Gendered and Territorial Patterns of Socio-Emotional Skills among Italian Students

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***Abstract* — Social and emotional competencies are a fundamental aspect of human development and an increasingly recognized factor in contemporary educational processes. These competencies significantly contribute to academic success, psychological well-being, social participation and the capacity to navigate an ever-changing job market. Their dynamic and malleable nature also makes them particularly responsive to educational interventions, especially in the early stages of schooling.**

In this context, an analysis of the social-emotional skills of students around the age of eleven, inspired by the Big Five theoretical model and the OECD-SSES framework, examined nine dimensions: curiosity, creativity, persistence, responsibility, sociability, assertiveness, empathy, resilience to stress, and optimism. These competencies were measured alongside information on students' cognitive abilities and socioeconomic backgrounds to better understand the relationships among personal development, family context, and educational outcomes.

The results revealed notable differences related to gender, region, and socioeconomic status. On average, girls demonstrate higher levels of responsibility and empathy, whereas boys tend to score higher in assertiveness, sociability, and stress resilience. From a regional perspective, a distinctive pattern emerges: while Southern Italy traditionally records weaker cognitive learning outcomes, it shows higher average levels of certain socio-emotional skills. This 'reversed geography' suggests the presence of socio-emotional capital that does not always align with traditional maps of educational inequalities.

***Keywords* — social-emotional skills; gender differences; regional inequalities; social-emotional development.**

I. Introduction

In recent decades, the combined forces of globalization and digitalization, and more recently the rapid spread of artificial intelligence (AI), have profoundly transformed contemporary societies. This has substantially redefined the skills required to participate fully in social, educational and professional life. In a context where an increasing number of routine and cognitive tasks can be automated, mastery of traditional subject-specific knowledge alone is proving insufficient. This has led to a gradual rethinking of the concept of human capital, which now encompasses a complex set of socio-emotional skills that are widely recognized as being crucial in distinguishing human action from artificial intelligence.

In this scenario, socio-emotional skills are valuable precisely because they are difficult to automate. Empathy, emotional regulation, responsibility, resilience, critical thinking and collaboration are all key dimensions of human interaction, adaptation to uncertainty and management of complex contexts. A vast body of interdisciplinary literature in economics, psychology, sociology and pedagogy has demonstrated the central role of these skills — often referred to as non-cognitive or transversal skills — in not only academic performance, but also employability, job quality, psychological well-being and social participation. In the age of AI, these skills strengthen individuals' ability to work alongside technologies rather than being replaced by them, fostering cognitive flexibility, continuous learning, and human–machine cooperation.

From an educational perspective, the importance of socio-emotional skills is heightened by their dynamic and malleable nature, particularly during childhood and early adolescence. Educational institutions must therefore play a crucial role as settings for holistic development, where students can build the emotional and relational tools essential for navigating an uncertain, rapidly changing future of work and society. In this sense, school becomes a prime laboratory for cultivating the deeply human skills that will remain central even in an AI-mediated world. The ENRICH project (Evaluating Non-Cognitive Skills for Resilience, Innovation and Change) is situated within this framework. It is the first large-scale attempt in Italy to systematically measure the socio-emotional skills of pre-adolescents at the start of lower secondary school. By integrating information on socio-emotional skills with data on students' cognitive abilities and socio-economic background, ENRICH offers a unique opportunity to analyze how the development of the most crucial skills in the age of AI intersects with family and local contexts, as well as academic performance.

II. Literature Review

Over the past two decades, research and policy on human capital have gradually shifted their focus from an almost exclusive emphasis on cognitive skills to a broader, more integrated perspective that increasingly includes social and emotional skills (Borghans et al., 2008; Kautz et al., 2014). A robust body of international evidence shows that these skills significantly impact a wide range of life outcomes, with effects often comparable to, and sometimes greater than, those associated with traditionally measured cognitive abilities (Heckman et al., 2006; OECD, 2015). This broadening of the concept of human capital reflects a more general transformation of educational, social, and productive contexts characterised by increasing complexity, uncertainty, and rapid change (OECD, 2015; Rammstedt et al., 2024).

1. Relevance for Educational, Occupational, and Life Outcomes

Social and emotional skills play a crucial role in academic success, particularly during childhood and adolescence when

the foundations for future educational pathways are established (Cunha et al., 2010; Heckman et al., 2006). Traits such as conscientiousness, perseverance, self-control and emotional regulation are strongly associated with academic commitment and performance, as well as the likelihood of successfully completing education. Students with well-developed social-emotional skills tend to manage stress better, stay motivated and cope with academic challenges more effectively (Kautz et al., 2014). These skills are also of central importance in the labour market due to their high transferability across different occupations, sectors and organizational contexts. Employers increasingly value qualities such as collaboration, adaptability, effective communication and problem-solving, which are becoming increasingly relevant in a context where work is changing rapidly and demand is growing for interpersonal, coordination and adaptive skills (Rammstedt et al., 2024). Evidence also shows that socio-emotional traits are associated with employability, occupational stability, wages and career progression (Heckman et al., 2006). Finally, social-emotional skills are closely linked to individual and social well-being. High levels of empathy, optimism and emotional regulation are associated with better mental and physical health, more frequent prosocial behaviour and greater civic engagement. In this sense, they contribute to both individual success and social cohesion, as well as to the quality of collective life (OECD, 2015).

Malleability and Teachability

One of the defining characteristics of social-emotional skills is their dynamic, malleable nature, particularly during childhood and adolescence (Cantor et al., 2019). Evidence from neuroscience and psychology suggests that the systems involved in emotional regulation, self-control and social cognition are highly malleable in the early stages of development, making them susceptible to environmental influences and educational interventions (Cantor et al., 2019; OECD, 2015).

This plasticity underpins the concept of teachability. While social-emotional skills cannot always be taught through traditional direct instruction, many can be effectively fostered through intentional educational practices, supportive classroom environments, positive role models and structured social and emotional learning programmes (Durlak et al., 2011). Meta-analyses of school-based interventions demonstrate positive effects on the development of social-emotional skills, as well as on academic performance and student behaviour (Durlak et al., 2011).

Another important factor is the interdependence between the various social-emotional dimensions. Progress in one area, such as emotional awareness or self-regulation, tends to have knock-on effects on other skills, including cooperation, empathy and stress management. This interconnectedness highlights the importance of taking an integrated and systemic approach to education, rather than implementing fragmented or isolated interventions (OECD, 2015; Kautz et al., 2014).

2. The importance of social and emotional skills in the age of artificial intelligence

In the age of artificial intelligence, the importance of social and emotional skills is further amplified. As automation and generative AI technologies advance rapidly, an increasing number of routine cognitive tasks can be performed by intelligent systems, reducing the value of certain traditional skills and increasing the importance of transversal, relational and adaptive competences (Rammstedt et al., 2024). In this context, social-emotional skills emerge as a genuine human advantage that is difficult for machines to replicate. Empathy, ethical judgement, leadership, collaboration, managing uncertainty and adaptability are central to complex interactions, teamwork and decision-making in ambiguous contexts (OECD, 2015; Rammstedt et al., 2024). AI also tends to complement human work rather than replace it in many domains, increasing the demand for skills that enable people to work effectively alongside technologies, interpret their outputs and exercise responsible governance over them. From an educational perspective, this implies an increasing responsibility for school systems to prepare students for a future in which mastery of these skills will be essential for navigating constantly changing professional and social environments (Kautz et al., 2014; OECD, 2015). Investing in the development of such skills is therefore not merely a strategy to improve educational outcomes in the short term, but a fundamental means of promoting resilience, inclusion and adaptability throughout life in an increasingly AI-permeated society (Cantor et al., 2019; Rammstedt et al., 2024).

III. MATERIALS AND METHODS

The ENRICH project is a nationally representative survey conducted during the 2024/25 school year among first-year lower secondary school pupils (aged around 11).

To ensure the representativeness of the sample at the NUTS 1 level, a two-stage cluster sampling design was adopted, with stratification of the first-stage units. Data were collected via a CAWI procedure on the LimeSurvey platform. Students completed the questionnaire online at school, under teachers' supervision and with technical support provided during the fieldwork period. The fieldwork took place between January and February 2025, according to a data-collection window agreed with the participating schools. The questionnaire was administered anonymously, and no personal data or direct or indirect identifiers that could allow individual students to be identified were collected.

Overall, the final sample comprises 6,085 students across 322 classes and 118 schools. This structure reflects the hierarchical organization of the data, with students nested within classes and schools, and therefore provides the

empirical basis for analysing both individual-level and school-level differences in socio emotional skills.

The study is based on the framework of the OECD Survey on Social and Emotional Skills (SSES) and draws on the 'Big Five' personality model. The OECD model of social and emotional skills organises these skills into five main dimensions, which correspond directly to the areas of the Big Five model, as shown here and compared synoptically below:

1) Cooperation – linked to Agreeableness;
2) Task Performance – corresponding to Conscientiousness;
3) Emotional Regulation – associated with Emotional Stability;
4) Engaging with Others – linked to Extraversion;
5) Open-mindedness – referring to Openness to Experience.

In the ENRICH project, all domains present in the updated version of the OECD survey were analyzed, but with a more precise selection of the competencies investigated. In particular, nine socio-emotional competencies were measured across five areas: curiosity, creativity, perseverance, responsibility, sociability, assertiveness, empathy, resilience to stress and optimism.

Table 1. socio-emotional domains and competencies in ENRICH project

Domain	Competence	No. of items	ENRICH
Open-Mindedness	Curiosity	6	yes
	Tolerance	–	no
	Creativity	6	yes
Task Performance	Persistence	6	yes
	Responsibility	6	yes
	Self-control	–	no
	Achievement motivation	–	no
Engaging with others	Sociability	6	yes
	Assertiveness	7	yes
	Energy	–	no
Collaboration	Empathy	6	yes
	Trust	–	no
Emotional Regulation	Stress resistance	6	yes
	Emotional control	–	no
	Optimism	7	yes

For data collection, a CAWI (Computer-Assisted Web Interview) methodology was adopted: the questionnaire was administered online via the LimeSurvey platform. Using an electronic platform to administer the questionnaire ensures operational efficiency in terms of time and cost and promotes environmental sustainability by reducing resource waste. Furthermore, this method allows for rapid data collection and availability.

The psychometric quality of the scales adopted in the ENRICH project was assessed using a thorough validation strategy designed to evaluate item performance, internal consistency and the dimensional structure of the constructs. In line with established psychometric principles, particular attention was paid to coherence between the theoretical framework underpinning the measurement model and the empirical properties of the observed indicators (Marradi, 1994).

As a preliminary step, the distributional properties of all items were examined using skewness and kurtosis indices. Following the commonly adopted criteria for Likert-type items, values within ±1 were considered acceptable departures from normality (Muthén & Kaplan, 1985). While a limited number of individual items, particularly within the Sociability and Empathy scales, showed more pronounced asymmetry, these deviations were substantially reduced once items were aggregated at scale level. This is consistent with the central limit theorem and supports the use of parametric statistical techniques on composite scores (Nunnally & Bernstein, 1994; DeVellis, 2017).

Item-level analyses were conducted within the framework of classical test theory to evaluate attractiveness and discriminative capacity. Given the five-point Likert response format, item means were interpreted as indicators of attractiveness, with values between 3.5 and 4.5 being considered optimal (Ercolani & Perugini, 1997; Barbaranelli & Natali, 2005). Across all scales, item means fell within the expected range, indicating an adequate distribution of responses and the absence of ceiling or floor effects. Discriminative power was assessed through corrected item–total correlations, with a threshold of 0.30 adopted as the minimum acceptable value (Nunnally & Bernstein, 1994). With only marginal exceptions, all items met this criterion, suggesting that each item meaningfully contributes to the measurement of its intended construct.

Scale reliability was evaluated using both Cronbach's alpha and McDonald's omega. Although Cronbach's alpha remains the most widely used indicator of internal consistency (Cronbach, 1951), its underlying assumptions, particularly tau-equivalence, are often violated in psychological scales. For this reason, omega reliability was also computed, as it provides a more robust estimate under less restrictive conditions (McDonald, 1999; Dunn et al., 2014). Overall, the reliability coefficients were satisfactory for all socio-emotional competencies, with values generally exceeding the conventional threshold of 0.70. In several cases, the values approached or surpassed 0.80, indicating good to excellent internal consistency. To further assess construct validity, the dimensionality of each scale was examined through exploratory factor analysis (EFA). Prior to factor extraction, the suitability of the data was confirmed using the Kaiser–Meyer–Olkin measure of sampling adequacy and Bartlett's test of sphericity; both indicated that the correlation matrices were appropriate for factor analysis. For all nine competencies, EFA consistently supported a unidimensional solution, with a single latent factor explaining a substantial proportion of the total variance (approximately 27–44%). Factor loadings were uniformly positive and of moderate to high magnitude, providing evidence that the items coherently represent a single underlying construct within each scale.

Taken together, these results suggest that the ENRICH scales have sound psychometric properties. The combination of acceptable distributional characteristics, strong item discrimination, satisfactory internal consistency and a clear unidimensional structure supports the use of the derived scale scores in subsequent analyses. This validation process ensures that the socio-emotional competencies measured by ENRICH can be interpreted as reliable, coherent constructs suitable for descriptive and inferential purposes, as well as for integration with cognitive and contextual data in multidisciplinary research designs.

The survey data were integrated with scores from the INVALSI standardized tests in Italian and mathematics, as well as with socio-economic indicators at class level, enabling a multidimensional analysis that simultaneously considers cognitive skills, characteristics of the social context and contextual factors.

IV. RESULT AND DISCUSSION

A. Gender Differences

The analysis reveals clear, statistically significant and coherent gender differences in several socio-emotional competencies measured within the ENRICH framework. By the age of eleven, boys and girls exhibit distinct socio-emotional profiles reflecting different patterns of socialisation, self-perception and emotional regulation.

Girls exhibit consistently higher levels of responsibility and empathy, indicating stronger tendencies towards reliability, adherence to rules, and sensitivity to others' emotions and needs. These dimensions closely align with competencies related to cooperation and prosocial behaviour, suggesting an early internalisation of relational norms centred on care, attentiveness, and social responsibility. These differences are not marginal; they emerge consistently across items and remain robust once scores are aggregated at the scale level, indicating a stable gender gap rather than item-specific effects.

By contrast, boys score higher on sociability, assertiveness, stress resistance, and optimism. This pattern indicates greater self-reported confidence in social situations, leadership behaviours, emotional detachment under pressure, and positive expectations for the future. Notably, the observed gap in stress resistance is among the most pronounced, indicating gender differences in perceived emotional coping strategies and tolerance of stressful situations from the outset of lower secondary education

Table 2. Mean standardized scores in socio-emotional competencies by gender

Big five domain	Competence	Boys (std.dev)	Girls (std.dev)	Difference (Boys-Girls)
Open-mindedness	Curiosity	-0.004 (1.035)	-0.031 (0.978)	0.027
	Creativity	-0.004 (0.889)	0.009 (0.91)	-0.013
Task performance	Persistence	-0.005 (1.015)	-0.006 (1.013)	0.001
	Responsibility	-0.095 (0.832)	0.056 (0.856)	-0.151***
Collaboration	Empathy	-0.166 (0.878)	0.148 (0.818)	-0.314***
Engagement with others	Sociability	0.048 (0.85)	-0.070 (0.902)	0.118***
	Assertiveness	0.108 (0.975)	-0.098 (0.908)	0.206***
Emotional regulation	Stress resistance	0.251 (0.836)	-0.27 (0.881)	0.521***
	Optimism	0.044 (0.884)	-0.072 (0.955)	0.116***

Note: $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$

Importantly, the competencies with the most significant gender disparities are those most closely associated with social roles and behavioural expectations rather than academic task orientation per se. This pattern is consistent with international evidence from large-scale assessments, such as the OECD Survey on Social and Emotional Skills, which reveals comparable gender differences across countries and cultural contexts at similar ages. The ENRICH results thus confirm that gender-based socio-emotional differentiation is present and consolidated by preadolescence. The early emergence of these profiles is particularly relevant in light of their potential consequences further down the line. Responsibility and empathy are strongly associated with educational persistence, classroom behaviour and relational climates, while assertiveness, stress resistance and optimism are often linked to leadership aspirations, self-efficacy and risk-taking. Consequently, these gendered patterns may influence later educational choices, field of study selection and occupational trajectories, thereby reinforcing horizontal and vertical segregation in education and the labour market.

Overall, the ENRICH findings suggest that gender differences in socio-emotional competencies should not be interpreted as deficits, but rather as asymmetric profiles reflecting different developmental pathways. It is crucial to understand these profiles early on to design educational interventions that broaden the socio-emotional repertoires of all students. For example, these interventions could encourage the development of empathic and regulatory skills among boys and assertive competencies among girls. This would reduce the risk of early socialisation leading to persistent inequalities throughout life.

B. Territorial Patterns and the "Reversed Geography"

One of the most striking findings to emerge from the ENRICH project relates to the spatial distribution of socio-emotional competencies across Italian macro-regions. In contrast to well-established patterns observed in cognitive achievement, territorial disparities in socio-emotional skills follow a markedly different — and, in some respects, opposite — geography.

Table 3 reports the average value and their difference for student of Northern and Southern regions of Italy across the nine competencies included in ENRICH. Results highlights a consistent advantage for Southern students in competencies related to openness and perseverance, while gaps are smaller or absent for dimensions associated with social dominance and emotional detachment, such as assertiveness.

Table 3. Relative socio-emotional profiles by macro-area (North vs South)*

Big five domain	Competence	Northern Italy (std.dev)	Southern Italy (std.dev)	Difference (North-South)
Open-mindedness	Curiosity	-0.1411 (1.0419)	0.1406 (0.9431)	-0.2817***
	Creativity	-0.0620 (0.9242)	0.0687 (0.8678)	-0.1307***
Task performance	Persistence	-0.1390 (1.0135)	0.1565 (0.9893)	-0.2955***
	Responsibility	-0.0637 (0.8533)	0.0263 (0.838)	-0.09**
Collaboration	Empathy	-0.0831 (0.8904)	0.0817 (0.8461)	-0.1648***
Engagement with others	Sociability	-0.0557 (0.9009)	0.0362 (0.854)	-0.0919**
	Assertiveness	0.0195 (0.9524)	-0.0188 (0.9378)	0.0383
Emotional regulation	Stress resistance	0.0314 (0.886)	-0.0524 (0.9142)	0.0838***
	Optimism	-0.0597 (0.9415)	0.0436 (0.9015)	-0.1033***

Note: $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$

Students in Southern Italy and the Islands consistently demonstrate higher average levels of several socio-emotional competencies, particularly curiosity, creativity, persistence, and empathy. These competencies are closely related to openness to experience, engagement with learning and

cooperative attitudes, and appear to be more highly developed in southern contexts.

In contrast, students in the northern regions, an area traditionally associated with strong economic performance and favourable educational outcomes, show consistently lower scores across many socio-emotional

This suggests that territorial disparities are not uniform across the socio-emotional spectrum, but instead reflect differentiated profiles shaped by contextual, cultural, and social factors.

Taken together, these results point to what can be described as a "reversed geography" of educational inequality. While Southern Italy continues to lag behind the North in cognitive learning outcomes—as documented by national and international assessments—the same territories appear comparatively richer in specific forms of socio-emotional capital. This capital, however, is largely invisible to conventional academic indicators and may therefore remain under-recognized and underutilized within educational systems.

The existence of such a reversed pattern has important implications. First, it calls into question deficit-based narratives that portray Southern territories exclusively in terms of educational disadvantage. Second, it suggests that socio-emotional resources—such as curiosity, perseverance, and empathic orientation—may represent a latent asset for individual development and social cohesion, particularly in contexts characterized by structural socioeconomic constraints. Finally, these findings underscore the need for place-sensitive educational policies that acknowledge territorial diversity not only in terms of needs, but also in terms of strengths, thereby promoting more balanced and inclusive models of human capital development.

C. The Role of Contextual Factors

Multilevel regression analyses conducted within the ENRICH framework reveal a differentiated structure of socio-emotional skill formation across institutional and relational levels.

The statistical model adopted is a three-level model (Raudenbush and Bryk, 1992) in which students (level 1) are nested within classes (level 2), which in turn are nested within schools (level 3). This structure allows for considering the hierarchical organization of the data and accurately estimating the share of variance attributable to each level. The analysis was conducted separately for the nine dimensions of socio-emotional skills investigated. For each dimension, three models were estimated:

The empty model, without covariates, is used to estimate the 'raw' variance between schools and classes:

$$Y_{ijk}=\gamma_0+u_{0k}+v_{0jk}+e_{ijk}$$

where: Y_{ijk} is the socio-emotional skill score of student i in class j in school k, γ_0 is the overall intercept (grand mean); $u_{0k} \sim N(0, \sigma^2_u)$ is the random effect of school k; $v_{0jk} \sim N(0, \sigma^2_v)$ is the random effect of class j in school k while $e_{ijk} \sim N(0, \sigma^2_e)$ is the student-level residual error.

The Model 1 includes covariates at the student and class levels: geographical area, student gender, and the average class socio-economic status (SES):

$$Y_{ijk}=\gamma_0+\gamma_1 Area_{ijk}+\gamma_2 Gender_{ijk}+\gamma_3 SES_{jk}+u_{0k}+v_{0jk}+e_{ijk}$$

Finally, the model 2 extends the previous one by including average class scores in Italian and mathematics:

$$Y_{ijk}=\gamma_0+\gamma_1 Area_{ijk}+\gamma_2 Gender_{ijk}+\gamma_3 SES_{jk}+\gamma_4 Math_{jk}+\gamma_5 Italian_{jk}+u_{0k}+v_{0jk}+e_{ijk}$$

For each model, intraclass correlation coefficients (ICCs) were calculated at the school level:

$$\text{ICC_sch} = \frac{\sigma^2_u}{\sigma^2_u + \sigma^2_v + \sigma^2_e}$$

and at the combined level (school + class):

$$\text{ICC_sch+class} = \frac{\sigma^2_u + \sigma^2_v}{\sigma^2_u + \sigma^2_v + \sigma^2_e}$$

to quantify the proportion of variance explained by educational contexts relative to the total variance.

Overall, between-school differences account for a relatively limited share of the total variance in socio-emotional competencies, suggesting that schools, as institutional units, are broadly comparable once contextual composition is taken into account. By contrast, class-level effects are substantial, especially when the average academic performance and peer composition of classrooms are considered.

In particular, competencies such as curiosity, creativity, assertiveness, and empathy show a pronounced sensitivity to the classroom environment. These skills appear strongly shaped by peer dynamics, classroom climate, and group-level interactions, indicating that everyday relational contexts play a central role in fostering openness, exploratory orientations, social initiative, and sensitivity toward others. The class thus emerges as a critical meso-level arena where socio-emotional competencies are continuously reinforced—or constrained—through shared norms, mutual expectations, and interactional patterns.

This differentiated multilevel structure is illustrated in Figure 1, which reports an illustrative decomposition of variance across school, class, and individual levels for selected socio-emotional competencies.

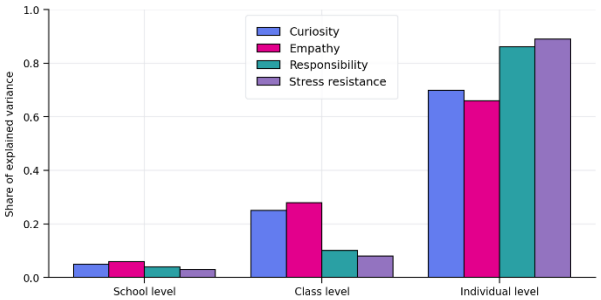

Fig. 1. Variance decomposition of socio-emotional competencies across levels (ENRICH)*

**Note:* Bars represent the approximate share of explained variance attributable to school, class, and individual levels. Values are illustrative and reflect relative magnitudes observed in ENRICH multilevel models.

The figure shows that, while variance at the school level remains limited across all competencies, variance at the class level is particularly pronounced for curiosity and empathy. This reaches levels comparable to, or even exceeding, one quarter of the total variance explained. By contrast, competencies such as responsibility and stress resistance are much less sensitive to classroom composition, with the vast majority of variance concentrated at the individual level.

These patterns are summarised in Table 4, which categorises competencies according to their dominant level of influence.

Substantively, these findings point to distinct developmental pathways across socio-emotional domains. Skills related to engagement, expressiveness and social atonement appear to be particularly embedded in collective contexts.

Table 4. Dominant levels of influence by socio-emotional competence*

Competence	School level	Class level	Individual level	Dominant pathway
Curiosity	Low	High	Moderate	Contextual / peer-driven
Creativity	Low	High	Moderate	Contextual / peer-driven
Empathy	Low	High	Moderate	Relational / peer-driven
Assertiveness	Low	Moderate	High	Mixed
Sociability	Low	Moderate	High	Mixed
Responsibility	Very low	Low	Very high	Individual-oriented
Stress resistance	Very low	Low	Very high	Individual-oriented
Optimism	Low	Moderate	High	Mixed

* *Note:* Classification based on relative variance shares in multilevel models

Exposure to diverse peers, shared academic norms and interactive learning environments can stimulate or hinder the development of these skills. Conversely, skills such as responsibility and stress resistance appear to be more closely linked to individual characteristics, potentially reflecting stable self-regulatory dispositions that are shaped by earlier experiences and family-level socialisation.

From a policy and educational perspective, this differentiated structure has important implications. Interventions aimed at enhancing curiosity, creativity, or empathy may benefit most from classroom-level strategies such as cooperative learning, peer-based activities, and intentionally designing inclusive classroom climates. By contrast, fostering responsibility and emotional resilience may require more individualised or family-oriented approaches that emphasise self-regulation and personal agency.

Overall, the multilevel evidence provided by ENRICH supports the notion that socio-emotional competencies are not uniform traits developed in isolation, but rather the result of interactions between individual predispositions and relational contexts. The classroom is a crucial setting for educational intervention.

V. Conclusion

The ENRICH project provides robust and convergent evidence that socio-emotional competencies constitute a foundational component of human capital and a crucial lever for fostering equity, resilience, and individual well-being. By combining a nationally representative dataset with a validated measurement framework, the study offers new insights into how these competencies are patterned across social groups, territories, and educational contexts, and how they interact with cognitive achievement rather than merely complementing it. Three main implications emerge. First, socio-emotional skills display clearly differentiated gendered and territorial profiles that cannot be understood solely through cognitive outcomes. Girls' higher levels of empathy and responsibility, alongside boys' relative advantage in assertiveness, sociability, and stress resistance, reveal early-emerging socio-emotional configurations that mirror broader processes of socialization and may shape later educational trajectories and occupational choices. Similarly, the territorial evidence points to a striking "reversed geography," whereby Southern regions—traditionally characterized by weaker cognitive learning outcomes—exhibit comparatively higher levels of several socio-emotional competencies, such as curiosity, persistence, and empathy. Recognizing and valuing these distinct profiles is essential for moving beyond deficit-based interpretations of educational inequality and for designing policies that are sensitive to contextual specificities, local strengths, and differentiated forms of human capital.

Second, the multilevel analyses highlight the strategic importance of the classroom as a social and relational environment. While differences between schools account for only a limited share of variance in socio-emotional skills, class-level effects are substantial for competencies closely tied to interaction, engagement, and emotional attunement. Peer composition, classroom climate, and shared academic orientations play a decisive role in shaping curiosity, creativity, empathy, and assertiveness, whereas skills such as responsibility and stress resistance appear more strongly anchored in individual characteristics. This differentiated structure suggests that socio-emotional development follows multiple pathways and that educational interventions can be particularly effective when targeted at the classroom level through inclusive practices, cooperative learning, and the intentional cultivation of supportive relational climates. Finally, and most critically, the relevance of these findings is amplified in the context of rapid technological change and the diffusion of artificial intelligence. As AI increasingly automates routine cognitive tasks, the competencies that remain distinctly human—empathy, creativity, adaptability, ethical judgment, and emotional regulation—become increasingly important for both individual flourishing and collective progress. In this perspective, investing in socio-emotional development from the early stages of schooling is not only a matter of promoting students' present well-being, but also of equipping future citizens and workers with skills that complement rather than compete with intelligent technologies. Taken together, the ENRICH results support a reconceptualisation of socio-emotional skills as neither ancillary nor optional, but as a central pillar of an educational paradigm oriented toward human-centred innovation. Policies and practices that integrate socio-emotional development alongside academic learning are better positioned to reduce inequalities, valorize hidden forms of capital, and prepare younger generations to navigate an increasingly complex, interdependent, and technology-driven world.

Conflict of Interest

The authors declare no conflict of interest.

Author Contributions

This paper results from the common work of the Authors. Patrizia Falzetti has written Sections 1 and 4 while Sergio Longobardi has written Sections 2, 3 and 5.

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