

TOWARDS 2030: ASVIS AND ISTAT DATA AS AN URGENT CALL FOR INCLUSIVE, SUSTAINABLE, AND QUALITY EDUCATION IN LINE WITH GOAL 4

VERSO IL 2030: DAI DATI ASVIS E ISTAT UN RICHIAMO URGENTE PER UNA FORMAZIONE INCLUSIVA, SOSTENIBILE E DI QUALITÀ PER IL GOAL 4



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ABSTRACT

Starting from a critical analysis of ASviS (2024) and ISTAT (2023) data, this paper offers a reflection on the significant challenges facing the Italian education system, such as high dropout rates, insufficient lifelong learning opportunities, and serious gaps in digital competencies. Following Pellerey's (2019) pedagogical perspective, it is essential to adopt integrated educational strategies that foster cognitive, socio-emotional, and metacognitive skills—key to effectively supporting the ongoing digital and ecological transitions (Ali, Sorrentino, & Martiniello, 2023). There is, therefore, an urgent need for a structural educational intervention capable of engaging schools and universities synergistically, in order to ensure quality, inclusiveness, and sustainability in education (Rivoltella, 2024).

A partire dall'analisi critica dei dati ASviS (2024) e ISTAT (2023), si propone una riflessione sulle significative criticità del sistema educativo italiano, quali alti tassi di dispersione scolastica, insufficiente formazione continua e gravi carenze nelle competenze digitali. Seguendo la prospettiva pedagogica di Pellerey (2019), risulta essenziale adottare strategie formative integrate che sviluppino competenze cognitive, socio-emotive e metacognitive, fondamentali per sostenere efficacemente le transizioni digitali ed ecologiche in corso (Ali, Sorrentino & Martiniello, 2023). Urge pertanto la necessità di un intervento educativo strutturale, capace di coinvolgere sinergicamente scuole e università per assicurare qualità, inclusività e sostenibilità nella formazione (Rivoltella, 2024).

KEYWORDS

Strategic skills; digital education; quality education; lifelong learning; digital transition
Competenze strategiche; formazione digitale; istruzione di qualità; formazione continua; transizione digitale

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Introduction

In a global context marked by profound and accelerated technological, environmental, and social transformations, the development of adequate competences emerges as a necessary condition for fostering inclusive growth, strengthening social cohesion, and enhancing the resilience of educational and productive systems. Pedagogical literature has extensively investigated the concept of competence, understood not merely as the accumulation of technical or sector-specific knowledge, but as a dynamic configuration of knowledge, skills, personal dispositions, attitudes, and metacognitive strategies capable of guiding action and thought in complex and rapidly changing contexts (Pellerey, 2019). From this perspective, strategic competences are gaining increasing relevance. These transversal abilities enable individuals to face novel situations, solve non-standard problems, make informed decisions, and self-regulate their learning and work trajectories across the lifespan (Margottini, 2017; Bonazza & Giacomantonio, 2023). At the European level, the development of such competences has progressively become central to policy agendas, as reflected in various strategic documents defining educational priorities for the coming decade. The United Nations' 2030 Agenda and the European Commission's Digital Decade 2030 programme set clear and measurable objectives: to increase both basic and advanced skill levels, expand access to STEM education, strongly support lifelong learning, and reduce social, economic, and territorial inequalities in educational participation (European Commission, 2023). Within this framework, the twin digital and ecological transitions require a form of human capital that is not only adaptive but also actively engaged in innovation processes, contributing to the construction of sustainable and inclusive societies. However, Italy is currently facing a true "skills paradox": on the one hand, the labour market demands increasingly qualified, autonomous, and digitally literate professionals; on the other, the education and training system struggles to respond in a timely and systemic way to these transformations, generating a growing mismatch between the demand and supply of qualified human capital. The difficulties in supporting effective lifelong learning pathways and promoting strategic and career-oriented competences are highlighted in recent institutional reports and empirical studies, which expose persistent gaps in both school and higher education systems (ASviS, 2024; ISTAT, 2023). The consequences of this lag extend beyond the educational sphere and affect the socio-economic fabric of the country, undermining the competitiveness

of its productive system, its ability to attract investment and talent, and its territorial and intergenerational cohesion. The shortage of strategic competences and the system's weak capacity to promote their widespread and inclusive development negatively impact not only students' academic success but also their professional integration, civic participation, and personal and collective growth trajectories (Grządziel, 2024). In light of this complex and multifaceted scenario, this paper aims to offer a critical and in-depth analysis of the structural weaknesses of the Italian education system in terms of competences and quality education. The analysis focuses on two key institutional documents: the ASviS 2024 Report, which provides an updated overview of national indicators in relation to the Sustainable Development Goals (SDGs), and the ISTAT 2023 Report *Statistica Today ICT*, which maps digital human capital and examines the state of specialist competences in Italy. The paper pursues a twofold objective: on the one hand, to provide an overview of the most recent data, highlighting trends, systemic weaknesses, and possible developmental trajectories; on the other, to offer a pedagogical and methodological reflection on the role of strategic competences as a lever to face the ongoing transitions and to guide a sustainable rethinking of educational pathways (Pellerey, 2013). The methodology adopted is documentary and interpretative in nature, based on the qualitative and integrated analysis of the two official reports, and enriched with well-established theoretical references and relevant research findings in the field of competence-based education. The study aims to offer a multidimensional and structured overview of the issue of competences and quality education in Italy, with the intention of contributing to both the scientific and institutional debate through an analysis that combines data interpretation, theoretical insight, and forward-looking orientations. Following an initial conceptual framework defining competence and human capital—based on a synthesis of the main contributions from national and international educational research—the paper focuses on the analysis of indicators and trends emerging from the ASviS 2024 Report, identifying structural vulnerabilities and areas for development within the Italian education system. In a second phase, attention is devoted to the interpretation of data from the ISTAT 2023 Report, with particular reference to the diffusion of digital competences, the provision of ICT-related training, and a comparative perspective with major European countries. Finally, the paper outlines some reflections and orientation hypotheses intended to support constructive dialogue among institutional stakeholders, schools, universities, and the productive sector. In a context shaped by deep and interconnected changes,

the analysis of available evidence is carried out through an integrated and systemic approach, with the aim of providing a comprehensive and grounded understanding of the observed phenomena. The urgent need to design and implement a shared national strategy for competence development now appears as an unavoidable task, in order to prevent the widening of internal inequalities and support the country's competitiveness and cohesion within the European framework.

1. Strategic Competences, Human Capital, and Sustainability: A Theoretical Framework

The development of a competitive, flexible, and resilient form of human capital is now a shared international priority, in response to the complexity and uncertainty produced by ongoing technological, environmental, and social transformations. In this context, the emphasis placed on competences transcends the traditional approach based on the transmission of static knowledge, favouring instead an integrated and dynamic conception in which theoretical knowledge, practical skills, and socio-emotional dispositions converge to shape individuals capable of critically navigating unstable and multidimensional contexts (Pellerey, 2019). Contemporary human capital cannot be reduced to the mere accumulation of disciplinary knowledge but must be reimagined as the ability to engage in continuous learning, creatively adapt to change, and generate sustainable innovation. Within this framework, the concept of strategic competences emerges: a complex set of cognitive, metacognitive, socio-emotional, and value-oriented abilities that enables individuals to navigate complex scenarios, solve novel problems, and self-regulate their learning and career pathways throughout life (Bonazza & Giacomantonio, 2023). These competences lie at the intersection of quality education, social inclusion, and sustainable development, with educational sustainability providing their fundamental point of reference (Benadusi & Molina, 2018). Such sustainability goes beyond the efficient management of educational resources and is grounded in a balance between disciplinary competences and character skills—internal dispositions that promote responsible, collaborative, and community-oriented behaviours. In this context, virtues such as integrity, perseverance, and gratitude play a structural role in shaping active, ethical, and reflective citizenship (Bornatici, 2017; Loiodice, 2018). The strategic dimension of competences is also crucial in academic and professional contexts, where self-regulation, stress management, planning, and decision-making prove essential not only for educational success but also for life trajectory sustainability. Literature suggests that these competences do

not develop linearly but emerge through evolutionary pathways shaped by cognitive, affective, and contextual factors. The ability to "learn how to learn" and adapt to ever-changing environments is now regarded as indispensable for building flexible careers, achieving personal fulfilment, and participating democratically in a knowledge society (Mortari, 2004). From this perspective, education in values is not ancillary but foundational to education that promotes sustainability and inclusion. Training should no longer be understood as mere content delivery but as a transformative process that guides individuals toward conscious, socially responsible, and intergenerationally just choices (Liverano, 2024). Integrating knowledge, strategic competences, and values allows for the formation of critically aware citizens equipped with the cognitive and moral tools needed to address contemporary challenges such as climate change, social inequality, and digital transition. Despite strong theoretical and institutional recognition of the value of strategic competences, the Italian education system continues to struggle to embed them effectively into school and university curricula. Traditional transmission-based models and static conceptions of knowledge still prevail, hampering the implementation of systemic pedagogical interventions aimed at cultivating autonomy, reflexivity, and social responsibility (Margottini, 2017). The lack of a shared vision and coordinated educational policies risks exacerbating the so-called "skills paradox" already highlighted in national reports: while demand for competent and adaptable profiles grows, the educational offer remains inadequate. In response to this challenge, a structural revision of curricula and teaching methodologies is needed—one that promotes authentic learning experiences and values competences as integrated processes. Educating for strategic competences requires sustained, intentional action supported by public investment and coherent educational governance capable of linking schools, universities, and local communities. Digital competences, in particular, represent a new form of literacy for active citizenship: not merely technical skills, but prerequisites for social inclusion and full participation in democratic life (European Union, 2018). The European Commission's DigComp framework identifies five core areas—data literacy, communication, content creation, safety, and problem-solving—that define the profile of the responsible and informed digital citizen. The lack of such competences contributes to new forms of exclusion, deepening the educational and social fragilities already present in disadvantaged contexts (Sicurello, 2024). Alongside digital competences are the so-called soft skills and life skills, now widely recognized as essential to personal and professional well-being. The World Health Organization has identified ten key life skills, including critical thinking, stress management, and decision-making (WHO, 1997), which have since

been incorporated into educational policy frameworks. Promoting these competences requires training designs centred on personalization, the use of reflective tools such as e-portfolios, and active methodologies that foster autonomy and internalization (Bonazza, 2021; Carruba, Giacomantonio & Pilotti, 2024). The construction of sustainable human capital—understood as a synthesis of knowledge, skills, and values—represents a crucial lever for both social and economic innovation. The integrated approach to competences reflects a pedagogical vision that moves beyond the technical-functional paradigm toward a transformative perspective in which learning becomes a factor of emancipation and citizenship (Mezirow, 2016; De Corte, 2012). In this sense, the eight key competences for lifelong learning (European Union, 2018) and the LifeComp model (Di Stasio et al., 2021) serve as essential tools for educational design, highlighting the importance of self-regulation, cognitive flexibility, and social responsibility. Today, educational institutions are called to deeply reorganize their pedagogical and organizational structures. Schools and universities must evolve into authentic learning environments, capable of offering cognitive, relational, and ethical challenges. Learning communities based on collaboration and knowledge co-construction provide the ideal context to develop critical thinking, creativity, and competences oriented toward social engagement (Cacciamani & Giannandrea, 2004; Bruner, 2002). At the European level, policy documents such as the European Skills Agenda and the Pact for Skills emphasize the need for integrated policies in lifelong learning, upskilling, and reskilling, framed within systemic strategies involving schools, universities, enterprises, and public administration (European Commission, 2020). Nonetheless, the Italian system remains characterized by fragmented interventions, weak governance, and discontinuous reform implementation (Castoldi, 2011). In this scenario, universities can play a strategic role by acting as training hubs that foster the development of transversal, metacognitive, and relational competences. An analysis of educational literature and reference frameworks makes it possible to outline a structured model of strategic competences composed of four interrelated dimensions: cognitive, metacognitive, socio-emotional, and ethical-value-based. Each of these contributes to the integral formation of the person and the development of a professional identity that is flexible, autonomous, and socially responsible (Mezirow, 2016; Bandura, 1977). These competences do not arise spontaneously but require intentional, interdisciplinary pathways that connect theory and practice within a generative educational vision. Designing a national competence strategy aligned with European trajectories is no longer postponable if Italy is to meet the challenges

of ongoing transitions and build a more inclusive, equitable, and sustainable society.

2. Competences and the Quality of Education in Italy: A Critical Analysis of the ASviS 2024 Report

Quality education and competence development are fundamental levers for sustainable growth, social inclusion, and the economic competitiveness of a country. Goal 4 of the 2030 Agenda emphasizes the importance of ensuring inclusive, equitable, and quality education while promoting lifelong learning opportunities for all. In this framework, the ASviS 2024 Report provides a detailed overview of the progress and critical issues characterizing the Italian education system. A first positive element highlighted by the report is the improvement in reducing school dropout: the early school leaving rate among individuals aged 18–24 reached 10.5% in 2023, approaching the European target of 9%. However, the document also notes that significant territorial and social disparities persist, hindering the full achievement of international standards. Alongside this, the share of young people aged 25–34 holding a tertiary education qualification stands at 30.6%, still far from the European benchmark of 45%. Moreover, the level of participation in adult education reveals substantial room for improvement: only 8.3% of adults aged 25–64 engage in lifelong learning programmes, compared to the European target of 15%. Although this figure marks a 3.5 percentage point increase over the past five years, Italy continues to lag behind the European average, underscoring a structural weakness in supporting lifelong learning across all stages of life.

Indicator	Italy (2023)	EU Target 2030	EU Average (2023)	Difference (Italy – EU Avg.)
Early school leaving (18–24 years)	10.5%	<9%	9.5%	+1.0 pp
Lifelong learning (25–64 years)	8.3%	15%	11.9%	–3.6 pp
At least upper secondary education (25–64 years)	65.5%	–	79.4%	–13.9 pp

Indicator	Italy (2023)	EU Target 2030	EU Average (2023)	Difference (Italy – EU Avg.)
Tertiary graduates (25–34 years)	30.6%	45%	45%	–14.4 pp
Early childhood education services (0–2 years)	30%	33% by 2027	–	–

Table 1 — Key Education Indicators in Italy (2023)

Source: authors’ elaboration based on ASviS (2024) and Eurostat. All values are expressed as percentages. The “Gap” column indicates the difference between the Italian 2023 data and the 2023 EU average, in percentage points. The EU targets refer to the objectives set in European strategies for 2030.

With regard to basic competences, the data reveal even deeper structural issues. According to ASviS, in 2022, 21.4% of 15-year-old students did not reach the minimum proficiency level in reading literacy, while 29.6% showed significant difficulties in mathematics. These challenges become even more pronounced among high school graduates: 44% display insufficient linguistic competences and 48% fall short in mathematics. Such findings reflect structural fragilities that may undermine young people’s ability to cope with the demands of the digital and sustainability transitions. This analysis confirms that education cannot be reduced to the mere transmission of content but must be understood as the construction of integrated and strategic competences. In line with contemporary pedagogical literature (Pellerey, 2021; Stringher, 2021), there emerges a clear need for education that fosters self-regulation, learning-to-learn abilities, and critical problem-solving skills. Research by Scierri (2024) on the role of self-regulation in sustaining learning further emphasizes the urgency of designing learning environments that actively support these processes. Particularly noteworthy is the trend concerning high school graduates: the share of the population aged 25–64 with at least an upper secondary diploma reached 65.5% in 2023, with projections suggesting growth to 70% by 2030. Nevertheless, the gap with the EU average—79.4%—remains substantial. This delay translates into a lower availability of qualified human capital, which is essential to support both innovation and social cohesion, as highlighted by Margottini (2023) in his critical analysis of guidance and training policies. Another relevant aspect concerns access to early childhood education services, which has been widely recognized in the literature as a strategic

lever to reduce early educational inequalities and foster the development of cognitive and socio-emotional competences from the earliest years (Stringher, 2021). In 2023, the coverage rate of nursery school places reached 30%, approaching the European target of 33% set for 2027. However, accessibility and quality of early education services remain crucial variables that significantly influence learning and development opportunities throughout the life course. Overall, the analysis of the data reinforces the need for a structural and systemic educational response—one that integrates cognitive, metacognitive, and ethical-social dimensions. As reaffirmed by transformative pedagogy (Mezirow, 2003) and sociocultural approaches to learning, only an education oriented toward the development of strategic competences can effectively support current transitions and reduce the internal disparities that continue to characterize the Italian education system.

3. Digital competences in the sustainable transition: an analysis of the ISTAT Statistica Today ICT 2023 Report

Within the framework of the digital and ecological transitions, the widespread availability of digital competences represents a fundamental prerequisite for the sustainability of economic systems and for fostering social inclusion. As highlighted by the most recent data, the absence of such competences risks exacerbating already entrenched vulnerabilities and further widening inequalities in access to learning and employment opportunities. The ISTAT Statistica Today ICT 2023 report indicates that only 45.9% of the Italian population aged 16 to 74 possesses at least basic digital skills, compared to a European average of 55%. This figure, combined with the existence of a substantial share of citizens who lack digital competences despite regular Internet use, reveals a persistent educational weakness that affects the entire education and training system. The deficiency in digital skills is even more pronounced among unemployed individuals, only 38.7% of whom report having adequate competences, and among workers in traditional sectors such as agriculture and construction, which are now increasingly impacted by digitalization processes. Italy's delay in this field should be interpreted not only as a quantitative shortfall, but also as a qualitative one, concerning the ability to use digital technologies critically, creatively, and consciously—an essential requirement for adapting to the transformations of contemporary society.

Category	At Least Basic Digital Skills	EU27 Average
Population aged 16–74	45.9%	55.0%
Employed individuals	56.9%	64.7%
Unemployed individuals	38.7%	47.7%
ICT specialists under 35	29.3%	37.3%
ICT graduates	1.5% of total graduates	4.5%

Table 1 – Digital Competences in Italy: General Population and Workforce (2023)

The scarcity of highly qualified ICT professionals—only 1.5% of university graduates in Italy belong to this field—highlights a structural limitation within the higher education system to adequately train professionals capable of supporting technological innovation. This situation becomes even more critical considering that the segment of young ICT specialists remains significantly below European standards, compromising the country’s medium-term competitiveness. The weakness of digital human capital should not be seen merely as a technological gap, but rather as a manifestation of deeper pedagogical issues. It has long been argued that human capital is not simply the sum of technical knowledge, but requires the integrated development of cognitive, metacognitive, and socio-emotional dimensions within a value framework oriented toward active and responsible participation (Pozzi, Ripamonti & Triani, 2015). The dispersion of competences thus represents an evolved form of educational dropout—no longer limited to formal school abandonment, but encompassing the failure to acquire meaningful competences that are applicable to personal autonomy and social inclusion. From this perspective, the urgency of systemic educational interventions becomes evident. These must aim not only to prevent formal dropout, but also to address the implicit dispersion of competences (Batini, 2023). Such interventions should be grounded in pedagogical models that value local contexts and promote flexible, inclusive, and personalized teaching strategies that can support academic success from a perspective of equity and sustainability (Frabboni & Baldacci, 2004). Territorial disparities in the distribution of digital competences—especially in the most socio-economically fragile areas—raise important questions about the coherence and effectiveness of national educational policies. Building an education

system capable of integrating both digital and strategic competences is essential to sustain social cohesion and to accompany the economic and civic transformations required by our time. Digital education, therefore, must not be conceived as a purely technical or sector-specific goal, but rather as a transversal educational device, capable of fostering personal growth, critical citizenship, and social justice. Only a transformative pedagogical approach, attentive to the complexity of both contexts and individual life paths, can effectively guide the education system toward an equitable, sustainable, and inclusive digital transition.

Conclusions

The integrated analysis of the data provided by the ASviS 2024 Report and the ISTAT 2023 Report presents a complex picture in which signs of progress are intertwined with deep and persistent criticalities. While there has been a reduction in early school leaving and an increase in the number of secondary school graduates, the Italian education system still struggles to bridge the gap with European and international benchmarks. Basic competences—literacy and numeracy—are improving at a slow pace, and in some cases show alarming trends that point to a decline in educational quality, particularly in areas crucial for access to active citizenship and the labour market. The field of digital competences, examined through ISTAT data, reveals structural vulnerabilities affecting both the adult population and the productive sector. This highlights that the digital transition requires not only technological infrastructures, but also educational processes capable of fostering critical, conscious, and creative use of digital technologies. The limited training in ICT and STEM disciplines, together with the insufficient diffusion of transversal and strategic competences, reflects a fragmented human capital that is not adequately aligned with the principles of social and economic sustainability. These phenomena should not be interpreted as isolated delays or sector-specific weaknesses, but rather as manifestations of systemic fragility involving educational purposes, curricular structures, and teaching practices (Bramanti & Odifreddi, 2006). Pedagogical literature emphasises that the development of life competences requires an integrated approach, capable of cultivating cognitive, metacognitive, and socio-emotional dimensions in close connection with ethical values and principles of social responsibility. The development of human capital, broadly understood, cannot disregard formal, non-formal, and informal learning experiences oriented toward self-regulation, resilience, and transformative engagement with reality. In light of these considerations, there is a clear need for the Italian education system to adopt a comprehensive national strategy for the

development of sustainable human capital and competences. For such a strategy to be effective, it should be grounded in the following pillars:

1. Strengthening basic competences through structural investments in primary and secondary education, favouring pedagogical approaches that support personalised learning, inclusion, and the reduction of territorial disparities.
2. Promoting widespread digital competences and encouraging STEM education, with particular attention to gender equity and inclusive access to technological training pathways.
3. Innovating university pedagogical models, focusing on the integration of experiential laboratories, learning-by-doing methodologies, the development of soft skills, and the systematic use of reflective and assessment tools such as e-portfolios.
4. Aligning national education policies with European and international frameworks, enhancing the global dimension of education for sustainability, peace, cultural diversity, and active citizenship.

Only through a systemic, intentional, and transformative approach will it be possible to reduce existing gaps, promote social cohesion, and ensure economic competitiveness in a global context (Dewey, 1916/2018). The challenge we face today is not merely quantitative, but profoundly qualitative: it involves transforming the educational and training culture by placing the integral development of the individual and the construction of knowledge aimed at sustainability, inclusion, and responsible participation at the centre of educational action.

Author contributions

For evaluation purposes, Guido Scarano should be credited with writing the introduction and paragraphs 1 and 2, Lucia Martiniello with writing paragraphs 3 and conclusions.

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