquired. The method in question stands out for its ability to adapt to the different needs of students, allowing them to follow personalized learning paths. In addition, the application of reticular teaching can lead to new and stimulating results, as in the case of A.J. Abreu's "*El Sistema*" project in the field of music.

Reticular teaching, according to Professor Salvatore Colazzo, an expert in experimental pedagogy at the University of Salento, places experience on the same level as conceptual abstraction, initiating the process of reflection from the organization of bodily perceptions. This didactic approach emphasizes the social aspect of the learning process, in which children are

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simultaneously exposed to multiple pieces of information, mainly conveyed through practical action; they have the opportunity to process this information both individually and through comparison with their peers. The constant nurturing of interest and motivation to learn takes place through activities that promote autonomy, creativity in problem-solving, collaboration and healthy competition among peers; at the same time, the active participation of students is encouraged, encouraging the development of their cognitive and relational skills within a dynamic and engaging environment.



Virtual worlds offer the ability to perform specific tasks within environments designed as learning objective-oriented scenarios. This involves the ability to learn new languages in virtual contexts that simulate situations such as running a business, exploring an ancient civilization, or solving complex mathematical puzzles. In addition, both faculty and students can create such scenarios, allowing a class, or even multiple geographically distant classes, to use virtual worlds to create interactive simulations on scientific topics or to explore abstract concepts through immersive settings.

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The reticular approach to learning, collaboration, and knowledge building requires open and flexible environments with a varied repertoire of techniques and resources geared toward problem-solving, hands-on learning, and critical and creative thinking. This type of learning promotes a meaningful cognitive process that stimulates metacognitive skills. This methodology is particularly relevant in today's society where the immersive use of new digital media influences communication and learning patterns, helping to promote a participatory media culture and greater digital sociality.

The digital revolution has made it possible to reduce information costs, compress media space, and expand more knowledge that can be used at the same time. The Internet, as a fundamental technological tool of the information society, has also made possible processes of exchange of information and knowledge in a radically different and facilitated way than in the past: it is now possible to access enormous amounts of data, documents and archives in electronic format without space-time constraints. The amount of information and knowledge has greatly expanded the opportunities for access to and experimentation with new aspects of knowledge and communication. Knowledge processes are networked, allowing large groups of individuals to make use of information and knowledge, thus promoting new processes of democratization of knowledge. Therefore, educational institutions can no longer limit themselves to the mere transmission of knowledge but must adopt a reticular logic capable of generating knowledge. Networking is the crucial element of the information and knowledge society, involving individuals, organizations, companies, media and governments in flexible communication based on informal technologies.

Today, the individual has at his disposal a wide assortment of educational, instrumental and communicative resources that allow him to develop and renew his skills and abilities, in a process of constant growth and transformation throughout life. It is a hope for the future that educational institutions, training programs and educational experiences will be oriented not only towards the training of competent workers, but also towards the creation of intelligent individuals capable of using digital technologies and continuously adapting to the changing dynamics of the contemporary world, as well as raising the educational level of the entire population.

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In network learning, there is a greater focus on connections, context, and the ability to invent rather than plan. The concept of network emerges, in relation to the large-scale diffusion of the Internet, which represents and emphasizes the distributed character of knowledge. The theoretical paradigm of reference is constructivism, whose main concepts include the vision of knowledge as an active construction of the subject, with a “situated” character (anchored to the context) and which develops through forms of collaboration and social negotiation. Instructional design aims to create a straightforward and sequential process rather to develop authentic communities and learning environments, where learners can collaborate with each other using a variety of resources and information tools in guided learning or problem-solving activities. This is accompanied by the concept of *scaffolding* to emphasize the importance of providing the subject with a series of technical, organizational and interpersonal learning resources, in order to create an environment conducive to the construction of their knowledge.

In recent times, in the field of education and training, there has been a growing interest in E-learning. This term derives from the combination of “learning”, understood as a process in which the subject is active, and “and” for the electronic tools and teaching methodologies used. Within the concept of E-learning, concepts related to the theories of open and distributed education, multimedia education and the digital economy converge, which emphasizes the need to have up-to-date information and tools to manage, organize, search and connect knowledge, as well as to customize access to content according to individual educational or professional needs and to allow learners to actively participate in communities of learning.

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The benefits of online training are many:

- the ability to keep content constantly updated and create learning communities,
- the ability to integrate learning into the work environment to increase the sense of responsibility and productivity of staff,
- the transformation of learning into a continuous process to address the risks of professional obsolescence in any context,
- the promotion of collaboration, especially in addressing problems through the problem-solving approach,
- the personalization of training courses and access to educational resources to improve personal and professional skills.

The peculiarity of the multimedia and interactive object for teaching that exploits new digital technologies and networks is determined, first, by its hyper textuality. The contents, in fact, do not follow a linear and unidirectional approach, but must adhere to a reticular logic in which the representation (map) of the contents themselves is crucial, both the connection between them or their parts. The user becomes active in the sense that he or she decides autonomously which

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contents to explore and the path of the connections between them, regardless of the order originally conceived by the author, the context for which they were conceived and the modularity initially envisaged. Despite these peculiarities, the multimedia and interactive content designed and created in this way must still comply with the criteria of scientificity, significance and validity of traditional teaching materials. In addition, the educational paradigms of reference are no longer based on the centrality of information, teaching units and the linearity and sequentiality of learning. It has evolved from systems focused on teaching and individual learning in “closed” environments to contexts oriented towards learning, collaboration and cooperation, especially in “open” online environments, where distance is no longer a relevant factor. Teaching materials become authentic learning resources closely linked to the systems of organization and management of the training project to which they refer and to the cognitive and communicative processes that they intend and must stimulate.

E-learning requires the participant to have a much higher level of autonomy and independence than traditional training courses, and this implies the possession of some basic skills and the execution of specific activities.

About skills, the student of an online course must be able to:

- organize and orient themselves among the available resources, which are no longer presented in a linear and sequential way, but follow an apparently disordered reticular structure;
- understand the whole, i.e. be aware of the overall architecture of the training course and its significance for learning;
- collaborate with others towards a common goal, actively participating in collaborative and cooperative paths and activities.

As for the activities that the student of an online course must perform, it is important to emphasize that they go beyond the individual study of the teaching materials provided by the course itself. The student must, for example, start a process of metacognition on the knowledge acquired and on the experiences lived in order to better organize them and orient themselves in their complexity, also considering that the field of action is represented by the community in which

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each one operates, contributing with their contribution and collaborating with others. In addition, the student must commit himself both to actively contribute, making his or her knowledge available and negotiating with the other objectives, methods and shared rules, and to actively participate in the development of the activities. Finally, the student of the online course must independently evaluate the knowledge acquired over time and attribute value to the skills acquired and the activities carried out in view of future ones.

Learning is no longer limited to storing and applying knowledge, but is considered as a continuous process to generate new knowledge and promote individual and social development. Education must respond to the needs of growth and competitiveness deriving from the acquisition of information, knowledge, skills, competences and meta-competences required by modern production contexts, by competitive organizations that require collaborative and cooperative skills from individuals, as well as by technological and electronic innovations in all production sectors. For these reasons, educational and training institutions, bodies and services must adopt a reticular perspective that favours the creation of knowledge.

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Study of the cognitive foundation of Reticular Activation System – RAS

The Reticular Activating System (RAS) is a set of interconnected nuclei that are located in the brainstem and performs several functions, including wakefulness control and circadian rhythm. One of the principal functions of the RAS is the “attentional” one, which amplifies and disseminates information regarding changes in environmental conditions, favoring attention on a given objective. This mechanism operates as a filter that keeps attention focused on a defined goal, making it easier to identify relevant information and access it to consciousness. Through the practice of repeating positive, goal-oriented affirmations, it is possible to influence the RAS to direct it toward what is intended.

Understanding the cognitive underpinnings of RAS and learning how to manage it is key to developing learning strategies that optimize attention and information retention. The activation of the RAS is favored by stimuli that generate interest and emotional involvement; integrating this knowledge into the educational environment allows for a more engaging and efficient learning environment.

The RAS, in short, acts as a brain filter that allows the brain to focus on a particular goal to act accordingly. The RAS is activated simply by exploiting the capabilities of the central nervous system. The brain is an extraordinary machine capable of instantly processing thousands of pieces of information from the senses: sight, touch, hearing, smell, taste. Most of this information is processed by the RAS, which specializes in the analysis of sensory stimuli, the control of wakefulness and the regulation of arousal.

During every moment of life, the human mind is bombarded with a continuous flow of sensory stimuli from the surrounding environment. Sounds, smells, tastes, emotions and places are carefully filtered by this “customizable” mechanism that reacts promptly to various situations. Not all external stimuli can be memorized as they would overload the mind. The lattice activation system works to avoid overloading, selecting only the incoming information that requires the most attention and that is considered a priority.

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For example, all it takes is to wish for a trip to an exotic place, and suddenly one starts noticing advertisements and articles about that destination everywhere one goes. This phenomenon is not accidental, but is the result of the work of the mind. The lattice activation system carefully selects information, directing its attention to the desired journey and ignoring what is not relevant at that moment. It doesn't necessarily mean that that destination has suddenly become more popular, but rather that one's perception has been influenced by the mental filter. Consciously using this sophisticated brain system to tackle everyday challenges is a real opportunity. Focusing solely on the positive aspects of one's life, neglecting the negatives, helps to gradually shape the mental filtering mechanism so that new beliefs can take root in the mind. Although it may seem complex at first, with practice it becomes an increasingly natural process. The secret lies in three basic steps:

1. clearly define the objectives,

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2. mentally visualize them as if they were already made,
3. act accordingly.

This simple three-phase approach stimulates the RAS to conform to the new mindset slowly but steadily. Although the reticular activation system is crucial for the achievement of goals, it does not distinguish between objective reality and subjective perception, tending to consider one's beliefs as absolute truths.

Recently, advanced technologies offered the possibility to develop interactive virtual environments that can be designed to activate specific regions of the Lattice Activation System (RAS). Digital tools, Augmented Reality and interactive virtual environments can adapt the learning experience according to the individual preferences and needs of students, promoting more effective and personalized learning.

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Learning applications of RAS

Neuroscience, which has become increasingly incisive and constant in recent times, has become intertwined with cognitive science and philosophy of mind. From this union emerged the branch of cognitive neuroscience, which uses a scientific method in the study of the brain, based on concrete facts to be explored and evaluated to understand the mind and mental processes.

In the last thirty years, the evolution of neuroscience is leading to a turning point in knowledge regarding human processes, development and nature; it is also influencing the construction of knowledge about the neuronal processes that control memory and consciousness functions, generating new descriptive models of learning and attributing a different role to the motor activities of the brain.

Teaching cannot neglect the contribution of this scientific discipline and must reflect on recent discoveries, critically addressing questions about the biological processes of learning and how the surrounding environment and individual experiences influence behaviors and learning. Neuroscience thus becomes a tool for reflection on knowledge that also involves the field of pedagogy.

Pedagogy must consider a model of intellectual growth based on interconnectedness, focused on perceptual, metacognitive, and emotional aspects, radically different from that based on memory activities.

Findings from research in the field of cognitive neuroscience contribute to teaching theory and to the understanding of problems related to learning processes, supporting the diverse and intricate nature of teaching. The latter is considered in its connection to the various levels of training, which embrace intellectual, physical, emotional, and relational aspects of the individual: an interdisciplinary profile of educational research is increasingly emerging, characterized by a multidisciplinary approach, integrated and open to comparison with models from other scientific disciplines.

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In Italy, the diversified approach is supported by the bio-educational paradigm of educational research, which is based on the recognition of the interconnection between biology, pedagogy, didactics, and the importance of the relationship between mind, body, environment, tools, and processes of knowledge. The bio-educational approach, which is based on the interconnection between pedagogy, neuroscience, and cognitive science, explores the conditions that favor human learning processes in an evolutionary and growth perspective based on the flexibility of the human neurophysiological structure. Training is seen as an evolving process.

The importance of the educational function of the body and corporeality in educational research derives from the recognition of a double meaning linked to the relationship between body and cognition in the field of education, i.e. the didactic use of corporeality and the capacities of the body in motion in generating alternative, complementary or substitute modes of meaning.



Educational bodily experiences communicate through nonverbal means, conscious and unconscious intentions that address complexity in teaching and learning processes. These are

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lines of post-constructivist research focused on a constant link between body, action and knowledge, further amplified thanks to technologies, games and simulations; in this vision, the approaches traditionally widespread in the educational field are overcome, such as the cognitivist one in which the knowledge model was seen as the acquisition and processing of information, the sequential-curricular teaching and learning model and the technological one; instead, a concept of cognition as an activity deeply rooted in the sensory-motor system is developed.

Culture is transmitted in a natural way through languages, actions and processes that involve the body: acting, manifesting itself in attitudes, behaviors and gestures, represents a fusion of words, gestures, ways of moving, facial and bodily expressions; they are elements that define the cultural identity of the individual, the manifestation of his style, his values, his rules, his principles and his priorities. By valuing the conscious use of the body's motor skills and knowledge as an active, subjective, and bodily process, this perspective has offered significant insights to reflect on the use of technological environments to broaden the cognitive experience or educational technologies to create an "enhanced body", a sensory interface capable of improving the possibilities of action.

Theories of acting and enactivism see learning as a radical change that shapes one's environment; thinking is not simply the result of an automatic action, but rather an intricate process that develops and adapts as one interacts with the world, as if the action were part of the individual. There is a strong link between doing and knowing: knowledge is something that belongs to the person, it is the result of that change that touches both the mind and the body during action.

The school must be the place where teaching takes place, a space-time where students can explore freedom, a safe environment to experiment. In this environment there is a close connection between teachers and students that leads to mutual enrichment and change not only of each other's knowledge, but also of their overall internal and organizational structures. Recognizing the importance of the body in cognition, seen as a complex and changing process that adapts to the interactions of the system and action, represents the result of a positive comparison between traditional approaches and new theories, between the pedagogical-psychological knowledge of the late twentieth century and the current reflections on neurological phenomena, with the aim of breaking down the separation between physical and mental aspects.

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The field of neuro-education develops to explore the implications of neuroscientific discoveries on teaching and learning. Above all, it was the widespread use of functional neuroimaging in research on cognitive processes that created new perspectives and stimulated the scientific community to discuss these potential influences.

Emotions play a crucial role in learning, preparing the body for important actions such as fighting, running away, or reproducing. Physical reactions triggered by emotions and feelings are key to guiding thinking and decisions. For this reason, to stimulate students, to make them really understand things and to transform what they experience at school into concrete skills and job opportunities, teachers must focus on the emotional sides of education.

Emotions are like an internal compass that guides the individual through the various situations in life, helping him or her to react appropriately. Without them, there would be no motivation, interest, sense of morality, creativity, beauty or purpose in life. When learning is devoid of emotions, when people study just for the sake of studying, without a real passion or interest in what they are learning, it is likely that what they have learned will not be applied effectively in real life. Emotions not only prepare for crucial actions such as fight, flight, or play, but the physical reactions that accompany emotions and feelings play a key role in guiding thoughts and decisions. Therefore, to engage students, fully understand them, and transform their educational experiences into useful skills and real-world job opportunities, teachers must focus on the emotional aspects of learning.

Learning is a dynamic, social, and contextualized process, and emotions are an essential component of it. Educational neuroscience has revolutionized the understanding of the role of emotions, disproving initial theories that saw them as an obstacle to learning. It turns out that emotions and cognition are intertwined and depend on interconnected neural processes. From a neurobiological point of view, it is unthinkable to form memories, process complex thoughts, or make reasonable decisions without emotional input. Even the most boring topic can become interesting if the teacher manages to establish an emotional bond with the students, moving horizons of meaning and affection. Teachers then have new opportunities to motivate students, generate deep knowledge and facilitate the transfer of school skills into the real world, leveraging what it has meant emotionally for young people.

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Fostering an emotional connection with the study content transforms the approach to learning into an immersive experience, encouraging students to actively participate in the creation of the teaching material and the learning process itself. By using templates, concept maps, and attributing meaning to the study material, deeper involvement is fostered. This approach may differ from the traditional course of study, perhaps proceeding at a slower speed, but it is designed to generate more solid and lasting knowledge.

Encouraging the development of brilliant insights involves promoting the use of critical and creative thinking. The enhancement of the insights derived from experience is the foundation on which the learning process will be built; therefore, it is of fundamental importance to support learning of this kind and to foster a reflective capacity that facilitates the solidification of the knowledge acquired.

Actively leading the emotional and social atmosphere of the class involves regulating the emotions that are not relevant to the task and those that are relevant, balancing them and initially using the former and then privileging the latter, once the student is more aware and able to manage them; this will foster a greater ability of the student to focus on the task.

The activation of complex brain areas is more durable than that which occurs during simple empathy. Mind and body are connected to support motivating actions: without mental evaluation, there is no emotion; without physical reactions related to biological regulation, mental evaluation has no motivational power. This fact underscores the importance of positive emotions in motivational processes and learning. Positive feelings such as admiration and gratitude can help a student find the motivating drive to engage and activate their resources.

Among the models that connect teaching with neuroscience is the Neurodidactics approach of Pier Cesare Rivoltella, professor of Didactics and Educational Technologies at the Catholic University of Milan. In his book “Neurodidactics. Teaching the Learning Brain”, focuses on the importance of understanding how the brain learns and how this can influence educational strategies. Through the analysis of cognitive functions and neural processes involved in learning, Neurodidactics aims to provide teachers with more effective tools and approaches to support students’ cognitive development. This innovative approach seeks to bridge the gap between

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neuroscientific theory and educational practice, offering new perspectives to optimize teaching and foster more meaningful and lasting learning.

Accepting the challenge that neuroscience poses to modern education and developing a teaching method that fully considers emotions is not at all easy and immediate; it is essential to work on the preparation of teachers, so that they can acquire a complete emotional awareness that helps them to promote those positive factors that favor success at school such as motivation in studying, reward, confidence in one's abilities, and strengthening the predisposition of learning experiences.

The introduction of Reticular Learning in education offers many practical opportunities. Instructional strategies can be developed to activate students' Lattice Activator System, thereby increasing their concentration and motivation. For example, using teaching methods based on engaging narratives, real-life situations, and hands-on experiences can maximize RAS activation, facilitating deeper and longer-lasting learning.

In addition, modern technologies allow for the creation of interactive virtual environments that can be designed to stimulate specific areas of the RAS. These digital applications can tailor the learning experience to students' individual preferences and needs, thus promoting greater effectiveness in assimilating knowledge and thus improving the overall effectiveness of the educational process.

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How the RAS can have a positive impact on the creation of the new school model of the project

The new educational model proposed in “Educational Ventures” is based on the idea of an individual-centered approach, considering the diversity of learning styles and encouraging active student involvement. This paradigm aims to create an environment that not only imparts knowledge but also stimulates curiosity, creativity, and a passion for learning. Integrating Reticular Learning in this context can be essential to personalize the educational experience, considering students’ cognitive preferences and using advanced technologies such as Virtual and Augmented Reality to enrich learning with multisensory stimuli.

Reticular Learning represents a step forward in educational innovation, as it actively involves key actors in the educational process by fostering the development of soft skills in students and promoting more meaningful learning. This participatory and collaborative approach could shape the new individual-oriented school model, valuing students’ cultural heritage and using the many facets of technological immersive learning to make the educational experience engaging and interactive.

The use of RAS actively involves students in the educational process, promoting participatory and collaborative learning that fosters the development of transversal skills essential to face the challenges of the contemporary world. Listed below are some benefits of using RAS to develop soft skills:

1. **Meaningful learning:** thanks to the active participation and collaboration promoted by the RAS, students can acquire soft skills in a more meaningful and lasting way, linking learning to reality and their own experiences.
2. **Development of soft skills:** the use of RAS allows students to develop decisive soft skills such as effective communication, collaboration, problem solving and flexibility, which are fundamental skills for personal and professional success.
3. **Mindfulness and Reflection:** the RAS encourages students to be aware of their abilities and reflect on their actions, promoting personal growth and self-reflection.

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4. **Transferability of skills:** the soft skills acquired through the use of the RAS are highly transferable, allowing students to apply them in different contexts and situations, improving their ability to adapt and solve problems.

In addition, the RAS approach fosters awareness and appreciation of cultural diversity among students, encouraging active participation, inclusivity, and appreciation of one's cultural roots.

The RAS used in schools allows the development of various transversal skills that are fundamental for students; some of these include:

- **Effective communication:** the ability to express oneself clearly and empathetically, actively listen, and interact constructively with others.
- **Empathy:** the ability to understand and respond to the emotions of others, fostering positive relationships and greater mutual understanding.
- **Flexibility:** the ability to adapt to changes, face new and complex situations with open-mindedness and resilience.
- **Problem solving:** the ability to identify, analyze and solve problems creatively and effectively, using appropriate strategies.
- **Teamwork:** the ability to collaborate with others, actively contribute to a common goal, and manage group dynamics constructively.
- **Conflict management:** the ability to manage conflicts and divergences within the group in a positive way, seeking collaborative solutions.
- **Responsible decision-making:** the ability to make thoughtful decisions, considering the impacts of one's actions on others and the surrounding environment.
- **Reflective skills:** the ability to reflect on one's actions, thoughts, and emotions, promoting greater awareness of oneself and others.

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By integrating the RAS into the school environment, students can not only acquire disciplinary knowledge but also develop these transversal skills that are very important for personal and professional success in the contemporary world.

The Reticular Activating System (RAS) emerges as a key element in the design of the new educational model proposed by “Educational Ventures”. Its potential positive influence manifests itself in several areas: first, its ability to regulate students’ attention and energy can foster deeper engagement during learning activities, especially in a context that adopts technological immersive learning. RAS is also involved in promoting memory and learning, which could facilitate the memorization and understanding of concepts, especially when using strategies involving multiple sensory stimuli. Its ability to integrate learning experiences fosters deeper and more meaningful learning, especially in contexts such as the one proposed by “Educational Ventures”, where the aim is to connect knowledge with students’ personal and cultural experiences. In addition, RAS affects the regulation of emotions and well-being, as it helps to create a positive environment that supports students’ social-emotional development, which is especially important in a technological learning environment.

The integration of social action research or network learning in the new model of “Educational Ventures” could outline an educational environment that not only shapes students’ skills but also guides them in the discovery and enhancement of their cultural heritage through the effective use of immersive technologies.

Here are some specific examples of initiatives, case studies and good practices in Italy that, before “Educational Venture”, used the RAS for the development of students’ transversal skills:

1. “Service Learning for Responsible Citizenship” project: an initiative that allows students to acquire transversal skills by engaging in activities that address and try to solve real problems of the community. The innovative element of this project consists in closely linking service to learning in a single, articulated and coherent educational activity. Such an approach allows students to learn and act at the same time, thus enhancing their learning and promoting active citizenship. Through experiences that integrate learning and social service, students internalize important values such as justice, legality, equality, respect and care for the environment.

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2. PCTO (Pathways for Transversal Skills and Orientation): programs that offer students the opportunity to consolidate knowledge, evaluate skills and acquire soft skills through practical experiences and orientation to the world of work. These paths, formerly known as school-work alternation, are useful for orienting students in the last three years of high school to the world of work or to continue their studies, while at the same time developing transversal skills.
3. Contest “AI at school”: an initiative aimed at primary and secondary schools to develop transversal skills related to Generative Artificial Intelligence, prevent risks related to the unconscious use of technology and enhance students’ knowledge on this topic. This contest demonstrates how schools should be open to innovations, while maintaining a clear pedagogical approach in the relationship between students and teaching.

These projects and initiatives demonstrate how the use of RAS can be effective in fostering the development of soft skills in students, promoting participatory, collaborative and action-oriented learning.

META-COMPETENCES AND THE IMPACT OF NEW LEARNING APPROACHES ON STUDENTS' MOTIVATION



In 21st century education, meta-skills and new learning approaches play an increasingly important role in preparing students to be competent and adaptable citizens in an ever-changing world. The following paragraphs aim to explore the concept of meta-competence, analysing its theoretical basis and proposing practical strategies to successfully implement meta-competences and soft skills in the learning process. Through this integrated approach, the aim is to create an educational environment that not only facilitates the acquisition of knowledge but also nurtures students' intrinsic motivation, preparing them to face complex challenges and promoting their overall development.

Regardless of the source of motivation that drives students to engage in the classroom, whether intrinsic or extrinsic, it is of utmost importance to influence and motivate students to become

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inherently motivated to learn and achieve meaningful results. New learning methods must engage, empower, motivate and inspire students so that they can adapt and improve academic achievement and develop as well-rounded individuals. Motivated students are also independent learners, able to use self-regulated learning strategies and take responsibility for their own educational process to maximize their potential.

On the other hand, meta-skills are key to enhancing students' ability to innovate, generate new knowledge, and benefit from it. Meta-skills foster the development of soft skills such as creativity and collaboration; in addition, learning motivation is considered a set of subjective experiences that influence the initiation, direction, and intensity of students' behaviour toward a goal.

New learning approaches and meta-competencies not only foster active and engaging learning, but also encourage students' personal growth through the development of soft skills and the creation of motivational environments that push them to pursue school and life goals effectively. This combination of soft skills, intrinsic motivation and innovative approaches to learning is essential to prepare students to be active players in today's changing society.

The concept of Meta-Competence: literature and theoretical background

In the evolution of educational paradigms, meta-competences emerge as a decisive element, underlining a growing awareness of transversal learning skills that go beyond the mere accumulation of specific disciplinary knowledge. Scientific literature has delved into the concept of meta-competence, defining it as a set of cognitive, emotional, and social skills that enable individuals to learn effectively, adapt to change, and face complex challenges. Concepts such as creativity, adaptability and strategic mindset are essential in both the personal and professional context, especially in a constantly changing social and work environment.

Meta-competence differs from specific competencies because it focuses on the ability to adapt, innovate and think strategically in changing and complex contexts.

The concept of competence, beyond its wide diffusion in educational, professional and guidance contexts, remains ambiguous and difficult to define. Its multifaceted nature requires a comprehensive analysis that includes cognitive, operational, individual, social, and occupational aspects. The variety of approaches to defining competence makes the picture even more complex, with different theories attributing competence to different stages of effective action.

The first approach, outlined by Boyatzis in 1982, places competence in the individual's intrinsic personal characteristics, such as motivations, traits, and knowledge needed to perform a task. These resources are considered the source of effective performance.

The second approach, presented by Le Boterf in 1994, considers competence in the process by which the subject uses his or her resources to act effectively in a specific context. Here, competence lies in the ability to mobilize the resources themselves. Context plays a crucial role in the effectiveness of competence, influencing its manifestation and impact.

The third approach, proposed by Mansfield in 1993, focuses on the final outcome of the action, considering competence in output and performance levels achieved. He believes that each

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activity that makes up the action is a part of the competence, on which it is possible to base the design of training programmes and define the learning objectives.

In the transition from the first to the third approach, there is an increase in the recognition and certification of skills, as well as an expansion of opportunities for training, development and integration into the world of work. In some respects, the third approach seems to be the most beneficial, although it has been criticised for its tendency towards redundancy, as it explains the effect of skills and is the cause of it. This approach, which is currently predominant in Europe, is shaping shared criteria for the classification of qualifications, which aim to integrate national education systems in the context of lifelong learning policies.

A concrete example of this commitment is represented by the European Qualification Framework (EQF), which carries out an assessment on eight levels of learning, considering knowledge, skills and competences, known as KSC (knowledge, skill, competence) as defined by the European Commission in 2008. In Italy, following the Isfol model, there are basic, transversal and technical-professional skills. Despite variations in methods, each approach identifies three fundamental aspects of competence: knowing what, knowing how, and individual inclinations. This implies the recognition of a cognitive, operational and relational dimension within competences. However, there is a fourth dimension, known as the “meta”, that oversees the other three and sits at a higher level of logical abstraction. This dimension, the meta-competence, includes strategic, transversal and transferable competences, which highlight the reflective capacity in applying skills and competences in different contexts.

The difficulty in defining this is evident at the institutional level when trying to establish precise criteria for classification and recognition, which are fundamental for certification; yet this does not prevent us from recognising that skills development is at the heart of education, training, employment, employment and even social cohesion policies. A concrete demonstration is given by the evolution of the European Strategy to promote development and social cohesion, which began in 2000 with the Lisbon Summit and then received a further impetus with the introduction of the Europe 2020 agenda. At the heart of the European strategy is the fundamental idea that investing in human capital and promoting lifelong learning are essential prerequisites for ensuring access to employment, full individual development, social integration and the exercise of rights;

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these principles are the pillars of an active welfare system, which focuses on empowering people and their ability to achieve autonomy, responding to their needs for protection, support and active participation in civic life. In this context, training, reskilling, and updating skills become active policy strategies that create a direct link between lifelong learning and social protection and advancement functions.



Key competences for lifelong learning, defined by the European Union, are also considered key competences for citizenship, as they are the prerequisite for self-realisation, social inclusion, employment, and participation. These are multifunctional and transferable skills and should be developed as early as compulsory education, forming the foundation on which to build further learning, both formal and informal, throughout life. In particular, “learning to learn” is considered the core of lifelong learning and citizenship, since possessing the cognitive and cognitive tools to interpret and act effectively in the surrounding world becomes a fundamental premise for educational, social, and work inclusion.

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In today's society, characterized by uncertainty, complexity, and an increasing emphasis on knowledge, the skills required emphasize reflexivity, transferability, and adaptability to multiple and changing contexts. This is precisely the foundation that broadens the meaning of competence by introducing that of meta-competence. In practice, the distinction between competence and meta-competence is essentially theoretical: in order to be considered as such, a competence must be intrinsically reflective and expendable in multiple situations. In other words, competence must also be “meta” or not at all.

The meta-learning perspective sees learning as an indispensable opportunity for personal empowerment and growth. Learning becomes an essential way of being and fulfilling oneself, an inalienable right that allows the individual to grow according to his experiences and the opportunities offered by his personal and cultural history. Moreover, continuous learning, especially when it fosters the development of meta-skills, can be an opportunity to build active citizenship, giving individuals a significant role in understanding and interpreting reality, as well as in decision-making.

Investing in human capital reveals enormous potential in terms of developing communication skills, discussion, consensus-seeking, understanding reality, and using thought and imagination. This investment is not only about increasing job opportunities and bargaining power in the labour market, but goes far beyond that. The theoretical background highlights the role of meta-competencies in constructivist and socio-constructivist learning theories, emphasizing the importance of promoting self-regulation, self-awareness, and social interaction as key factors for success in learning and life.

At the heart of the training processes, or rather learning, there is not only the transmission of knowledge, but above all the development of reflexivity and criticism, as well as the ability to continuously rework one's knowledge and skills; this is fundamental for metacognition, which allows the individual to manage their own knowledge. Metacognition allows reflexivity to be applied to knowledge itself, allowing for the constant revision and adaptation of thought patterns and actions, as well as social conventions and societal foundations.

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Competence goes beyond just acting; it involves a value orientation, an attribution of meaning, a conscious interpretation of the action, and a reference to the context and other subjects or factors involved. Using certain skills appropriately also requires a strong sense of responsibility. However, competence-oriented learning systems, while effective for training and assessment, tends to separate functions from meanings. Functions focus on doing, often measured with technical references that may seem impartial, while meanings lose their link with the relational contexts that give meaning to competent action: it becomes what works that determines meaning. Similarly, meta-competencies can also be subject to performance-only reduction when they are evaluated solely based on the results obtained.

For the “Pedagogy of Talents”, a methodology promoted by Massimo Baldacci in his text “A student-proof school” in 2002, it is right to consider the skills of the individual in its entirety to develop personal potential and skills. The student must be motivated to continuous learning that considers his or her individuality and social belonging. The competency methodology, adopting this approach, does not impose rigid standards, but rather values individual differences and promotes responsible autonomy within social dynamics.

In the educational path, the school environment thus offers the opportunity to learn to be strategic, self-regulated and to feel a sense of competence and autonomy. Learning becomes a time to learn to persevere in the face of challenges, set goals, and gain self-confidence within an inclusive social context.

Learning how to learn also involves creating a dedicated mental space for higher-level skills and the responsibility to take care of them. In the field of psychology, this concept is called metacognition, and refers to the ability to reflect on one’s own mental processes, allowing a detached view and self-observation of one’s mental states. Meta-competencies include cognitive flexibility, adaptability, reflexivity, self-observation, and mindfulness. This dynamic space allows us to evolve over time and transform knowledge models in different contexts.

Enhancing awareness of learning processes and metacognitive skills is feasible. It is essential to understand and meet individual needs while respecting the uniqueness of each one. Coping with change involves learning to live with uncertainty, to accept different points of view, to enhance

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critical and self-critical thinking, to collaborate and take responsibility, as well as to adapt to progress and one's own time consistently.

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Implementing meta-competences and transversal skills in the learning process

Implementing meta-competencies and soft skills in the learning process is essential to foster a complete and versatile training. Meta-skills, such as cognitive flexibility, self-regulation skills, reflexivity and self-awareness, allow students to acquire essential tools to deal with complex and ever-changing situations. Integrating these skills into the educational process fosters the development of transversal skills such as critical thinking, creativity, collaboration and effective communication; all essential skills to prepare students to be active and competent citizens in an interconnected and rapidly changing world. In addition, the inclusion of meta-competencies and soft skills in the school curriculum promotes meaningful and lasting learning, as it helps students understand not only what they learn, but also how they learn. The metacognitive approach makes learners aware of their own thought processes and enables them to adapt more effectively to future challenges. To be effective, the implementation of meta-competencies requires a comprehensive approach that involves teachers, curriculum, and educational contexts. Transversal skills must be able to be integrated organically into teaching activities to foster more meaningful and focused learning; in this way, not only is knowledge acquired, but also the skills needed to apply and adapt it in different contexts are developed.

Investing in the integration of meta-competences and soft skills into the learning process not only prepares individuals for personal and professional success, but also contributes to shaping a more inclusive, innovative and resilient society, capable of addressing emerging challenges with creativity and wisdom. Metacognitive teaching focuses on students' ability to recognize and manage thought processes activated during learning.

Going beyond mere cognition implies first developing in children an awareness of what they are doing, why they are doing it, when it is appropriate to do it and under what circumstances to act. The metacognitive approach aims to gradually increase students' ability to take direct control of their own cognitive processes. The teacher, as a facilitator, has the task of promoting a positive climate, guiding students towards conscious and autonomous learning, encouraging them to use their own strategies, providing practical guidance and constant support to improve them. Meta-cognition exerts an influence on cognition, including both learning strategies and problem-solving

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strategies, as well as several types of academic performance that involve the development of such awareness among adolescents. Through the metacognitive teaching approach, students adopt an active and responsible attitude towards learning, as they are able to understand and reflect on their own perceptions, emotions, beliefs and feelings, as well as on the difficulties they may encounter during the educational journey.

The “metacognitive” student builds his or her intellectual heritage by formulating questions, conducting investigations, and solving problems. The approach taken promotes problem-solving and at the same time increases awareness of one’s own actions and the processes involved. This new way of thinking has an immediate influence on self-perception and self-esteem, leading to tangible benefits, including increased motivation. Being aware of the strategies used, the student is able to identify the most efficient and effective ways to achieve educational success.

According to the theories of Dario lanes (2001), who promotes the metacognitive approach in inclusive education, to create an effective metacognitive path, both in the didactic and in the habilitative field, it is essential to consider different levels of intervention.

Initially, focus on general knowledge, which includes concepts such as Theory of Mind, which includes information about general cognitive functioning, such as memory, information processing, and attention.

Subsequently, it is possible to move on to individual awareness of one’s own cognitive functioning and learning style, alongside this with a path that favors full awareness, since lacking it could seriously compromise the individual’s self-esteem and motivation.

A first level concerns general knowledge, those included in what, more technically, is called “Theory of Mind”, i.e. knowledge that concerns general cognitive functioning (memory, information storage, attention).

At a more advanced level, the focus shifts to working on implementing self-regulation strategies, which involve setting goals and identifying strategies to achieve them; this can be achieved through planning techniques that involve establishing a stable sequence of actions to ensure pipeline effectiveness. In addition, self-regulation involves the ability to plan activities according to predetermined times and methods, monitor their progress and evaluate the results obtained.

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As awareness increases, the ability to use these strategies more automatically and spontaneously, with less effort and greater personal satisfaction and sense of individual efficacy develops.

Finally, the psychological variables related to self-perception are addressed. It is important to consider how a person's self-image as a student can positively or negatively affect their academic performance.

All these four levels are closely interlinked, so an effective approach should be comprehensive and integrated, considering the interaction between them.

To get a complete idea of the topic, a list of the main metacognitive teaching strategies, proposed by the international literature, is proposed:

1. The first strategy, called "Selection", involves identifying relevant information to focus on: reviewing the syllabus to identify core ideas, annotating key paragraphs, highlighting essential concepts, consulting tables of contents, and using student guides that usually highlight crucial concepts. This approach aims to foster a deeper and more organized understanding of the content, allowing students to focus on the fundamental concepts and effectively structure the information acquired during the learning process; in addition, it promotes students' ability to select and manage information strategically, thereby improving the quality of their learning.
2. The second strategy of an organizational nature consists in connecting the different elements of information that are being learned; therefore, it is essential to organize the information logically and enrich it with details and examples. An example of organizational strategy is represented by concept maps, which play a fundamental role in the metacognitive processes at the end of the learning path.
3. The third strategy, elaboration, involves linking added information with previous knowledge. This approach is considered the most effective method of learning. Processing and organizing strategies not only help people to select valuable information, but also to transform and integrate it. Some hands-on activities that can be adopted

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include taking notes, formulating questions, summarizing content from different sources, writing texts, and creating outlines.

4. The fourth and final strategy, based on repetition, involves the repeated mental recall of information using words, sounds, or images, until complete mastery is achieved. Memorization is the end result of repeated mental evocation of information or perception. Repetition strategies are useful for selecting key text concepts and transferring them to working memory for memorization. Some hands-on activities that can be done include reading or reviewing, transcribing, highlighting, and memorization. However, the level of repetition is rather superficial if the information is not transformed or reorganized in some way.

Directing the action of schools and teachers towards objectives and competence profiles has significant advantages but also some difficulties.

The main obstacles derive from the complexity of transforming the school environment into an inclusive and educational context, capable of guiding students in the acquisition of deep competences and fundamental skills to face life's challenges. Another challenge is the adoption of innovative approaches, such as the use of digital technologies or strategies for distance learning, which require teachers to step out of their comfort zone and embrace new educational methods.

Teaching should take into account, as indicated by the national guidelines, that metacognitive skills, such as learning to learn, working in groups and independently, together with relational, attitudinal and creative skills, are an integral part of the educational process and their achievement depends on the quality of the teaching process implemented in the classroom.

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There are many school activities, both formal and non-formal, that can be used to implement meta-competencies and soft skills in the learning process. These activities aim to divert teachers' attention for a moment from a type of teaching that is too focused on content and promote the enhancement of skills such as cognitive flexibility, collaboration, critical thinking and effective communication. Here are some examples:

1. Research projects: the involvement of students in research projects encourages them to analyze data, ask questions and draw conclusions, thus fostering critical reflection, problem solving and creativity;
2. Simulations: simulations of real or imagined situations allow students to practice skills such as problem-solving, teamwork, and uncertainty management;

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3. Role Playing: through role-playing, students can improve their communication, empathy and relational skills, identifying themselves with different roles and learning to manage complex situations;
4. Debates and discussions: organizing debates and discussions on controversial topics encourages students to develop effective communication skills, critical thinking, and active listening skills;
5. Project work: working on multidisciplinary projects allows students to develop soft skills such as planning, organization, creativity, and problem-solving skills.
6. Action-oriented activities: engaging students in practical activities that require the application of acquired knowledge fosters the development of soft skills related to practice and direct experience.
7. Peer tutoring: promoting peer tutoring where students teach and learn from each other encourages self-confidence, communication skills, and solidarity.
8. Cultural and artistic activities: Promoting experiences related to cultural and artistic expression helps students develop creativity, empathy, and awareness of themselves and their surroundings.
9. Experiential learning: engaging students in on-the-job learning experiences, such as visits to local businesses or nature parks, fosters active learning, critical observation, and practical application of knowledge.
10. Creative activities: activities such as creative writing, painting, music, or drama stimulate creativity, self-expression, and lateral thinking skills.

Many of the suggested methodologies and activities can be used to implement meta-competences and soft competences in the learning process, both inside and outside the classroom, such as in the schoolyard, gymnasium, urban park or any meeting place. The combination of these activities can provide students with a comprehensive, inclusive, diverse, robust, flexible, and multifunctional educational experience.

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Transversal skills to get cross-curricular objectives and stimulate self-confident lifelong learners

Soft skills play a fundamental role in achieving transversal objectives, overcoming traditional disciplinary barriers and developing an integrated vision of knowledge. Skills such as critical thinking, creativity, effective communication and collaboration enable people to better face the complex and interdisciplinary challenges of today's ever-changing world.

As students develop soft skills, they become able to adapt to new and challenging situations, solve problems creatively, and communicate clearly and effectively. These skills not only prepare them for academic success but also for a satisfying and fulfilling professional and personal life. In addition, acquiring soft skills that are always up-to-date and knowing how to use them in different contexts leads students to develop self-confidence as they realize their abilities to face challenges successfully. An educational approach that includes the transmission of soft skills aims to prepare students not only with specific knowledge, but also with essential skills to face life's challenges safely and competently.

Through the implementation of pedagogical strategies focused on the development of meta-competences, a positive and inclusive learning environment is promoted. In this context, teachers function as mentors, encouraging students' active participation, providing them with constructive feedback, and creating opportunities to practice soft skills in meaningful contexts.

Soft skills, as defined by the European Union, represent the skills necessary to navigate with awareness in an increasingly complex social context and to face the challenges of the interconnected digitized organizational models that characterize the current landscape. The Recommendation of 22 May 2018 of the European Council provided a structured and comprehensive framework of these competences, summarising them in a unified matrix, thus outlining the specific aspects of each competence.

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Primarily, personal, social, and learning competence focuses on the skills needed to effectively manage one's educational journey, maintaining both physical and mental balance. It also includes the promotion of group collaboration and the management of interpersonal relationships in an inclusive and constructive manner.

Citizenship competence enables the individual to actively participate in civic life, understanding the structures and rules of society, with a special emphasis on environmental sustainability.

Entrepreneurial competence focuses on the ability to conceive, manage and develop projects that generate social, cultural or economic value, thus contributing to the general well-being of society.

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Finally, competence in cultural awareness and expression requires understanding and respect for ideas and meanings communicated in different social contexts, through various forms of cultural, creative and artistic expression. It also includes awareness of one's role in society and a commitment to effective and meaningful communication.

Self-esteem, one of the transversal skills in the field of personal characteristics or "knowing how to be", plays a fundamental role in the approach to life and the challenges it presents. It has a direct impact on one's perception of oneself and the way one relates to the context.

Being endowed with solid self-esteem means not only having self-confidence, but also being aware of one's abilities, talents, and the resources at one's disposal. This awareness allows people to tackle ambitious goals and complex situations with determination and success, even when they arise unexpectedly. It also fosters the ability to take on roles of responsibility and leadership.

Self-esteem also involves a process of self-assessment that includes the objective recognition of one's own skills, but also of any areas in which one can improve.

Encouraging students to develop strong self-esteem is of paramount importance, as it is a determining factor in maintaining intrinsic motivation and perseverance in the learning process. Good self-esteem provides the confidence to face school, work, and personal challenges with determination and optimism, thus fueling the desire to learn and grow continuously.

Soft skills play a leading role in the educational path as they foster the development of individual awareness and promote the personal growth of students. These skills not only stimulate reflection and behavioral skills essential for interacting in social and professional contexts, but also involve cognitive and behavioral processes. Their importance lies in their ability to be transferred and applied in different contexts, providing students with tools to adapt and act effectively in varied situations. In addition, it is essential to consider the value of these soft skills in students' self-orientation: they must be able to receive feedback on their actions and use them to adjust their ability to adapt to different contexts. Basically, soft skills enrich students' personal background with knowledge, skills and attitudes that enable them to act appropriately and effectively in complex situations.

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Transversal skills, precisely because of their characteristics, require a renewal of school teaching methodology, aimed at enhancing the connection between formal, informal and non-formal learning contexts. The emotional and relational element takes on a central role in the educational process, becoming an integral part of continuous learning. In addition to the teaching methodology, the monitoring of the training course and the assessment tools must also be adapted to the characteristics of transversal skills; this implies the need to prioritise individual and group interviews, simulations and other active methodologies over traditional forms of assessment. Assessment is no longer limited to measuring the results and skills acquired, but also includes the awareness acquired by students in knowing how to assess their own abilities in terms of soft skills. In line with this approach, the activation and participation of students also become dominant elements in the monitoring and evaluation system of the training course.

Transversal skills can be acquired, improved and developed over time, offering significant advantages in various areas:

1. **Improved Efficiency:** soft skills such as effective communication and time management are essential for optimizing interpersonal relationships and the organization of activities, ensuring greater productivity and meeting deadlines.
2. **Adaptability:** soft skills teach students how to adapt to new situations and how to solve problems in different contexts.
3. **Creativity and innovation:** the development of soft skills encourages creativity and innovation, as students learn to be creative and explore original solutions.
4. **Autonomy and self-study:** students who develop soft skills become more autonomous in their learning, able to identify and pursue their knowledge and skills proactively.
5. **Improved interpersonal relationships:** soft skills include the ability to communicate effectively, work in teams, and resolve conflicts, helping to improve interpersonal relationships in both the school and personal contexts.

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6. Better academic learning: soft skills such as critical thinking and problem-solving can improve academic learning, helping students better understand complex concepts and apply them effectively.
7. Leadership skills: soft skills can help students become effective leaders who can motivate others, take responsibility, and lead with empathy.
8. Active citizenship: soft skills include understanding others, tolerance, and social awareness, which are key to becoming responsible and active citizens in society.
9. Resilience: the ability to face challenges and overcome obstacles without becoming discouraged.
10. Personal Well-being: the development of soft skills contributes to the increase of self-esteem, confidence in oneself and one's abilities, emotional balance and the ability to manage stress, improving interpersonal relationships.

The process begins with inner work focused on self-knowledge and self-control, setting the stage for the next stages. Personal reflection serves to understand one's values, strengths and needs, promoting awareness, inner balance and self-esteem.

Next comes the stage of interacting with others through empowering relationships and effective communication; this involves consciously giving of oneself and responding to the needs of others in an empathetic way.

Finally, the last stage involves the ability to direct change and lead with leadership. After understanding oneself and one's resources, being able to interact effectively with one's surroundings prepares one to design and implement positive and harmonious changes together with others.

Investing in the development of soft skills is a valuable asset for one's personal and professional future, offering essential tools to face complex challenges successfully. Integrating the teaching of transversal skills into educational paths contributes to the personal growth of students, improving their self-esteem, their relationships and the achievement of short- and long-term

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transversal goals, as well as helping them to be ready to face future challenges with awareness, resilience and adaptability.

PCTOs (Pathways for Transversal Skills and Orientation) represent a key component of the teaching of skills in Italian schools. These pathways were introduced with the reform of the national education system, with the aim of integrating theoretical learning with practical and guidance experiences. Through PCTOs, students have the opportunity to acquire soft skills, useful both for their educational path and for their future professional life and include practical, relational, and problem-solving skills. During the PCTOs, students can conduct school-work alternation activities, training internships, cultural projects, volunteer activities and other experiences that allow them to deal directly with the world of work, to acquire specific skills related to certain sectors and to better understand their inclinations and interests. In addition, PCTOs promote the development of guidance, helping students to make informed choices about their future educational and professional path.

The World Economic Forum's "*The Future of Jobs 2020*" report confirms the internationally recognized importance of soft skills as a fundamental element for future integration into the world of work.

In Italy, the approval of the bill no. 2493 of 11 January 2022, relating to the introduction of the development of non-cognitive skills in schools and provincial centres for adult education, renews the growing attention, also at national level, to these skills.

According to the bill, starting from the 2022-2023 school year, in a three-year and voluntary experimental way, the Ministry of Education, University and Research (MIUR) promotes the development of non-cognitive skills in order to encourage the culture of competence, integrate disciplinary knowledge with fundamental skills and improve educational success to prevent functional illiteracy, educational poverty and school depression.

Research conducted on 1500 fifth grade and eighth grade students, commissioned by the province of Trento and coordinated by professors Giorgio Vittadini and Giuseppe Folloni, showed that soft skills have a positive impact on the results of Invalsi tests. Students who show greater inner and emotional stability scored higher. The results clearly indicate that teaching only notions

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is not enough to develop knowledge and competence; it is necessary to value people, relationships, and values in order to face the changes imposed by current circumstances with intelligence and enthusiasm. The promotion of soft skills in schools is therefore essential to prepare students to successfully face life's challenges.

HOW NEW TECHNOLOGIES CAN SUPPORT LIFELONG LEARNING

Modern technologies offer several opportunities to support education and lifelong learning in an innovative and personalised way. This section explores the impact of digital technologies on training and teaching, highlighting the importance of specific training to take full advantage of its benefits.

In addition to the use of electronic devices, it is important to focus on acquiring specific skills in the use of technologies; it is not only about knowing how to use digital tools, but also about knowing how to teach effectively so that students can learn meaningfully through the digital resources available.

The main objective of this study is to explore the new perspectives of the integration of technologies in education, going beyond the simple digitization of schools.

The contemporary learner ventures into multiple learning modalities in search of visual resources that facilitate the immediate exchange of information in real time. Even though not everyone has technologically advanced devices such as 5G, they navigate through the different digital channels without hesitation.

New teaching practices for so-called 'digital natives' are closely linked to technology, and this shift requires teachers to adapt their approaches to deliver more engaging and meaningful learning.

Digital technologies play a key role in personalizing the learning process, allowing students to learn and progress at their own pace and individual abilities. When leveraged effectively, technologies can motivate students and foster greater interaction between teachers and learners.

The adoption of innovative practices such as the inverted classroom, supported by new educational technologies, allows teachers to propose more complex activities that stimulate

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students' critical thinking, promoting greater depth in learning and facilitating closer collaboration between teachers and students. Here are some of the ways in which recent technologies can play a significant role:

- **Access to global educational resources:** a wide range of online educational resources can be accessed, including courses, videos, tutorials, e-books and e-learning platforms. This allows people to acquire new skills and deepen their knowledge on a variety of topics, regardless of their background or geographical location.
- **Personalized learning platforms:** artificial intelligence and smart technologies can be used to develop personalized learning platforms, tailored to the specific needs of everyone, allowing them to progress at their own pace and according to their own learning style, thus increasing the effectiveness of education.
- **Collaboration and sharing tools:** digital technologies facilitate collaboration and sharing of resources and knowledge between individuals around the world. Platforms like Google Drive allow students to work together, share ideas, and collaborate in real-time, regardless of their geographic location.
- **Learning through games and simulations:** digital technologies allow for the creation of educational games and simulations that make learning engaging and fun, especially useful for teaching complex concepts or providing hands-on experience in various industries.
- **Online and Distance Learning:** digital technologies enable online and distance learning, providing flexibility for those who wish to continue learning while working or managing other commitments. Through online courses, webinars, and streaming classes, students can access education from anywhere at any time with an internet connection.

Innovative technologies are a valuable ally in continuing education, providing innovative tools to promote effective, flexible and tailored learning to individual needs. The introduction of these

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technologies into teaching goes beyond simply using digital resources, transforming the way of teaching and learning to respond to societal changes.

This study explores the various aspects related to the support offered by new technologies in the field of education and lifelong learning of individuals: it starts by analyzing the European framework DIGCOMP 2.2, which identifies the digital skills needed to address current challenges; subsequently, it focuses on the Italian national context, examining the use of digital technologies in education and training. The trends, challenges and opportunities related to the adoption and integration of new technologies in Italian educational contexts are explored; the potential of immersive technologies such as Augmented Reality (AR) and Virtual Reality (VR) in the educational field is explored; and finally, the importance of integrating new technologies into the student experience outside of the classroom is discussed. Particular attention is paid to the use of mobile technologies, social media and other digital platforms to foster informal learning and self-education.

New technologies, while offering unprecedented opportunities, also present challenges and ethical issues that need to be addressed. There is a need to ensure equitable and inclusive access to digital resources and develop critical digital skills to cope with the increasingly digital world to live. Ultimately, investing in the integration of innovative technologies into education is key to preparing students for the future and fostering a society focused on lifelong learning and innovation.

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The importance of technological skills in the European context (DIGCOMP 2.2)

The European Framework for Citizens' Digital Competences, known as DIGCOMP, is a set of guidelines established by the European Commission to define the essential digital skills that citizens must possess to fully live in contemporary society, actively participate in democracy and remain competitive in the labour market. Digital skills, which are fundamental in lifelong learning, are an individual process aimed at acquiring skills and roles that involves lasting change over time.

The development of the DigComp began in December 2010 thanks to the Joint Research Centre on behalf of the Directorate General for Education and Culture. This process involved various milestones, including concept mapping, case study analysis, online consultations, expert workshops, and stakeholder engagement. The active involvement of more than 150 stakeholders contributed to the creation and refinement of the framework.

DIGCOMP 1.0, published in 2013, identifies digital competence through a combination of twenty-one competences grouped into five macro-areas, each numbered from 1 to 5 and with a detailed description to reflect the needs of the digital context.

This framework has subsequently been updated: version 2.0 of 2016 revised the conceptual framework and descriptors of specific competences, while version 2.1 of 2017 expanded the levels of mastery of the skills envisaged and provided new examples of application in various contexts.

Version 2.2 of DIGCOMP, published on March 22, 2022, includes important updates to adapt to the latest developments in the digital field, including aspects such as managing online disinformation, teleworking, digital accessibility, environmental sustainability, online safety, and interaction with artificial intelligence.

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Technological skills, as highlighted by DIGCOMP 2.2, play a key role in the European context to ensure that all citizens can make effective use of digital technologies. Among the innovations introduced are the management of online disinformation, teleworking, digital accessibility, environmental sustainability, online safety, and interaction with artificial intelligence.

DIGCOMP 2.2 is an ambitious project that aims to enhance the digital education system and improve digital skills by including skills related to artificial intelligence and data; it also provides a common language for identifying and describing digital skills, helping to reduce the gap with other European countries and supporting the EU's goal of having at least 80% of the population with basic digital skills by 2030.

This scheme, widely adopted in Europe and internationally, constitutes a shared reference point for identifying and describing digital skills, facilitating the formulation of educational policies, the creation of assessment and certification tools, as well as the design of training courses.

In detail, DIGCOMP 2.2 is structured in the following five areas of expertise, each with specific skills and knowledge:

1. Data and information literacy includes the ability to identify, retrieve and evaluate digital data and information, effectively managing content.
2. Communication and Collaboration involves digital interaction, considering cultural and generational diversity, along with online identity management.
3. Digital Content Creation: involves the ability to create, edit, and integrate digital content in compliance with copyright laws, including teaching computer systems.
4. Security: this is about protecting devices, personal data, and online privacy, with a focus on physical and mental well-being, while also considering environmental impact.
5. Problem Solving: involves the identification and resolution of digital problems, using tools to innovate processes and products, while keeping up to date on technologies.

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The first three areas are specific to certain digital contexts, while the last two are transversal to all online activities. Although problem solving is present in all skills, a specific area has been dedicated to it to emphasize its importance.

Each area is divided into twenty-one specific competencies and mastery levels ranging from BASIC 1 to ADVANCED 8.

The evolution to version 2.2 introduced Dimension 4 with new examples on the use of artificial intelligence in everyday life and the responsible approach to digital technologies.

Dimension five provides use cases in specific contexts for learning and employment.

Each dimension has specificities that favour flexibility in the application of the framework, allowing adaptations to contingent needs while promoting better interoperability and comparability between the different models. For example, it is possible to use Dimensions 1 and 2 without necessarily having to refer to mastery levels (Dimension 3).

The main objective of this update is to ensure that all European citizens can competently and critically use digital technologies, including those related to artificial intelligence. In addition, it aims to improve understanding of AI, promote inclusive and accessible digital literacy at all levels of society, as well as raise awareness of the importance of digital accessibility.

DIGCOMP 2.2 has been translated and made available also in Italian and other European languages to foster a greater understanding of digital skills and to support the development of educational policies and initiatives in the various European national contexts. It is a practical and user-friendly tool to promote digital competence among European citizens, offering clear guidance on the skills needed to interact effectively with digital technologies in contemporary society.

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State of art related to the use of technological tools in Italy

In recent years, Italy has experienced a remarkable evolution in the use of technological means, with significant impacts on several sectors that have led to substantial changes in the country's society and economy.

A tangible example of this transformation can be found in the industrial sector, where automation and the integration of robotics have revolutionized production processes, increasing the efficiency and competitiveness of companies.

In addition to industry, Italian cities are embracing the concept of smart cities, implementing technological solutions to improve the quality of life of citizens. Milan, for example, has been internationally recognized for its sustainable mobility initiatives and the use of data and technology to optimize public services.

In the field of education, Italy has also made considerable progress in integrating digital technologies. The COVID-19 pandemic has functioned as a catalyst in this process, accelerating the adoption of online learning and digital platforms for distance education. However, it is imperative to ensure equitable access to these resources, especially in rural and less developed areas.

Similarly, in the healthcare sector, digital technologies are revolutionizing traditional practices with the expansion of telemedicine that allows patients to receive care even remotely. Regulations such as the National Digital Health Plan are driving the implementation of health data management systems and the promotion of telemedicine.

E-commerce is also experiencing significant growth in Italy, with more and more consumers relying on online purchases. However, there are still challenges to overcome, such as those related to logistics and digital payments.

Regulations such as the Digital Administration Code (CAD) and the Three-Year Plan for Information Technology in Public Administration have played a key role in promoting the adoption of digital technologies in both the public and private sectors.

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The CAD outlined guidelines for the digital transformation of the Public Administration, promoting the use of technological tools to optimize the efficiency, transparency and accessibility of public services; the adoption of solutions such as digital signatures and substitutive document storage have simplified administrative processes and improved interactions with citizens.

At the same time, the directives on the accessibility of IT tools issued by the Agency for Digital Italy (AgID) aim to ensure that technologies are accessible to all, in compliance with current regulations and technical specifications.

A concrete example of these transformations is the introduction of mandatory electronic invoicing for commercial transactions between companies and professionals; an initiative that has helped to reduce bureaucracy, combat tax evasion and promote the digitalization of accounting processes, bringing tangible benefits to both companies and the Revenue Agency. In addition, the good practices that have emerged from the use of digital technologies include the adoption of digital document management systems, which not only improve the internal organization of companies, but also contribute to reducing the environmental impact related to the use of paper media.

Furthermore, regulations such as those related to Industry 4.0 promote the integration of new technologies into industrial processes, promoting digital transformation with plans and incentives aimed at enhancing the efficiency and competitiveness of companies.

A further relevant regulatory aspect is represented by Regulation (EU) 2018/1807 which includes the regulation of non-personal data, regulating the processing of such data in the context of production processes and emphasizing the importance of responsible data management.

The most recent Italian provisions regarding the use of technological tools include the Decree of the President of the Republic (DPR) No. 81 of 13 June 2023, which introduced specific provisions on the use of information technologies, media, and social media for public employees. This decree aims to ensure the security and protection of IT systems in the Administrations.

At the European level, the “AI Act” was introduced, a law that sets rules for the use of artificial intelligence, defining procedures for reporting incidents with high-risk systems within two days

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of their occurrence and providing guidelines for the practical application of the rules on high-risk systems.

Finally, it is worth mentioning the “FinTech” Decree (D.L. 25/2003) which brought innovations and simplifications to digital financial instruments in Italy, promoting innovation and digitization of financial markets. This decree established a regulatory framework for trading and settlement infrastructures based on DLT (Distributed Ledger Technology), authorized by the National Commission for Companies and the Stock Exchange (Consob) and under the supervision of the Bank of Italy.

After examining the innovative context of regulations in Italy and the role of technological tools in the various sectors, it is necessary to deepen the impact of recent technologies on education in Italian schools and on teaching practice.

Teaching is basically a form of communication, both verbal and non-verbal, traditional, and technological, which has evolved considerably with the advent of the Internet. The digital transformation has led to the creation of new communication channels and virtual spaces, which function as facilitators of learning, expanding the possibilities of dissemination and access to educational content.

Thanks to digital tools, it is possible to process and transmit enormous amounts of information in an immediate, efficient, simple and always up-to-date way. Technology facilitates communication for the entire school community, involving not only pupils, but also teaching staff, families, and students themselves. The virtual world offers the possibility to create work environments and educational communities, where better experiences and practices can be shared to foster and track students’ progress.

Teaching materials and digital tools make the teaching-learning process more stimulating and improve the classroom environment, complementing the importance of physical presence. Additionally, they allow for the customization of content to meet the needs of each student, providing greater flexibility.

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The integration of technology into education offers several significant advantages:

- Completion of students' education: the “digital native” label does not automatically guarantee technological proficiency; therefore, it becomes essential to educate students on the correct use of digital tools and make them aware of their potential and risks.
- Teachers' Guide: teachers and educators can guide students in the digital world to develop critical thinking and teach responsible use of the network.
- Active learning: Students prefer to learn through direct experience, making active learning one of the most effective methods.
- Interactive content: technology enables the creation of interactive content, which increases student engagement and facilitates learning.
- Personalization of learning: digital platforms allow for greater flexibility and personalization of content to fit the individual needs of students.
- Student-centered role: the use of digital devices allows students to take an active role in their own learning, with the teacher as their guide.

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- Preparing for the future: the use of technology prepares students for the skills required in the ever-changing world of work.

Reflecting on the future of the digital school raises important questions about the responsible integration of innovation and the adaptation of the educational path to the emerging needs of society and the labour market. In schools, there is a growing diffusion of devices and solutions that are increasingly oriented not only towards communication and collaboration, but also towards innovation, a fundamental pillar of the National Recovery and Resilience Plan for the school sector.

From the virtual environment of the metaverse to *eSports*, through information security and training, the school can be transformed into a laboratory where teachers and students become actors of innovation. With the wide diffusion of technology, the school is faced with significant opportunities to renew the teaching approach to provide students with the skills required by a reality in which digital plays an increasingly central role. The importance of acquiring and developing digital skills has become even more evident after the impact of the Covid-19 pandemic, during which children have significantly increased their consumption of digital content. However, in this scenario, an issue of fundamental importance emerges: the security of information and communications in increasingly connected classrooms.

Schools must address this challenge on two fronts: by implementing tools to protect students from harmful or inappropriate content, and by providing training for teachers to guide students in exploring recent technologies in an informed way.

Italian schools are evolving towards greater connectivity, innovation, and the use of different devices to support the necessary educational content throughout the educational pathway, from primary to post-diploma. In particular, Italy has recently witnessed the reform of the Higher Technical Institutes, institutions that closely integrate school and the world of work, requiring advanced technological solutions.

Despite the importance of digitalisation in the modernisation of schools, it is crucial to emphasise that dialogue and collaboration remain priorities. The common culture that arises

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from exchanges between schools, institutions and companies is essential to align students' skills with the needs of society and the labour market. Teaching must adapt to social changes, but it can do so by using the same tools that children use daily, such as smartphones or the virtual worlds of the metaverse.

In addition to students' and teachers' personal devices, the main technological tools currently used in Italian schools are:

- **Interactive Multimedia Whiteboards (IWB):** used for engaging and interactive lessons, enhancing teaching activity and making learning more dynamic and participatory.
- **Tablets:** they promote the integration of technologies into the school environment, contributing to the development of digital skills.
- **Interactive Panels:** allow students to actively participate in lessons, collaborating with classmates and the teacher, making educational activities more engaging and collaborative.
- **Electronic Register:** a mandatory management tool in Italian schools, it simplifies classroom management and optimizes teachers' time, facilitating administrative organization.

With the introduction of various initiatives, such as interactive whiteboards and WiFi networks, to transform the educational and organizational approach, the process of digitization of Italian schools began more than 15 years ago. Although, it has been since 2015, with the approval of the National Plan for the Digital School (PNSD), that digitization has experienced a significant turning point; thanks to the implementation of the actions envisaged by the PNSD, the digitalization of Italian schools has been accelerated, bringing significant improvements in administrative management and learning.

The relationship between pupils and digital devices has improved over time, as well as the use of the electronic register has become practically ubiquitous. During the pandemic emergency, all schools adopted distance learning, involving many students, while schools connected by fiber optics increased significantly.

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In terms of funding, the PNSD, the NOP “For Schools 2014-2020” and the React EU initiative have allocated over €1.9 billion. The most significant investment of the National Recovery and Resilience Plan, called “School 4.0”, aims to transform schools into digitally advanced environments, introducing innovative technologies such as coding, robotics and Virtual Reality applied to teaching.

Despite the funding of the PNRR, there are critical issues regarding the implementation tools for the digitization of Italian schools, which probably derive from pre-existing difficulties with respect to the *Next Generation EU*.

An important opportunity for educational institutions in the context of digitalization is the use of immersive technologies, such as Virtual and Augmented Reality, which, if accompanied by adequate training, allow teachers and students to take on a significant role in the innovation process. This integration not only improves operational efficiency, but also represents a key step towards a more modern, transparent, and sustainable society. Government, industry, educational institutions, and civil society must therefore work together to foster innovation and ensure equitable access to digital resources to maximise the benefits of digital transformation, for society.

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The new technological devices: AR-VR

In the digital age, the physical world is progressively giving way to the Metaverse. The concept of the Metaverse, although it may seem new today, actually dates back to 1992 in the context of cyberpunk, a literary movement of the 80s that explored the frontiers of cybernetics and information technologies, along with revolutionary social changes. It was American writer Neal Stephenson who coined the term in his 1992 novel “Snow Crash”, outlining the Metaverse as a shared virtual space on the internet, where individuals could be represented through three-dimensional avatars.

Recently, the Metaverse has regained attention thanks to Facebook’s proposals, which conceive of it as an evolution of the Internet rather than a replacement for it. This new virtual dimension promises to transform everyday life through 3D technology, accessible to everyone with a simple click. This seemingly vast and complex new world promises interesting future developments: composed of data and information, the Metaverse reflects the space-time structure of the physical universe, with length, width, depth and time. It is a cyberspace that, powered by global communication networks, reproduces an ever-expanding virtual universe.

From a technological point of view, the Metaverse revolves around three core technologies: Virtual Reality (VR), Augmented Reality (AR) and Brain-Computer Interface (BCI).

Virtual Reality appeared in 1989 and has been the subject of increasing development over the last twenty years. Similarly, Augmented Reality began to spread in the 90s of the twentieth century, especially when it began to integrate with physical objects.

The Brain-Computer Interface, also known as BMI (Brain Machine Interface), also began in the 1990s, when the possibility of allowing the human brain to communicate directly with its surroundings emerged. In response to the growing incidence of neurodegenerative diseases, several American research institutions have invested in the development of electroencephalographic systems, aiming to improve the communicative autonomy of people with severe disabilities through the creation of BCIs, systems capable of offering a mode of communication independent of the normal response pathways of peripheral nerves and

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muscles, without involving motor processes. Non-invasive methodologies used to monitor brain activity include EEG (electroencephalogram), fNIRS (functional infrared spectroscopy) and fMRI (functional magnetic resonance imaging).

VR and AR technologies are topics of great interest that deserve a more scrupulous in-depth analysis, since the distinction between them can be subtle and there is a risk of confusing them; Although, in certain contexts, these technologies complement each other, resulting in engaging and satisfying experiences for users.

To fully understand VR and AR, it is crucial to examine their current applications and possible evolutions, since both have the potential to improve daily life in the spheres of education, work, and leisure.



The concept of Virtual Reality was first introduced in 1957 by Morton Heilig with the “Sensorama”, an immersive device that engaged the human senses with 3D images, audio, haptic feedback and smells; in 1968, the American computer scientist and researcher Ivan Sutherland developed

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the “Sword of Damocles”, a prototype of Virtual Reality with a visor. In 1977, MIT introduced the “Aspen Movie Map”, the first true VR device in the modern sense, anticipating the use of Virtual Reality for the exploration of real environments. Since then, thanks to technological advances, Virtual Reality has become increasingly realistic, based on “presence”, i.e. the degree of realism perceived by the user, and on “immersion”, which refers to the user’s emotional and experiential involvement.

Virtual Reality offers an immersive experience that transports users into digital environments by replacing the perception of physical reality with a computer-created world accessible through headsets and controllers. Initially associated with gaming and entertainment, VR is expanding into several industries and applications:

- Simulations: VR is used to simulate realistic situations and environments for training purposes, such as military training, medical training, and flight simulations.
- Medicine, Therapy, and Wellness: VR is used in therapy to address anxiety, phobias, and PTSD through controlled exposures.
- Collaboration and communication: VR allows geographically distant people to meet and interact as if they were in the same physical location, fostering collaboration and communication.
- Social VR: platforms that allow users to meet, socialize, and collaborate within virtual worlds, creating new opportunities for human interaction in a digital environment.
- Art and creativity: artists use VR to create immersive and interactive artwork that transforms the viewers’ experience.

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Augmented Reality, on the other hand, superimposes digital elements on top of the real world, expanding the perception of the surrounding environment with interactive electronic information. A popular example of this technology is the game “Pokémon Go”, which has introduced millions of people to this new mode of interaction: it is an extremely addictive app, but it does not transport the user to another place; those who participate are aware that they are still in the real world, even though they see the Pokémon to be caught through the screen of their device.

Using cameras and sensors from devices such as smartphones, tablets, and AR glasses, it superimposes digital elements on top of the real-world environment, enhancing perception without completely replacing it.

In addition to its use in the gaming industry, Augmented Reality has found practical applications in various fields such as marketing, education, medicine, mobility, design and tourism, offering engaging and informative experiences. AR technology can also create hybrid environments where virtual and physical objects can coexist, opening up new possibilities in entertainment, e-commerce, and more.

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In the retail industry, Augmented Reality is revolutionizing the online and offline shopping experience, allowing consumers to virtually try on products before purchasing and thus improving the overall shopping experience.

Augmented Reality is also able to provide contextual information in real time, making everyday life easier through navigation applications that overlay directions directly on the road or provide information about surrounding places via smartphone.

Unlike Virtual Reality, which creates fully immersive digital worlds, Augmented Reality maintains awareness of the real environment, allowing users to interact with both at the same time. VR requires resolute headsets and controllers and offers totally immersive experiences, for example in gaming or simulation; whereas AR is easily accessible through devices such as smartphones, tablets, and AR glasses, and is used to enrich the user experience, providing additional information and enhancing interaction with the real world. From the point of view of physical involvement, in AR the user can move freely and interact with their surroundings, while in VR the user is confined to the virtual environment and physical involvement can vary depending on the type of application and devices used.

Extended Reality, in addition to Virtual Reality and Augmented Reality, also includes Mixed Reality, which merges the real world with the digital one, allowing interactions with virtual elements (holograms) that integrate into the surrounding environment, as demonstrated by Microsoft's "HoloLens" headsets.

VR and AR are increasingly present in daily life, with numerous industries benefiting from them and companies investing in the development of advanced devices and software for both realities.

As anticipated, a widespread example of the use of such technologies is the world of video games, where VR offers the opportunity to fully immerse oneself in the gaming experience. Virtual Reality, however, is not limited to gaming, but also offers immersive experiences in contexts such as museums, archaeological sites, and hi-tech events. On the other hand, Augmented Reality is used in architectural projects, urban planning, and archaeological studies, allowing for the creation of 3D models and renderings. In commerce and marketing, AR has integrated traditional

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industries by offering new ways to present and interact with products and services, including support for real-time changes and corrections.

The future development of these technologies will be fueled by advances such as Artificial Intelligence, Machine Learning and Neural Networks, as well as the spread of 5G networks, which will allow devices to receive data more quickly.

Speaking of Virtual Reality, one of the most relevant future challenges for this technology concerns the health sector, with devices used for training and simulation. In the possible metaverse scenario, VR could also allow users to “go” to their digital workplace or spend free time online with loved ones.

As far as Augmented Reality is concerned, sectors such as *automotive* and mobility already include devices that simplify the driving experience, but prospects also include cars and interconnected devices that will revolutionize autonomous driving. Even in Industry 4.0, AR could play a key role, with more efficient and connected machinery.

Both Virtual Reality and Augmented Reality could contribute to a more interconnected and fluid world, where the distinction between the physical and digital worlds could become increasingly blurred. These technologies are rapidly evolving thanks to advances in hardware and software, constantly improving user experiences through the integration of more precise sensors, advanced 3D graphics, and technologies such as eye tracking and motion detection.

Essentially, therefore, the main differences between AR and VR are manifested in the environment of use, the level of immersion, the devices needed, the purposes and applications, as well as the physical involvement of the user.

Finally, there are also AR-VR devices that combine these two technologies to offer immersive and interactive experiences: while AR amplifies the real world by overlaying digital elements, VR allows users to fully immerse themselves in digital worlds. These devices have immense potential in sectors such as entertainment, industry, education, and medicine, providing innovative opportunities for training, design, manufacturing, and business collaboration, thereby improving operational efficiency and user experience.

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Virtual and Augmented Reality, together with new emerging technologies, are also opening new horizons in the field of learning. The use of these technologies in teaching and training has a positive impact on student outcomes, increasing student engagement and stimulating the teaching staff. In addition, they promote the removal of educational barriers and improve learning potential, contributing to the overall well-being of students.

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The importance of new technologies and their integration with students experience outside the school environment

Recent technologies are taking on an increasingly significant role in education, not only within the classroom but also outside the school environment; hence, the need to integrate them into the experience of students outside of school to enhance their learning and effectively prepare them for the digital world.

The application of innovative technologies in teaching offers multiple benefits, including personalizing teaching and creating unique experiences for students, such as the ability to learn at an individual pace, while developing critical skills and promoting new approaches to learning. In the classroom, they allow for the creation of simulations, research from different sources, and collaboration between students. Outside of school, the integration of new technologies helps students expand digital skills, improve problem-solving skills, and familiarize themselves with technological tools that are fundamental to the contemporary world. This approach not only makes learning more engaging and motivating, but also prepares students for future challenges in an increasingly digitized environment.

Recent technologies play a key role in modern education, both at school and outside of school, offering numerous benefits:

- **Access to information:** they allow access to a wide range of information from various sources, thus expanding knowledge in a deeper way than traditional materials.
- **Personalization of learning:** E-learning platforms, educational applications, and online collaboration tools offer flexible and personalized learning opportunities that can adapt to students' individual needs, fostering more effective and engaging knowledge acquisition. In addition, emerging technologies such as Virtual and Augmented Reality are revolutionizing the learning experience, offering immersive and interactive environments.
- **Engagement and motivation:** thanks to interactive educational apps, educational games and online platforms, students feel more involved and motivated in the learning process.

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- Collaboration and communication: social media platforms, instant messaging apps, and other technologies facilitate collaboration and communication in new and innovative ways, both inside and outside the classroom. These technologies foster the sharing of ideas, experiences, and cultures, helping to build bridges between people of diverse backgrounds and perspectives.
- Preparing for the future: this is a time when digital skills are increasingly important for employment and daily life. Integrating innovative technologies into the out-of-school student experience better prepares them to meet the challenges of the modern world.
- Lifelong learning: extending learning outside of school hours, prepares students to face the challenges of the modern world and for the perspective of continuous learning.
- Creativity and expression: content creation platforms such as YouTube, TikTok, and Instagram allow young people to share content and highlight their talents with a large online audience and receive instant feedback.
- Civic participation and activism: social media platforms and online tools allow young people to organize, share ideas, and mobilize advocates for social, environmental, and political causes that matter to them, influencing social change.

However, it is also important to consider the well-being of users when using these tools, including aspects such as sleep, the balance between online and offline activities, the need to ensure equitable access to these resources, and the protection of privacy. Young people grow up in an environment where it is difficult to distinguish between virtual and authentic experience. Not only social networks and apps, but also wearable devices such as smartwatches and fitness trackers contribute to making online life increasingly pervasive, sometimes to the detriment of other activities. According to the EUKIDS Italy 2017 report, out of a sample of 1006 young people aged 9 to 17, children spend an average of 2.6 hours a day on the internet, with no gender differences.

The young people of the Third Millennium do not conceive of their lives without technologies or disconnected from the online world, and this is true both at school and at home and with friends. Young people show themselves on blogs or on YouTube, they live and communicate through the screen, using the web as a space to express themselves, to appear, to communicate and to build social and emotional relationships.

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Digital “natives” have a wide range of digital tools for learning and communication, such as the web, blogs, MSN, smartphones, chats, virtual classrooms, Wikipedia, Myspace, TikTok, WhatsApp, Instagram, Snapchat, Facebook. Young people of the new generation are multitasking and learn by experience and trial and error, using exploration and sharing with peers; they configure knowledge as a dynamic and open-source process, rather than a static one, and behave as actors and authors of learning, rather than considering themselves readers or spectators. This approach to knowledge is in stark contrast to that of adults who grew up with print media.

The way young people see and build the world is new, not only in a practical sense but also in a cognitive and behavioural sense. School, family, and society must face this cultural change, establishing a common language to be able to interact with them both at school and in everyday life.

The integration of technologies into the experience of young people requires pedagogical design aimed at improving learning outcomes, educating them on the responsible use of technologies and developing the digital skills necessary to critically navigate the online world.

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CIVIC AND SOCIAL SKILLS



Civic and social competences, which are essential for the full involvement of individuals in society and for promoting constructive and inclusive coexistence, encompass a wide range of skills and behaviours that enable people to interact effectively in social, school and work life, resolve conflicts when necessary and actively contribute to the well-being of their communities. These skills go beyond mere active participation in public life, also involving an understanding of one's role and responsibilities as citizens, respect for cultural differences, the ability to collaborate constructively with others, awareness of social problems, and a willingness to act to promote positive change.

Civic participation is a pillar of these competences as it actively involves citizens in the political, economic, and social life of their community. Such involvement can manifest itself through

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different forms, such as voting in elections, volunteering, joining non-governmental organizations, participating in peaceful protests, and other forms of civic activism.

In addition, they include a solid understanding of democratic institutions and processes; knowing the structures of government such as parliament and the judiciary, as well as understanding democratic decision-making mechanisms, allows citizens to participate in political life in an informed manner.

Civic and social competences also involve respect for fundamental human rights and diversity through the promotion of freedom of expression, religious freedom, gender equality and cultural diversity. It is also important to be able to collaborate constructively with individuals from diverse cultural, ethnic and religious traditions.

The ability to manage conflicts peacefully and constructively is also a civic and social competence, which implies possessing skills in dialogue, negotiation, and mediation to resolve differences and preserve social harmony within the community.

The learning and development of these skills takes place in various contexts, both formal and informal, such as the school environment, educational and social activities, volunteering, and interaction with different communities; experiences that provide individuals with the opportunity to improve their personal, interpersonal and intercultural skills, thus contributing significantly to social cohesion and civic progress.

The following study aims to explore the fundamental role of schools in spreading the concept of responsible citizenship, analyzing the approaches to civic education in Italy and how the education system can promote the active participation of citizens in society. Finally, the importance of integrating civic and social skills with technological ones in the new cooperative school model is considered, preparing students to be aware and competent citizens in an increasingly interconnected and technologically advanced world.

The school plays a key role in the development of these skills, providing a balanced and cooperative environment where students can exercise autonomy and responsibility, critically analyze social phenomena, and actively participate in meaningful experiences that foster



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solidarity, empathy, and civic dialogue. Civic and social skills are essential for building a cohesive and inclusive society, where individuals can contribute to the common well-being with mutual respect and commitment to social progress.

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School role in implementing the concept of “Responsible Citizenship”

Citizenship Education is a fundamental pillar of education aimed at forming active, informed, and responsible citizens, capable of contributing to the well-being of their communities at every level, local, national, and international.

In the contemporary context, characterized by growing insecurity and social fragmentation, the importance of promoting civil coexistence and democratic citizenship is essential and requires going beyond the mere teaching of civic concepts, embracing concepts such as peace, conflict management, respect for diversity and intercultural dialogue, preservation of cultural heritage, sustainable development, and health promotion.

In the broader context of citizenship education, there is the specific teaching of civic education at school, which has seen an important renewal with the entry into force of Law 92/2019 on 5 September 2019, which reintegrated the teaching of civic education in all schools, from primary to lower and upper secondary schools. The Ministry of Education, in turn, issued a Ministerial Decree on 22 June 2020, providing clear direction regarding the content and methodological aspects of civic education and some specifics regarding its transversality, co-ownership and end-of-year evaluation.

Students’ citizenship education involves an in-depth study of three fundamental themes: the Constitution, Sustainable Development and Digital Citizenship.

- The Constitution, the first of the three conceptual cores, is the foundation on which the State and society stand. The study of the Constitution must include a knowledge of its legal text, but also of its practical significance in everyday life. Students must be able to develop full awareness of the legal system of the State, the Regions, the Local Authorities and international and supranational organizations; they must be clear about how these structures directly affect their existence and the society in which they live; and they must be able to increase their sense of participation in civic life.
- Sustainable Development is an ethical and practical imperative for the new generations. With reference to the 2030 Agenda and its goals, it is important for students to understand that sustainability is not only about the environment, but also about

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fundamental human rights and safeguarding the common heritage of communities. The adoption of a sustainable attitude implies a change of mentality aimed at encouraging responsible consumption practices, respect for the environment and solidarity towards future generations.

- Finally, Digital Citizenship is an essential skill in the modern era. Article 5 of Law 92/2019 sets out the essential skills to be developed in school curricula to ensure that students can consciously and responsibly navigate the digital space. Together with the notions on the use of technological tools, students must understand the risks and opportunities that the digital environment entails, to face the challenges of the future in an informed, critical, and safe way.

Educating for citizenship means initiating students towards making informed choices, in a path of lifelong learning; it means preparing them to live as responsible and participatory citizens, providing them with the tools to acquire a set of fundamental skills that include the ability to face challenges as members of a global society, to understand and appreciate cultural diversity, to exercise critical thinking, to adopt non-violent approaches to conflict resolution, to adapt their lifestyle to preserve the environment and to be sensitive to the protection of rights Human.

The teaching of “Responsible Citizenship” is part of the framework described above to guide students towards an active involvement in the construction of the future and to raise awareness of the importance of contributing to the well-being of society. The concept of “Responsible Citizenship”, closely linked to civic education, is based on the definitions established by the Council of Europe, which focus on values such as democracy, human rights, equality, participation and solidarity.

Its definition, however, is not immediate and unambiguous. A 2017 comparative analysis conducted by the Eurydicen network and entitled “Citizenship Education at Schools in Europe” shows how the translation of the term “Citizenship” into national languages can vary greatly. In some countries, the translated term may refer exclusively to the legal status of the citizen in relation to the state, while in other languages social nuances may be less relevant or absent. Many countries use different expressions to describe concepts similar to “responsible citizenship”, such as “civic participation”, “civic attitudes”, “civic engagement” or “civic rights and

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duties”. In general, “responsible citizenship” involves understanding and exercising civic rights and responsibilities, associated with values such as democracy, human dignity, freedom, respect for human rights, tolerance, equality, respect for the law, social justice, solidarity, and responsibility. Although there are variations between countries in the importance attached to each of these values, it is widely accepted that they contribute to the overall understanding of the concept of responsible citizenship.

The encouragement of students’ active participation in responsible citizenship can take place through several shared approaches:

- student involvement in the community at international, national, local and school levels,
- offering practical experiences of democracy within the school,
- development of individual capacities for mutual engagement,
- encouraging students to collaborate with institutions and projects that involve other communities.

Considering that schools play a crucial role in shaping young people, shaping their perspectives and values, it is essential to examine how each country’s education policy promotes responsible citizenship through the school system. In the next chapter, the strategies currently adopted by the Italian legal system to promote education for conscious and responsible citizenship will be examined.

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Approaches to Citizenship education in Italy

The 2002 Council of Europe Recommendations on Education for Democratic Citizenship establish the importance of integrating this concept into educational curricula at all levels, both as a specific subject and as a cross-cutting subject. To foster the learning of skills essential for harmonious coexistence in a democratic and multicultural society, these recommendations recommend the adoption of multidisciplinary approaches.

The school, in synergy with parents, family, friends and the local community, plays an essential role in the education of young people. Traditionally, one of the fundamental goals of education is to prepare students for adult life by equipping them with the skills and knowledge necessary to participate constructively in society.

In May 2010, European Union member states adopted the Council of Europe Charter on Education for Democratic Citizenship and Human Rights, which promotes comprehensive education through formal, non-formal and informal modalities, integrating concepts such as development, human rights, sustainability and interculturalism.

In Italy, the foundations of civic education date back to the decree of the President of the Republic no. 585 of 1958, which introduced two hours of civic education per month in 1st and 2nd grade secondary schools, entrusted to the history teacher and without the assignment of a specific grade. With the establishment of School Autonomy, disciplinary programs have given way to school programming and curricula, with objectives defined at national level and methodologies chosen autonomously by schools (Article 8 of Legislative Decree 275/99).

Subsequently, the contents previously covered in civic education were integrated into a new course called “Citizenship and Constitution”, extended from kindergarten to upper secondary school according to Law 169/2008.

In this regard, Law No. 107/2015 art.1 paragraph 7, identifies among the priority training objectives the development of skills in the field of active and democratic citizenship, respect for differences and the promotion of solidarity, as well as the support of responsible behavior inspired by legality, environmental sustainability, and enhancement of cultural heritage.

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In taking concrete steps towards citizenship education, significant legislative measures have been adopted to prevent and combat bullying and cyberbullying, including MIUR Directive No. 16 of 2007 and Law No. 71/2017 accompanied by related guidelines.

Civic education, introduced into Italian school systems with the most recent Law no. 92 of 20 August 2019, aims to form active and responsible citizens, promoting conscious participation in civic, social and cultural life in compliance with the rules and obligations. This course focuses on three main cognitive pillars: the Italian Constitution, the institutions of the European Union and international organizations, and environmental sustainability associated with the right to health and well-being; however, it is not limited to the mere transmission of notions, but also encourages educational actions that foster active citizenship.

Law No. 92 identifies civic education as an area of education rather than direct teaching. To ensure this approach, it does not set a fixed number of hours or assign this task to a specific lecturer, except by giving priority to the law lecturer, when available, including as a coordinator.

The Guidelines issued by Ministerial Decree no. 35/2020 have helped to focus attention on specific aspects of content and methodology, emphasizing the transversal and interdisciplinary perspective of teaching.

Thanks to this law and its guidelines, as of September 2020, civic education has become transversal at all school levels, integrating fundamental values that go beyond individual subjects and promoting a broader and interdisciplinary vision of citizenship.

The overall objective of citizenship education is to prepare responsible, informed and active citizens who are able to make a meaningful contribution to democratic society.

Other sources of legislation that highlight the importance attributed by Italy to this educational process include:

- the Italian Constitution, which enshrines the fundamental principles of democracy, civil and political rights, and the national education system;
- Law 53/2003 (known as the “Moratti Law”) which introduced civic education in Italian schools;

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- the National Curriculum Guidelines which provide a framework for school curricula, including objectives and content related to civic education and active citizenship;
- the National Plan for Education in Computational Thinking and Digital Citizenship which focuses on digital skills and digital citizenship.

To promote human rights, democracy and citizenship education, Italy is also committed at the international level through the European Convention on Human Rights, the Charter of Fundamental Rights of the European Union and various international treaties and conventions, such as the International Convention on the Rights of the Child (CRC), the Convention on Human Rights, the European European Convention for the Protection of Human Rights and Fundamental Freedoms (ECHR) and the Charter of the United Nations.

The set of these regulations takes the form of ensuring a complete education for citizenship, both through formal teaching in schools and through extracurricular initiatives, with the aim of forming responsible, informed and active citizens in Italian democratic society.

The School Plan 4.0, sanctioned by Ministerial Decree no. 161 of 14 June 2022, further reinforces the importance of civic and social competences, recalling the Recommendations of the European Council of 22 May 2018 regarding key competences for lifelong learning. Among these skills, personal, social and learning skills, together with citizenship, are preparatory to the maturation of present and future citizens.

In the context of the development of active citizenship skills, the *Next Generation Classroom* (NGC) initiative emerges as a genuine opportunity for methodological innovation for Italian schools. As highlighted in the School Plan 4.0, NGC promotes active, collaborative and interactive learning, promoting social interaction between students and teachers, motivation, problem solving and personalization of teaching. This approach helps to consolidate a wide range of cognitive, social, emotional, practical, and physical skills, ensuring a dynamic and inclusive learning environment.

Instructional design, both disciplinary and interdisciplinary, must therefore embrace a progressive change in the teaching process, integrating innovative pedagogies such as hybrid learning, computational thinking and experiential teaching.

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The goal of the didactic design, as well as that of “Educational Venture”, is to transform the classroom into an ecosystem of interaction and sharing, where technologies are used proactively to improve teaching effectiveness and learning outcomes, thus helping to form competent and aware citizens in the context of contemporary society.

Italian schools already adopt different approaches to promote citizenship education, aiming to instill a deep understanding of democratic principles and civic duties. These approaches include:

- **Integration into school curricula:** Citizenship education is an integral part of the curricula of primary, secondary and high schools. Through subjects such as history, geography, civic education and ethics, students gain knowledge about the fundamental concepts of citizenship, civic rights and duties, as well as the principles of democracy and political participation.
- **Extracurricular Programs and Informal Initiatives:** in addition to formal teaching, various organizations offer extracurricular opportunities and informal initiatives to promote

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citizenship education. These programs range from hands-on activities to discussions, simulations of democratic processes, and community projects.

- Promotion of European values: being part of the European Union, Italy also emphasizes the importance of European citizenship education. This is integrated into school curricula and supported through specific educational programmes aimed at conveying EU values, rights and institutions.
- Media and digital citizenship education given the growing importance of the internet and social media, schools offer programs to teach students to critically evaluate online information, behave responsibly on social media, and protect their digital privacy.
- Youth and institutional participation: initiatives that actively encourage young people to participate in civic and political life are promoted. Programs such as parliament simulations, public consultations on local issues, and community volunteering projects engage students firsthand.
- Teacher training: for citizenship education to be effective, it is crucial to provide teachers with continuous training in both in-depth knowledge of citizenship topics and the development of the pedagogical skills needed to convey these concepts effectively to students.

Finally, some of the good practices promoted by “Cittadinanzattiva”, an Italian non-profit movement founded in 1978 with the aim of encouraging the active participation of citizens in public life and in the protection of their rights, are highlighted. Through its initiatives and commitment in the field, Cittadinanzattiva contributes significantly to the strengthening of democracy and transparency in the Italian context.

Among the initiatives conducted by “Cittadinanzattiva”, it is worth mentioning two educational projects carried out in different Italian regions. One of these was conducted by the regional headquarters of “Cittadinanzattiva” of Calabria at the Liceo Scientifico “L. Da Vinci” in Reggio Calabria during the Student Week in the 2004-2005 school year. This project involved about 500 students of classes III, IV and V through a series of training meetings on issues related to citizenship rights. The target students were divided into thematic groups that participated in

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various activities, including dramatizations, debates and quiz games, in order to deepen their understanding of civic rights and promote active participation in democratic life.

Another noteworthy project was conducted by the Territorial Assembly of “Cittadinanzattiva” of Sciacca (Agrigento) at the “Tommaso Fazello” classical high school during the 2005/2006 school year. The latter project focused on the civic education of students in class III, sections C and B, with the aim of preventing youth distress and promoting a civil conscience and an awareness of their identity as active citizens. Through lectures, the use of films and questionnaires, the students addressed issues related to citizenship, respect for the rules and knowledge of the territory, thus contributing to their development as future aware and responsible citizens.

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Integrating civic and social skills and technological competence in the new cooperative school model

To ensure a complete preparation of students in the new cooperative school model, it is necessary to adopt innovative educational approaches capable of integrating civic and social skills with technological ones, while fostering the development of interdisciplinary and transversal skills. An effective way to achieve this is to implement interdisciplinary projects, courses, and workshops that engage students in addressing social and environmental issues by using technological tools to analyze problems and propose solutions; in this way, not only does it facilitate the development of practical skills, but also critical reflection on the ethical and social implications of technologies. These courses could focus on civic education and include modules on responsible use of social media, understanding online information, and digital citizenship.

Another viable strategy is to organize digital volunteering activities that involve the use of technology to support social causes, such as creating digital resources for communities in need or providing technology support for the elderly or people with disabilities.

It is also important to introduce educational programs that teach students the importance of ethics and responsibility in the use of technology, including lessons on online privacy, preventing cyberbullying, managing time spent online, and critically evaluating information online.

Furthermore, collaborations with companies and organizations in the sector can offer students opportunities for hands-on learning, allowing them to work on projects that combine technological skills with social awareness.

By integrating civic and social skills with technological ones, the cooperative school can provide students with an adequate preparation for the modern world.

The main methodologies used in Italy to integrate civic and social competences in the cooperative school include:

- **Cooperative Learning:** a methodology that is based on collaborative learning in groups, where students work together to achieve common goals. Through Cooperative Learning,

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students practice social skills, gain awareness, and learn to be accountable for their actions and consequences, thus fostering the development of civic and social skills.

- **Citizenship education:** Citizenship education focuses on teaching sociopolitical concepts, active participation in social and political life, promoting social and cultural diversity, gender equality, social cohesion, and sustainability. This practice aims to form aware, responsible and active citizens in society.
- **Active and collaborative methodologies:** by active and collaborative methodologies, teachers can foster the development of social and civic skills in students. These experiences educate in the realization of constitutional principles, allowing students to exercise an informed and responsible citizenship on a daily basis.

The integration of civic and social skills becomes particularly significant when included in Service Learning, an approach that involves students in solving real problems in the community, allowing them to become active protagonists of their own learning. Service Learning allows students to learn and act simultaneously, enhancing learning and enhancing the values of active citizenship. By linking a project to curricular subjects and the acquisition of skills for citizenship and work, Service Learning offers a complete and meaningful educational experience, distinguishing itself from the simple transmission of content on citizenship, since it requires an active involvement of students in solidarity action to foster a greater understanding of the values of active citizenship.

The adoption of such methodologies and teaching proposals translates into targeted school projects that combine these skills in various contexts.

An example is the “Social and Civic Competence Development Project”, which promotes the active participation of students in social life, building on interpersonal and intercultural competences to foster cohesion within the community. Through the project students can be involved in practical activities, discussions, simulations of real situations and projects that help them develop and apply the skills acquired in daily life and in the community context.

In parallel, the project “Citizenship Skills together with Plan Your Future” aims to foster the growth of transversal skills such as effective communication, critical thinking and collaboration to solve problems, encouraging democratic and inclusive participation. Using tools such as worksheets,

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the project encourages primary and secondary school children to reflect on their own experiences and identify moments when they have developed these skills. The aim is to stimulate continuous reflection on the concept of active citizenship throughout life, thus preparing young people to become responsible and active citizens in society.



The main objectives of the projects and approaches that integrated civic, social and technological competences in the cooperative school include:

- encourage the active and responsible participation of students in the community, encouraging them to develop civic and social skills such as respect, collaboration and active participation in social life;
- promote social cohesion through the training of citizens competent in the field of citizenship, preparing them to interact in diverse social contexts;
- encourage young people to participate actively in social and political life to contribute to an objective of justice and social cohesion, encouraging the responsible use of new technologies;

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- integrate the learning of technological skills with civic and social skills to prepare students to navigate the contemporary digital world in a conscious and responsible way;
- provide students with practical learning opportunities for social, civic and technological competences in real-world contexts, offering support for the effective application of these competences;
- disseminate the use of technologies as a tool to support teaching and learning within school communities;
- create laboratory spaces dedicated to technologies to encourage learning through the practical and creative use of digital tools.

To assess the effectiveness of such methodologies and approaches, it is essential to adopt several evaluation strategies, including:

- **Assessment of acquired competences:** a direct method to measure the level of acquisition of students' civic and social competences, which can be done through tests, practical tests, projects or activities that demonstrate the practical application of these competences.
- **Student Feedback:** a valuable source of direct information on engagement, perceived effectiveness of the methodologies used and the benefits obtained.
- **Direct monitoring and observation of students during classroom activities:** can provide further insights into the influence of methodologies on students' behaviour, participation, and social interaction.
- **Analysis of educational outcomes:** assessing whether the integration of civic and social competences positively affects student outcomes can provide insight into the overall effectiveness of the methodologies adopted.
- **Involvement of the educational community in the evaluation process:** the involvement of parents, teachers and other community members can offer a broader perspective on the

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effectiveness of methodologies and their relevance to the wider educational and social context.

By combining these different assessment strategies, it is possible to obtain a comprehensive view on the effectiveness of the methodologies used to integrate civic and social competences in the school, with a view to continuous improvement of the educational process, ensuring that students develop the necessary skills to actively participate in society.

At the end of a good lesson, students should have acquired not only disciplinary knowledge, but also a broader view of reality and a better understanding of themselves, through personal reflection and collaborative work.

To achieve these goals, it is necessary to go beyond the traditional teaching approach and adopt active, engaging, and interactive methodologies, placing students at the center of the learning process. Civic and social competences and digital competences must be an integral part of every teacher's daily instructional design, allowing students to develop the skills necessary to be informed and aware citizens.

The 2030 Agenda provides a useful framework for linking school learning to global issues of sustainability and active citizenship. Integrating these objectives into the design of lessons allows the school system to contribute to the development of students' citizenship skills.

To achieve an effective learning path, in the New Generation of Knowledge (NGC), it is essential to act on three main fronts: adopting innovative methodologies, creating flexible learning spaces, and using digital tools.

Collaboration between students fosters the development of social and emotional skills, preparing them for the future world of work.

The learning space, whether physical or digital, must be flexible and adaptable to the different stages of the learning process, allowing students to experiment and create in a stimulating environment. Digital tools, used in a conscious way, facilitate the creation and sharing of content, allowing students to express their personality and opinions.

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Active methodologies foster the development of transversal skills, which go beyond disciplinary knowledge. This change in approach also requires a new way of assessing, which considers not only the final results, but also the attitudes and behaviours of the learners throughout the learning process.

Authentic and inclusive assessment, which involves both the teacher and the students themselves, helps to promote greater awareness and self-evaluation, contributing to students' personal development and self-esteem. In this way, assessment becomes a tool for individual improvement and growth within a meaningful learning context.

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CONCLUSION

The analysis conducted on immersive and collaborative learning methodologies in Italy has highlighted the need for a new teaching approach aimed at enhancing students' transversal skills, deepening their knowledge of cultural heritage and promoting a responsible use of technology, while encouraging the values of active and responsible citizenship.

Enhancing the territory as an integral part of education becomes essential to enrich students' educational experiences, promoting in them essential skills to face any transformation. The integration of state-of-the-art technologies into educational contexts represents an innovative initiative in creating inclusive and dynamic learning environments. In particular, the use of Augmented Reality in education emerges as a valid tool to reduce the gap between traditional educational approaches and contemporary needs, facilitating the understanding of concepts and facilitating the memorization of information.

In addition to this, meta-competences and soft skills need to be integrated into the educational process, as it not only fosters the development of effective cognitive, emotional and social skills, but also contributes to shaping a more inclusive, innovative and resilient society. Investing in metacognitive education and adaptable skills expands individuals' creativity and wisdom.

The combination of nature, technology and learning represents a revolutionary potential in today's school context. Based on the data collected and following the philosophy of "Educational Venture", the next step towards innovative teaching must focus on the development of cutting-edge educational models, the deepening of transversal skills and the constant integration of digital technologies to optimize the learning path and prepare students for future challenges.

In short, the report highlights the importance of creating an educational approach that values the territorial context, promotes the active participation of students and fosters the development of skills essential for a fulfilling life. Creating a more innovative, inclusive and engaging educational environment requires a focus on meta-skills, the integration of emerging technologies such as AR and VR, the promotion of civic and social competences, the use of outdoor teaching methodologies, the focus on metacognitive processes and the implementation of self-regulation strategies to empower students.

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After the drafting of this report and the similar documents prepared by the Italian, Polish, Turkish and Czech Partners, the next steps will be the identification of the target groups that will participate in the experimental phase of the project and the conduct of preliminary surveys to assess the level of knowledge of the participants. Using the information contained in the reports together with the feedback from the questionnaires, Wide and the project Partners will proceed to define the guidelines for the new collaborative school model “Educational Venture” and to select the key topics for the modules of the e-learning course.

Considering this report alone, however, there are already possible arguments to consider. Among them, the essential skills seem to be critical thinking, creativity, effective communication, cultural awareness, and collaboration, along with the meta-skills and digital skills needed to meet the challenges of the twenty-first century. Other relevant aspects concern the active participation of students and the importance of positive emotions in motivating them, implementing strategies to create a stimulating educational environment that fosters individual and social growth.

The emphasis on these aspects outlines a learning model that goes beyond the mere transmission of information, aiming instead at the development of advanced cognitive skills and an in-depth understanding of cultural diversity.

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