

# SCIREARLY FINAL REPORT



## PATHWAYS TO SUCCESS: REDUCING UNDERACHIEVEMENT AND EARLY SCHOOL LEAVING ACROSS EUROPE

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# EXECUTIVE SUMMARY

Early school leaving (ESL) and underachievement remain persistent challenges across Europe, disproportionately affecting vulnerable groups such as students living in poverty contexts, migrants, and Roma communities. These issues have lasting negative effects on individual well-being, employment prospects, and broader social cohesion.

For three years, the SCIREARLY project, involving 11 partners from 10 European countries across academic and non-academic sectors, worked on identifying, developing, and scaling effective evidence-based education policies and practices to reduce ESL. Taking a whole-child, multidimensional, and transformative approach, with co-creation as a core principle, SCIREARLY generated scientific knowledge across six interlinked work packages (WP). The outcomes of this research are presented in this final report, which is structured around the project's five-dimensional framework: Understand (WP1), Prevent (WP2), Implement (WP3 and WP4), Inspire (WP5), and Engage (WP5).

The report's 'Understand' dimension identifies root causes of ESL and underachievement in Europe, based on a review of 825 publications, PISA 2018 data from 397,082 students, and policy analysis across 11 countries. It pinpoints eight key determinants, from socio-economic and institutional factors to psycho-emotional well-being, and highlights high-quality Early Childhood Education and Care (ECEC) as

an important lever to enhance student engagement and reduce the risk of ESL, particularly for those who are systematically disadvantaged. It also showcases exemplary policies, such as Ireland's DEIS, Spain's Learning Communities, Portugal's Students' Profile by the End of Compulsory Education and curricular autonomy, and Switzerland's Dual Vocational Training Programme.

The 'Prevent' dimension emphasises strengthening high-quality ECEC as a key strategy to prevent ESL. First, it develops and pilots the Self-Assessment ECEC Quality Instrument in nine countries, later expanding it into a large-scale survey with 2,594 respondents across





18 countries. The survey reveals a generally positive perception of the presence of certain features of high-quality ECEC in their settings, such as having nurturing classroom environments, responsive interactions, and purposeful educational strategies. However, results also show moderate scores in family involvement and institutional support, suggesting that these areas need further improvement, especially as research consistently underscores their pivotal role in children's academic and emotional development. Second, through a scoping review of 86 intervention studies and co-creation activities with 340 participants across four countries, the research synthesises core indicators of high-quality ECEC into a six-dimensional conceptual framework: Whole child development through nurturing and responsive learning environments; Rich, purposeful and stimulating learning content and spaces; Harnessing the building blocks of learning; Collaborative partnerships with families and communities; Professionalism and quality of the ECEC workforce; and Pathways for inclusive involvement and decision-making.

Beyond the early years, the 'Implement' dimension provides evidence and data-driven resources to conduct and scale strategies to address ESL and underachievement during students' compulsory schooling years and beyond. It draws on 20 illustrative examples of Successful Learning Environments (SLEs) across eight countries, such as Forest School (UK) and Dialogic Literary Gatherings (Spain), and develops a Toolkit that educators can readily use to adapt these strategies to their settings. It outlines six core dimensions of SLEs, namely skilled educators, inclusive curricula, and engaging pedagogies; supportive peer interactions; positive teacher–student relationships; whole-school approaches with supportive leadership; comprehensive academic and career guidance; and active family and community engagement.

Second, implementing SLEs in 16 schools, SCIREARLY assesses their transferability and scalability, identifying nine key scaling conditions, including phased scaling, equity focus, whole-school engagement, family involvement, teacher development, supportive policies, adequate resources, cross-sector collaboration, and strong evaluation.

The 'Inspire' dimension explores the factors that enable students from vulnerable backgrounds to succeed against the odds. Collecting 53 personal narratives and 40 interviews with significant persons of students from socioeconomically disadvantaged, Roma, migrant, and refugee backgrounds, SCIREARLY identifies six key transformative drivers of educational success: family support, teacher, and peer support, inclusive school environments, personal agency, and structural support mechanisms. SCIREARLY concludes that early adversity, such as familial instability and systemic exclusion, often disrupts educational pathways. Yet, supportive family, teacher and peer relationships and engaging school contexts play a critical role in fostering resilience and motivation.

Finally, the 'Engage' dimension highlights the critical role of community collaboration and resource-making for lasting change. It includes SCIREARLY's IMPACT platform, which serves as a space for connecting educators, researchers, and institutional leaders to share inspiring trajectories, access knowledge and actionable evidence. It offers concrete resources such as the Toolkit to provide practical, adaptable, and evidence-based strategies for schools to implement.

The report concludes with research-informed guidance to address underachievement and ESL in a holistic way, outlining key recommendations for policymakers, school leaders, educators, students, families, and communities.

## Recommendations for Policymakers

1

Strengthen high quality early childhood education and care (ECEC) as a foundational component of educational equity by recognising its pivotal role in preventing early school leaving and elevating the professional status of ECEC educators through comprehensive, evidence-based training, ongoing professional development, and equitable compensation.

2

Prioritise culturally responsive, safe, inclusive, and dialogic learning environments by encouraging positive teacher and peer interactions, and school-family partnerships.

3

Promote flexible, compassionate approaches to attendance and engagement by designing school-wide strategies that acknowledge and address individual barriers and diverse circumstances.

4

Develop coherent support frameworks to facilitate smooth educational transitions by establishing standardised, cross-institutional protocols that provide continuous and consistent academic, social, and emotional support as students advance through different levels of education, minimising disruption and attrition.

5

Forge collaborative partnerships among families, schools, and communities by recognising these partnerships as essential to comprehensive support systems that address multifaceted student needs and allocating resources to enhance home-school-community engagement initiatives.

6

Expand access to mental health and alternative pathways for success by increasing investment in school-based mental health and psychosocial services, alongside the development and recognition of multiple academic and vocational pathways.

7

Enhance comprehensive, evidence-based professional development for educators and school staff by allocating sustained resources to the design and implementation of rigorous, research-informed professional development programs to equip educators and school personnel with the skills and competencies necessary to effectively support vulnerable and diverse learner populations across all educational levels.

8

Foster collaborative and inclusive governance through shared decision-making by actively engaging families, educators, and community stakeholders in participatory and egalitarian decision-making processes and ensuring that the diverse voices of policy recipients are meaningfully represented.

## Recommendations for Schools

1

Prioritise whole-child development through culturally responsive curricula and relational, dialogic pedagogies. Foster a school culture that emphasises inclusivity, dialogic pedagogical approaches, children's agency and voice. Ensure that students feel recognised, valued, and supported throughout their educational trajectory.

2

Emphasise relationship-building to enhance educational outcomes. Encourage a school culture that values and promotes meaningful, supportive relationships among students, educators, families, and peers, recognising these connections as fundamental to academic success and socio-emotional well-being.

3

Promote collaborative and inclusive governance through participatory decision-making. Engage families, educators, students and community stakeholders in collaborative and egalitarian decision-making processes to ensure that diverse perspectives meaningfully inform policy development.

4

Ensure evidence-based professional development and learning opportunities for educators and staff, equipping them with the knowledge and skills to effectively identify and support vulnerable and diverse student populations and to implement inclusive pedagogical practices. Regularly engage students in providing feedback to inform pedagogical practices and employ relational indicators to identify early signs of disengagement, enabling timely and responsive interventions.



# TABLE OF CONTENTS



|                                                                                                    |            |
|----------------------------------------------------------------------------------------------------|------------|
| <b>INTRODUCTION</b>                                                                                | <b>07</b>  |
| About SCIREARLY                                                                                    | 09         |
| Ontological assumptions                                                                            | 09         |
| SCIREARLY's Final Report objectives                                                                | 10         |
| <b>SCIREARLY'S EVIDENCE-BASED FRAMEWORK FOR REDUCING UNDERACHIEVEMENT AND EARLY SCHOOL LEAVING</b> | <b>12</b>  |
| Why an evidence-based framework?                                                                   | 12         |
| Explaining SCIREARLY's five-dimensional framework                                                  | 13         |
| <b>METHODOLOGY</b>                                                                                 | <b>14</b>  |
| SCIREARLY's scope and reach                                                                        | 14         |
| SCIREARLY's epistemology: How knowledge was formed                                                 | 15         |
| Mixed-methods design                                                                               | 17         |
| Ethics                                                                                             | 19         |
| <b>FINDINGS</b>                                                                                    | <b>20</b>  |
| Dimension 1: Understand                                                                            | 20         |
| Dimension 2: Prevent                                                                               | 36         |
| Dimension 3: Implement                                                                             | 52         |
| Dimension 4: Inspire                                                                               | 72         |
| Dimension 5: Engage                                                                                | 82         |
| <b>KEY FEATURES AND RECOMMENDATIONS</b>                                                            | <b>83</b>  |
| SCIREARLY'S key insights and contributions                                                         | 83         |
| From evidence to action: Recommendations and SCIREARLY resources                                   | 86         |
| <b>REFERENCES</b>                                                                                  | <b>90</b>  |
| <b>ANNEX 1</b>                                                                                     | <b>112</b> |





# 1

## INTRODUCTION

Early school leaving (ESL) is a complex, multifaceted issue with significant implications at individual, community, and national levels.

On a personal level, it limits job opportunities, reduces earning potential, and can perpetuate cycles of socio-economic disadvantage. It also affects personal development, lowering motivation, self-esteem, and confidence (Borgna & Struffolino, 2017; O'Connell & Freeney, 2011). At the community level, high ESL rates can lead to a less skilled workforce and broader social challenges, including higher unemployment and crime (Smyth & McCoy, 2009; Traag & Van der Velden, 2011). Nationally, ESL undermines productivity, increases reliance on welfare systems, and weakens long-term economic growth (Fehérvári, 2020).

Therefore, addressing ESL is crucial for fostering individual well-being, building strong and resilient communities, and securing the prosperity of the nation as a whole.

In Europe, ESL is defined as the percentage of 18–24-year-olds who have completed no more than lower secondary education and are no longer in education or training (European Commission, 2013). This indicator reflects broader systemic issues within education and highlights the urgency of targeted interventions.

One of the key contributors to ESL is underachievement—when students fail to meet expected learning standards for their age. This often manifests in grade repetition, frequent absenteeism, low motivation, and learning difficulties.



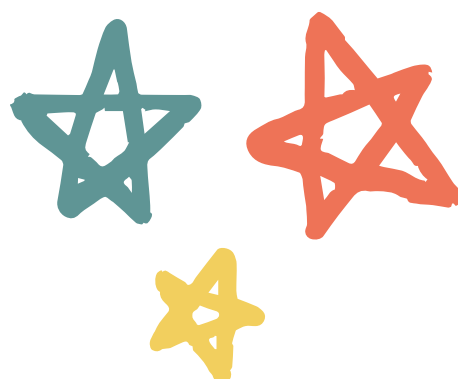
Numerous studies have shown a strong link between low academic performance and an increased likelihood of leaving school prematurely (De Witte et al., 2013; Rumberger, 2011). Importantly, ESL is not typically the result of a single decision or event; rather, it is best understood as a gradual process of disengagement from school. This process is shaped by a combination of individual, familial, school-related, and socio-economic factors (Brown, et al., 2025, European Commission, 2013; García-Cid et al., 2025; González-Rodríguez et al., 2019; Lyche, 2010; Rumberger & Lim, 2008).

To counter these trends, the EU set a 2020 target to reduce ESL to below 10%. While overall rates declined and approached the goal, disparities persist. In 2023, Romania (16.6%), Spain (13.7%), and Germany (12.8%) had some of the highest ESL rates (Eurostat, 2024). Marginalised groups face even steeper challenges: students with immigrant backgrounds are nearly twice as likely to leave school early (Hippe & Jakubowski, 2018), and among Roma youth, ESL affects 71% of 18–24-year-olds (EU Agency for Fundamental Rights, 2021).

Progress on underachievement has also fallen short. The EU aimed to reduce the share of low achievers in reading, maths, and

science to below 15%, yet PISA 2018 data showed rates of 21.7%, 22.4%, and 21.6%, respectively (European Commission, 2019).

Given the wide-ranging consequences of ESL, addressing this issue requires a comprehensive approach that not only focuses on retaining students in school but also ensures that they have access to quality education and the necessary support to succeed. To address this issue, the European Commission has funded the Horizon Europe project “Policies and Practices based on Scientific Research for Reducing Underachievement and Early School Leaving in Europe” (hereinafter, SCIREARLY), under the Topic “Addressing poor learning outcomes in basic skills and early school leaving at national, regional and local level in Europe” (HORIZON-CL2-2021-TRANSFORMATIONS -01-04).



## About SCIREARLY

The SCIREARLY project – which involves 11 partners from 10 European countries from both academic (universities) and non-academic sectors (governmental actors, NGOs, and civil society organisations) – aims to reduce underachievement and early school leaving by identifying, developing, and scaling effective policy approaches and educational practices grounded in scientific evidence. The overarching goal is to foster students' educational success by supporting the development of foundational skills while also promoting their psycho-emotional development and overall well-being. The project takes a multidimensional (whole-child and whole-school approach) and a comprehensive view of education, examining the learning journey from early childhood through primary and secondary schooling.

## Ontological assumptions

SCIREARLY primarily rests on four interconnected dimensions to achieve its objectives (see Fig.1). Firstly, it foregrounds the use of scientific evidence for the benefit of society, focusing on educational actions that are scientifically robust and have shown evidence of social impact. Inspired by the motto *Non Satis Scire* (to know is not enough), SCIREARLY views scientific research and evidence as necessary but insufficient if it does not reach society and address some of its most pressing challenges and needs. Thus, it aims at advancing scientific knowledge that goes beyond the 'Ivory Tower', enhancing societal impact and leading a systemic change to dismantle the root causes of underachievement since the early years.

Secondly, dialogic and inclusive co-creation lies at the heart of the SCIREARLY methodology (Mertens, 2019). The entire methodological architecture is underpinned by intersubjective dialogue throughout all

research phases, from design to dissemination, emphasising egalitarian engagement between researchers and participants to elicit transformative social impact (Gómez et al, 2019). The project is also ethically guided and culturally, gender and linguistically inclusive, emphasising community-based participatory research and dialogic co-creation to ensure contextual relevance and epistemic justice (Matsumoto & Jones, 2009; Solomon et al., 2009). This paradigm enables the project to transcend mere academic inquiry, catalysing equitable policy interventions and pedagogical practices that amplify educational success and psychosocial well-being for vulnerable learners across Europe (Boaler et al., 2000; Freeman & Simonsen, 2015). These dimensions align with the SCIREARLY vision of leveraging scientific knowledge not just as an abstract resource but as a catalyst for social change in educational policy and practice.

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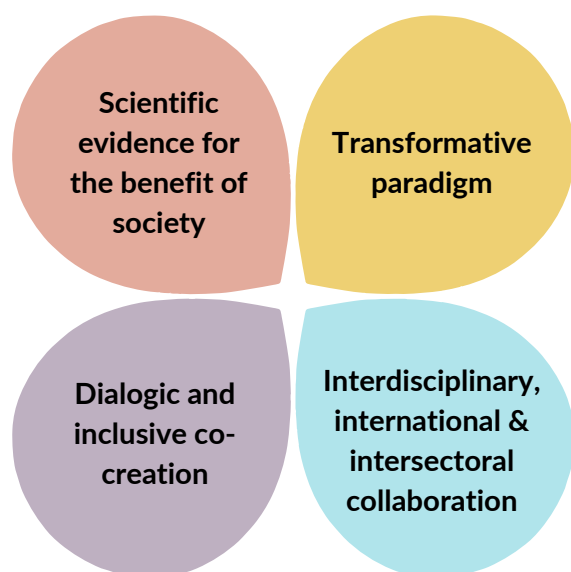
*SCIREARLY aims to identify, develop, and scale effective policy approaches and educational practices grounded in scientific evidence to support students' foundational skills while also promoting their psycho-emotional development and overall well-being.*

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Additionally, SCIREARLY posits that all co-creation activities must be grounded in ongoing interdisciplinary, international, and intersectoral collaboration to cultivate diverse perspectives and expertise, thereby strengthening the rigor, relevance, and overall impact of the research outcomes.



Lastly, SCIREARLY adopts a transformative paradigm (Apple, 2012, 1988; Beresford, 2002; Sen, 1997) that decouples prevalent links between educational attainment and socio-economic background, thereby moving away from the “blame the victim” narrative (Lee & Burkam, 2003) to one that highlights the transformative factors at the individual, institutional, community, and policy levels that improve educational outcomes for all learners. For this, it places particular importance on the lives and experiences of the vulnerable groups systematically excluded from research (i.e., socio-economically disadvantaged, migrants, refugees, Roma), to promote human rights and increase social justice in and through education. The researchers position themselves on an egalitarian stance with the participants and beneficiaries in a joint effort to produce culturally and contextually relevant scientific knowledge.



**Fig. 1.** SCIREARLY's ontological assumptions

## SCIREARLY's final report objectives

This final report's presents and consolidates the interconnected findings of SCIREARLY's scientific WPs (WP1, WP2, WP3, WP4, and WP5) through the lens of the project's integrated evidence-based framework (WP6) and provide a set of recommendations for policy and practice.



## Structure of the report

The structure of the final report is guided by the SCIREARLY's evidence-based framework for reducing underachievement and early school leaving (henceforth: Framework), generated as a result of systematic dialogic co-creation across project's work packages. The Framework includes five interrelated and interlinked dimensions - Understand, Prevent, Implement, Inspire, and Engage (see Fig. 2).

First, the report introduces SCIREARLY's evidence-based framework for reducing underachievement and early school leaving (Section 2).

Second, it outlines the methodology (Section 3), provides the scope and magnitude of the project reach as well as outlines the mixed-methods design underpinning each SCIREARLY's framework dimension reflecting a wide breadth of data collection and analysis techniques.

Third, the findings corresponding to each SCIREARLY's framework dimension are then presented in more detail in Section 4. Each subsection commences with the key takeaways section.

Finally, the report concludes with Section 5: Conclusions and Recommendations, which synthesises the key insights and outlines tailored recommendations and tools for various audiences, including policymakers and school leaders, practitioners, families, and students.





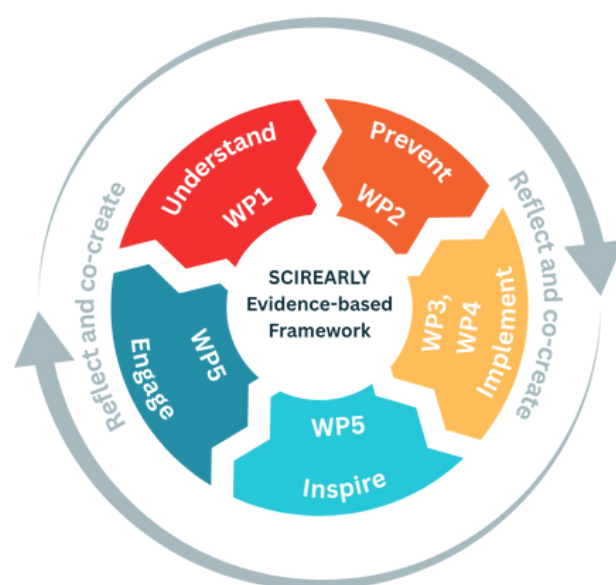
# SCIREARLY'S EVIDENCE-BASED FRAMEWORK FOR REDUCING UNDERACHIEVEMENT AND EARLY SCHOOL LEAVING

## Why an evidence-based framework?

Reducing underachievement and early school leaving demands more than isolated interventions or fragmented policies. The complexity and multidimensional nature of these issues—especially among vulnerable populations—necessitate a systemic and inclusive response that integrates diverse actors, perspectives, and levels of intervention. An integrated framework enables the addressing of root causes rather than symptoms by aligning policy, practice, and research across the educational continuum—from early childhood to secondary schooling. It connects prevention, implementation, engagement, and reflection in a coherent structure that supports sustainable change. By doing so, it avoids the pitfalls of reactive, short-term responses and instead fosters long-term educational equity and success.

Work Package 6 (WP6) played a central role in shaping this integrated framework. Emerging from cross-cutting insights generated throughout the SCIREARLY project, WP6 synthesised evidence from diverse methodologies, stakeholder contributions, and national contexts.

Rather than imposing a one-size-fits-all solution, WP6 facilitated an iterative process of framework development by drawing upon the collective knowledge produced across the project's work packages. WP6 thus acts as a unifying exercise, weaving together fragmented findings into a coherent, dynamic, and actionable knowledge towards reducing ESL and underachievement in Europe.



**Fig. 2.** SCIREARLY's evidence-based framework for reducing underachievement and early school leaving



## Explaining SCIREARLY's five-dimensional framework

The SCIREARLY project's integrated evidence-based framework (see Fig. 2 below) is grounded in the premise that addressing underachievement and ESL requires a holistic, data-driven approach that mobilises various stakeholders across the multisectoral landscape.

The framework includes five interrelated dimensions—Understand, Prevent, Implement, Inspire, and Engage.

Dimension 1: 'Understand' is grounded in the premise that a shared and evidence-based understanding of the causes and dynamics of underachievement and early school leaving – as well as exemplary interventions shown to effectively tackle these issues – is essential for coherent, targeted action. Thus, this dimension presents a comprehensive view of the social determinants of early school leaving and underachievement as well as policy actions that have shown to lead to positive outcomes. This dimension coincides with the work implemented in WP1 *Analysing causes and social determinants of underachievement*.

The framework proceeds to illuminate practices and policies that have shown to be effective across each point of the foundational educational journey – early childhood education and care (Dimension 2: 'Prevent'), primary education, and secondary education (Dimension 3: 'Implement') – particularly in contexts where learners face heightened risks of disengagement and marginalisation. The dimension 'Prevent' operates on the assumption that strengthening inclusive, high-quality ECEC can reduce disparities before they emerge and builds on the work of WP2 *High Quality Early Childhood Education and Care for enhancing learning outcomes for primary and secondary students*. Meanwhile, the dimension 'Implement' focuses on the compulsory stages of schooling, applying and testing school-based practices that have

demonstrated success in real-world, often disadvantaged, settings. It assumes that context-sensitive innovations can be adapted and scaled to improve outcomes and reduce disengagement systematically and draws from SCIREARLY's findings from WP3 *Learning Environments Based on Scientific Evidence to Address Underachievement* and WP4 *Replicable and scalable community-based research to address underachievement in Europe*.

In parallel, SCIREARLY draws on inspiring stories of successful trajectories through a life-course perspective to identify transversal transformative levers that operate across the entire educational journey (Dimension 4: 'Inspire'). Informed by the findings from WP5, *Succeeding Against All the Odds: Socioeconomically Disadvantaged, Roma, Migrants, and Refugees*, the section highlights how individual experiences are situated within broader social and contextual frameworks, providing a nuanced account of the constellation of factors that enable educational success.

Lastly, a central mechanism within SCIREARLY's model is the ongoing engagement of key actors through a structured *Community of Practice* and *Student Network* (Dimension 5: 'Engage'). These participatory platforms not only promote co-construction of knowledge and policy but also embed continuous cycles of critical reflection, learning, and adaptive refinement into the change process. By integrating reflective practice into engagement structures, SCIREARLY ensures that stakeholder collaboration remains dynamic, context-sensitive, and impact-driven, ultimately contributing to the resilience and scalability of project outcomes.

The framework not only provides a comprehensive and systematic approach to addressing the complex issues of underachievement and early school leaving, but also offers a set of interrelated and mutually reinforcing dimensions that serve as a coherent analytical lens guiding the structure of the final report.



# 3

## METHODOLOGY

### SCIREARLY's scope and reach

SCIREARLY is the outcome of extensive collaboration across multiple nations and sectors, employing the expertise of 11 strategically selected cross-sector partners from 10 European countries - Spain, Greece, Portugal, Italy, Ireland, Denmark, Malta, Belgium, Finland, and the United Kingdom. They represent Ministries of Education, universities, and educational centers with diverse experience and knowledge across fields such as Education, Psychology, Sociology, Policy, Mental Health and Psychosocial Support, STEM, Early Childhood Education and Care, and research with vulnerable communities.

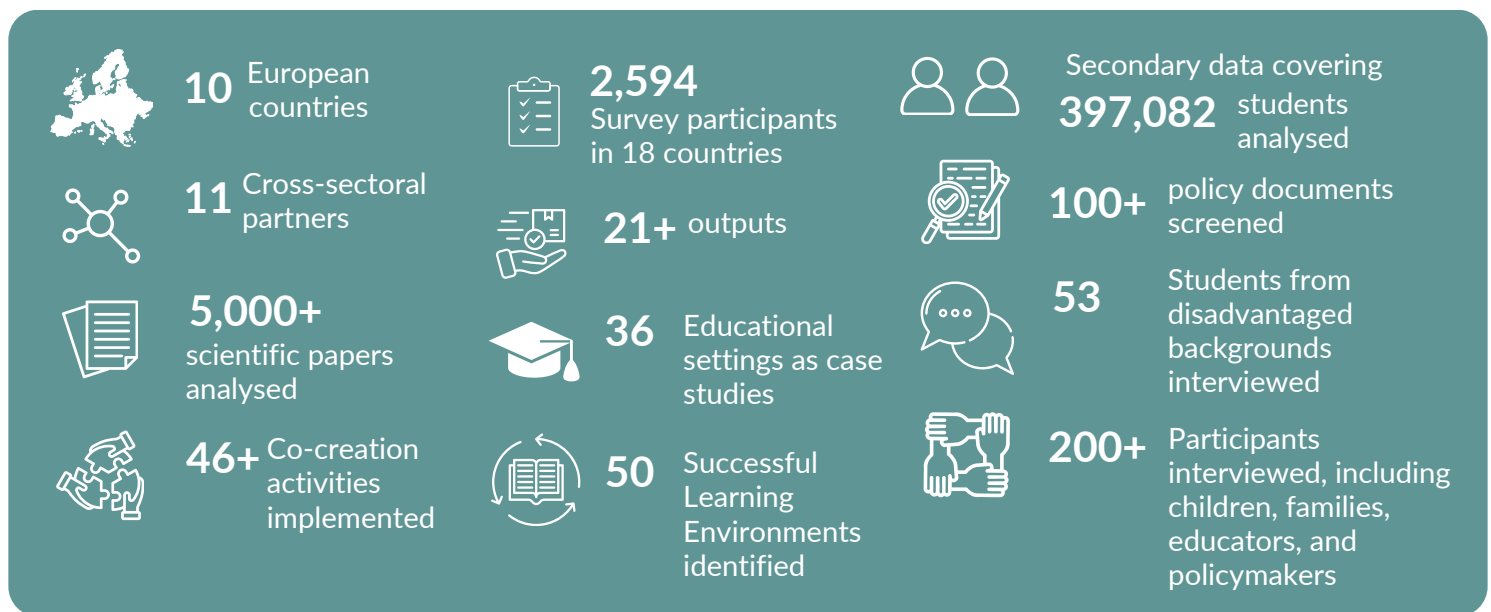
To systematically investigate the drivers of educational underachievement and early

school leaving, the project draws on a wide-ranging quantitative and qualitative evidence base (see Fig. 3 below)—including the analysis of over 5,000 scientific publications and secondary data from 397,082 students, over 200 interviews with children, families, educators, and policymakers, as well as more than 2,594 survey responses spanning 18 countries. Particular emphasis was placed on the experiences of vulnerable populations, including over 53 young people and 40 caregivers and mentors. The research further incorporated a critical review of more than 100 policy documents and in-depth case studies in 36 educational settings, providing a multi-scalar perspective that linked systemic patterns to local realities.

Central to SCIREARLY's approach was the commitment to participatory knowledge production. More than 46 co-creation activities—including national and

transnational policy seminars, policy-briefing events, focus groups, kids' co-creation hubs, and validation workshops—were convened to engage key stakeholders throughout the research process. These events brought together over 770 participants, including learners, families, practitioners, and decision-makers, ensuring the relevance and applicability of emerging findings. This dialogic process led to the development of more than 21 project outputs, a digital

platform, and a practitioner-oriented toolkit, while also identifying over 50 successful learning environments. Collectively, these outputs contributed to the formulation of an integrated, evidence-informed framework designed to support systemic, context-sensitive interventions aimed at reducing early school leaving, mitigating educational inequalities and fostering inclusive and sustained learning trajectories across Europe.



**Fig. 3.** SCIREARLY's scope and magnitude of reach

## SCIREARLY's epistemology: How knowledge was formed

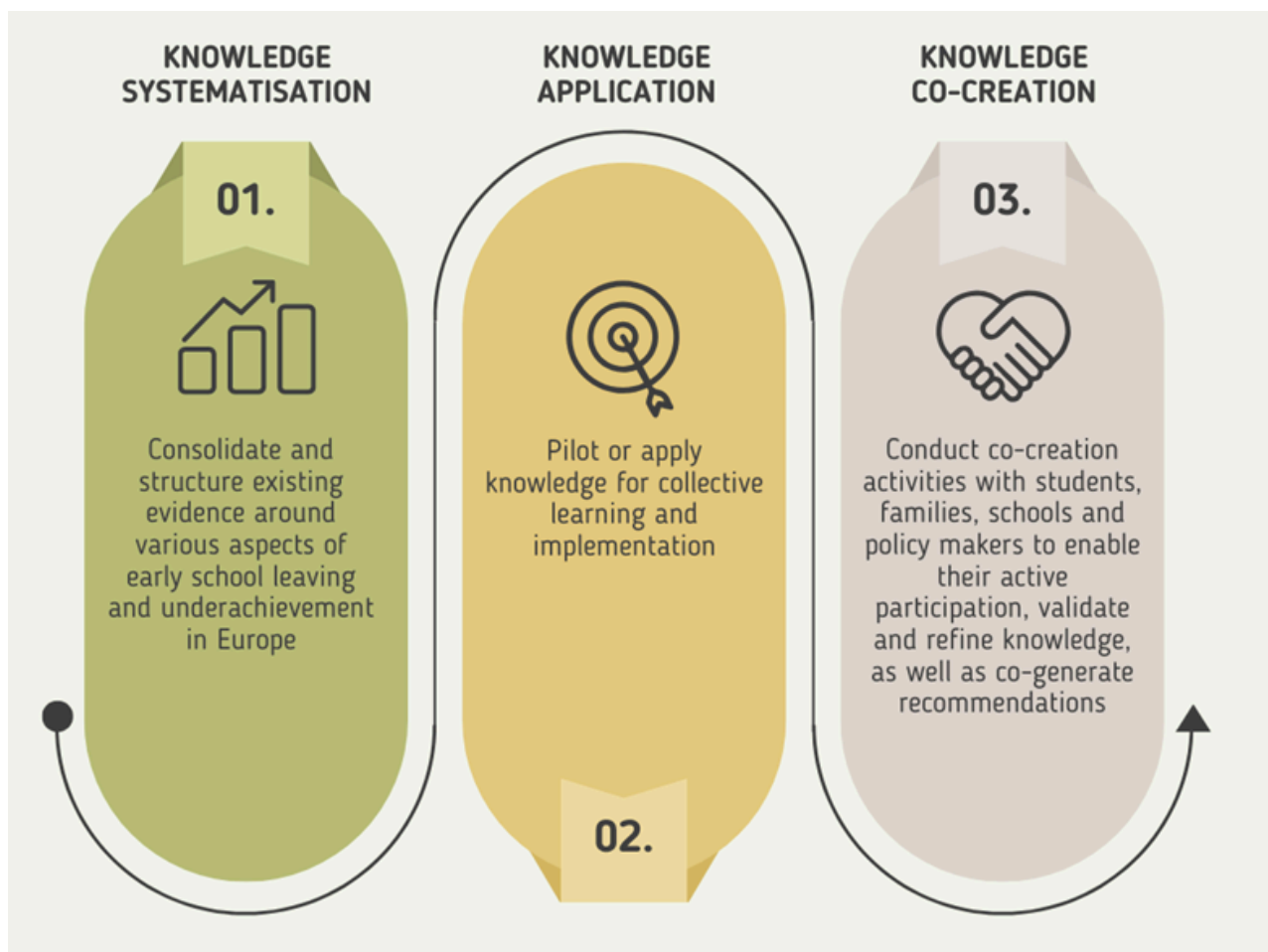
Aligned with SCIREARLY's key guiding principles, the methodological tenets underpinning the project are situated within a transformative paradigm. This is operationalised through a comprehensive mixed-methods research design encompassing three interdependent and iterative phases: knowledge systematisation, knowledge application, and knowledge co-creation (see Fig. 4).

**Knowledge systematisation:** In this process, each of the WPs consolidates, structures, or generates evidence through qualitative and quantitative approaches.

**Knowledge application:** The generated evidence is empirically tested and/or new evidence is produced through implementation in authentic classroom settings.

**Knowledge co-creation.** The entire methodological architecture is underpinned by a dialogic and transformative paradigm (Mertens, 2019), which centers on knowledge co-creation with all the stakeholders. The knowledge generated from one of the above steps is then presented to diverse stakeholders in dialogic spaces with the explicit aim of fostering dialogic and generative co-creation. Through egalitarian dialogue, participants are invited to offer critical feedback, share personal experiences, validate and co-develop





**Fig. 4.** Iterative nature of SCIREARLY's knowledge co-creation process

recommendations. This praxis is realised in a hybrid nature, both online and offline, at the national and transnational dialogic seminars, policy seminars, dialogic focus groups and kids hubs, dialogic validation workshops, and cross-border project integration meetings.

Within the project, WP leaders and SCIREARLY partners engage in continuous reflection through regular correspondence and joint working documents aimed at synthesising project findings. SCIREARLY's researchers assume the role of a facilitator or moderator (Reason & Bradbury, 2001) in alignment with the principles of dialogic co-creation, guiding the process to ensure that all voices are equitably represented in discussion.

Drawing on participatory action research literature (Chevalier, 2019; Cornish et al., 2023), inclusion is fostered through structured dialogic methods such as turn-

taking, the use of open-ended prompts, conversation triggers, co-developed discussion and data reporting protocols, designed to authentically reflect the diversity of perspectives involved. It is also fostered through inclusive analysis and synthesis of findings.

Additionally, across the project, interdisciplinary, international, and intersectoral collaboration are key. Interdisciplinarity is achieved through SCIREARLY consortium's diverse experience and expertise. Internationality is embedded through SCIREARLY's multi-country design, engaging partners across various linguistically and culturally diverse European contexts to facilitate comparative, cross-cultural research grounded in shared ethical standards and contextual awareness (Matsumoto & Jones, 2009). Intersectorality is operationalised by integrating academic

researchers with linguistically, culturally and gender diverse actors from policy, civil society, education, and community-based organisations.

## Mixed-methods design

The project combined quantitative methods, such as large-scale surveys, statistical analyses of secondary datasets (e.g., PISA 2018), and quasi-experimental studies, with qualitative approaches including systematic and scoping literature reviews, comparative policy analyses, case studies, focus groups, narrative inquiry, and dialogic co-creation seminars across the five scientific WPs. Table 1 maps the range of data collection and analysis methods employed against each of the WPs.

To unpack the dimension ‘Understand’, WP1 - *Analysing causes and social determinants of underachievement* draws on a systematic review of 825 publications, secondary analysis of PISA 2018 data covering 397,082 students, and comparative policy analysis across 11 European countries. WP1 also facilitates multi-stakeholder co-creation seminars involving 145 participants from six countries, bringing together lived experience and empirical research to build a comprehensive understanding of the factors influencing underachievement and early school leaving.

Building on this, WP2 - *High Quality Early Childhood Education and Care for enhancing learning outcomes for primary and secondary students* further expands the ‘Understand’ dimension and links it to the ‘Prevent’ dimension by exploring prevention in early childhood through a scoping review of 86 intervention studies to reveal key characteristics of high-quality ECEC provision. It includes the development of the Self-Assessment ECEC Quality Instrument (SAQE) on the state of ECEC provision in Europe, which was piloted in nine countries and further developed into a large-scale

survey with 2,594 respondents across 18 countries. The findings are then validated through co-creation activities with 340 participants across four countries, integrating practitioner, family, and policymaker perspectives into actionable insights.

Building on the knowledge generated through the ‘Understand’ and ‘Prevent’ dimensions, the third dimension ‘Implement’ of WP3 - *Learning Environments Based on Scientific Evidence to Address Underachievement* and WP4 - *Replicable and scalable community-based research to address underachievement in Europe* examines and tests effective practices in schools. WP3 identifies 20 *Successful Learning Environments* (SLE) across 8 countries, focusing on contexts serving disadvantaged communities. These insights are compiled into a [Toolkit](#) (see Annex 1) for inclusive education. WP4 implements these practices in 16 schools using a comprehensive, interventive, and mixed-methods approach—surveys, interviews, diaries, and observations from pupils, teachers, guardians and other key stakeholders—to evaluate their transferability and scalability in different contexts.

The dimension ‘Inspire’ of WP5 - *Succeeding Against all the Odds: Socioeconomic disadvantaged, Roma, Migrants and Refugees* complements these efforts through qualitative life-course research, gathering 53 personal narratives and 40 significant persons’ interviews to uncover transformative drivers in successful pathways. Co-validation workshops with over 120 participants ensure policy relevance. The qualitative datasets are analysed through in-depth thematic content analysis (Braun & Clarke, 2022).



**Table 1.** Overview of data collection and analysis methods for each project objective

| WP  | METHOD                                                                 | COUNTRIES COVERED                                                                               | DATA ANALYSIS                        | SCOPE/PARTICIPANTS                                                                                                                                          |
|-----|------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|--------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|
| WP1 | Systematic literature review 2003-2023                                 | Europe-wide                                                                                     | Content analysis                     | 166611 papers identified in 3 databases, 1859 papers screened by title and abstract, 1854 papers screened by full text, 825 studies included                |
|     | Secondary data analysis                                                | PISA 2018 data set                                                                              | Statistical analysis                 | 397,082 students enrolled in the International Standard Classification of Education (ISCED) level 3                                                         |
|     | Comparative policy analysis                                            | Poland, Switzerland, Slovenia, Greece, Ireland, Malta, Portugal, Spain, Italy, England, Romania | In-depth content analysis            | More than 100 key preventive, interventionist, and compensatory policies analysed                                                                           |
|     | Dialogic co-creation at national and transnational dialogic seminars   | Greece, Ireland, Portugal, Spain, Italy, and the UK                                             | Thematic content analysis            | 6 country-level seminars, a total of 122 participants;<br>1 transnational seminar, 23 participants                                                          |
| WP2 | Scoping review 2013-2023                                               | Worldwide                                                                                       | In-depth thematic content analysis   | 2617 papers identified in 4 databases, 533 papers screened, 86 papers included                                                                              |
|     | Developing and Piloting Self-Assessment ECEC Quality Instrument (SAQE) | Finland, Spain, Portugal, Ireland, Greece, Italy, Malta, Belgium, and the UK                    | Statistical Analysis                 | 49 practitioners across 18 early years settings                                                                                                             |
|     | Large-scale European survey                                            | Europe-wide                                                                                     | Statistical Analysis                 | 2594 participants, 18 countries                                                                                                                             |
|     | Focus groups and kid hubs                                              | Finland, Italy, Portugal, Spain                                                                 | Thematic content analysis            | 16 focus groups, 111 participants, including children, families, and ECEC staff                                                                             |
|     | Dialogic co-creation at policy seminars                                | Ireland, Portugal, Malta                                                                        | Content analysis                     | Policymakers and representatives of government, statutory, and voluntary agencies, a total of 94 participants                                               |
| WP3 | Multiple-case study                                                    | Ireland, the UK, Malta, Finland, Spain, Portugal, Italy, Greece, Denmark, Belgium               | In-depth content analysis            | 36 educational settings, more than 374 participants, 20 successful learning environments identified                                                         |
|     | Dialogic co-creation at project integration meetings                   | Ireland, the UK, Malta, Finland, Spain, Portugal, Italy, Greece, Denmark, Belgium               | Meta synthesis                       | Underlying Principles of Successful Learning Environments identified and reflected in the Toolkit: Successful Learning Practices for All Children to Thrive |
| WP4 | A quasi-experimental case study                                        | Finland, Spain, Portugal, Ireland, Malta, the UK, Greece, Italy                                 | Mixed-method, cross-case analysis    | 16 compulsory education contexts, 19 teachers and school leaders, 244 students aged 6-16, 167 guardians                                                     |
|     | Dialogic co-creation at policy seminars and teacher surveys            | Portugal, Finland, Spain, Ireland, the UK, Italy                                                | Thematic content analysis            | 1 transnational policy seminar, 39 participants, 14 teachers surveyed                                                                                       |
| WP5 | Case study, narrative inquiry                                          | Denmark, Greece, Ireland, Italy, Portugal, Serbia, Cyprus, Spain                                | Cross-case thematic content analysis | 53 young persons aged 17-35 from vulnerable backgrounds, 40 significant figures                                                                             |
|     | Dialogic co-creation at validation workshops                           | Finland, Spain, Portugal, Ireland, Malta, the UK, Greece, Italy, Belgium, Denmark               | Thematic content analysis            | 120 participants, including students, teachers, representatives of government, statutory, and voluntary agencies                                            |
|     | Dialogic co-creation at project integration meetings                   | Finland, Spain, Portugal, Ireland, Malta, the UK, Greece, Italy, Belgium, Denmark               | Meta synthesis                       | SCIREARLY researchers and partners                                                                                                                          |
| WP6 | Dialogic co-creation at project integration meetings                   | Finland, Spain, Portugal, Ireland, Malta, the UK, Greece, Italy, Belgium, Denmark               | Meta synthesis                       | SCIREARLY researchers and partners                                                                                                                          |

Finally, WP5 also aims to sustain engagement (dimension ‘Engage’) through the STUDENET platform and a Community of Practice, fostering long-term collaboration, mutual learning, and systemic impact.

### Ethics

Dialogic co-creation activities were typically audio-recorded and transcribed verbatim to ensure accuracy and integrity, although this was subject to ethical constraints and participant consent. Ethical considerations were paramount throughout this process, with informed consent obtained from all participants, including assent where applicable, and strict adherence to data protection and confidentiality standards.





# FINDINGS

This section provides a comprehensive synthesis of the key results and takeaways mapped across the dimensions of the SCIREARLY's integrated Evidence-based Framework to reduce underachievement and ESL across Europe. While they are discussed in separate sections, they work together, providing a holistic roadmap to tackle underachievement and ESL across Europe through the lens of the *Understand, Prevent, Implement, Inspire, and Engage* dimensions. It comprises of three main sections.

## Dimension 1: Understand

*Understanding the root causes and buffering aspects of ESL and underachievement*

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*SCIREARLY examined eight interrelated categories of determinants linked to ESL and underachievement, including: institutional, socio-economic, cognitive, cultural, linguistic, gender, psycho-emotional and well-being, and early childhood education and care (ECEC).*

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Key findings within the 'Understand' dimension offer insights into the complex nature of educational underachievement, including its root causes and the interplay of systemic factors that sustain it, as well as into effective and ineffective preventive, interventionist, and compensatory policies and practices in different contexts to tackle these issues.

For more detailed results, see [SCIREARLY's Deliverable 1.1](#).

### 'UNDERSTAND' KEY TAKEAWAYS

Social determinants do not operate in isolation; rather, their interactions necessitate the adaptation of holistic and integrated perspectives when analysing and addressing ESL and underachievement.

Reproductionist approaches, which reinforce existing social structures, constrain the agency of students and their communities, thereby limiting the potential for change.

High-quality Early Education and Care coupled with effective prevention, intervention and compensation measures is critical for mitigating underachievement and ESL.

Positive nurturing relationships with teachers, peers, and families, are foundational to student success, as all learners benefit from strong relational support within and beyond the school environment.

Effective educational change requires inclusive, evidence-based, and adaptive policies - a transformative approach, which activates change at the individual, school, and community levels, is essential to effectively reverse and prevent ESL.

## Key determinants and their impact on academic performance

### 1. Early childhood education and care

Early Childhood Education and Care (ECEC) plays a crucial role in preventing ESL by providing a critical foundation for improved academic performance and well-being, lifelong learning and success throughout an individual's life course.

ECEC also serves as a critical platform for the early identification of special educational needs, timely assessment, early intervention, and support during a formative stage of cognitive, social, and emotional development. Notably, early diagnosis of specific health-related conditions, such as epilepsy, developmental coordination disorder, and unilateral deafness, correlates positively with children's later academic success, attitudes toward learning, and development of pro-social behaviours (Arras et al., 2021; Asendorph et al., 2008; Axberg et al., 2006; Nicolai et al., 2007; Sabbagh et al., 2006; Toll & Van Luit, 2013). However, the studies consistently emphasise that segregating children with special learning needs is not an effective approach and is, in fact, counterproductive to their development and educational outcomes.

Apart from that, early childhood education programmes that integrate active parental involvement have been shown to significantly enhance early literacy, including children's language development, phonological awareness, receptive and expressive vocabulary, letter recognition, reading comprehension, and early writing skills (Evangelou et al., 2007; Högström et al., 2015). These programmes also contribute positively to the quality of parent-child interactions within the home environment.

Despite its numerous benefits, the pressing need for accessible, high-quality ECEC persists. González-Motos and Saurí Saula (2022) reveal a perceived dichotomy between service quality and public provision, raising the need to reassess current frameworks to ensure equitable and universal access to high-quality ECEC provision.

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*Early childhood programmes that integrate active parental involvement have been shown to significantly enhance language skills.*

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### 2. Cognitive factors

Cognitive factors encompass the mental processes and abilities that underpin learning, including attention, memory, and thinking (Roy, 2013) as well as self-concept and self-efficacy beliefs, both of which strongly predict academic outcomes. Notably, low self-concept is directly correlated with low achievement (Dings & Spinath, 2021). However, since cognitive processes are embedded within social and environmental contexts, isolating purely cognitive determinants of ESL and underachievement becomes challenging. Within this complex framework, several medical conditions, most notably attention-deficit/hyperactivity disorder (ADHD), autism spectrum disorder (ASD), and epilepsy, have been identified as significant cognitive risk factors.

Evidence suggests that early ADHD diagnosis and tailored clinical interventions can enhance school completion rates, although studies report varying associations between ADHD and intelligence quotient (IQ) depending on methodological and contextual factors (Caci et al., 2014; Cornoldi, 2010; Lecendreux et al., 2011; Reilly et al., 2014; Tempelaar et al., 2017).

Regarding students with ASD, academic underachievement was found to be closely linked to behavioural challenges and distinctive patterns in emotional and sensory processing (Linnenbank et al., 2022; Moyse & Porter, 2015). Nevertheless, school-based interventions targeting these behavioural issues were reported as effective, promoting both improved academic outcomes and greater social integration and motivation among students with ASD (Leifler et al., 2022).

Similarly, epilepsy was consistently associated with underachievement, primarily due to its cognitive repercussions, including spelling difficulties, reduced working memory capacity, and slower processing speed (Brabcova et al., 2015; Kaczmarek et al., 2016; Reilly et al., 2014; Reilly et al., 2015). Additionally, seizure frequency was noted as a contributing factor, alongside a broader educational issue: the prevalent practice of excluding students with epilepsy from mainstream educational settings (Chaix et al., 2006; Sabbagh et al., 2006), which may further exacerbate their academic disadvantage.

### 3. Institutional factors

Institutional factors related to schools encompass components such as the educational model, pedagogical approaches, teaching methods, school infrastructure, and tutoring services. These elements can have a substantial influence on student learning outcomes (De Witte et al., 2013; Giano et al., 2022; González-Rodríguez et al., 2019; Savvides et al., 2021).

Our analysis has shown that the practice of grade repetition, defined as the practice of requiring students to repeat a school year due to failure to meet academic standards, has been extensively documented as having detrimental effects on both academic performance and student well-being, with

long-term implications including an increased risk of school dropout (Kerekes, 2017; Longas-Mayayo et al., 2021).

Despite this well-established evidence base, the practice remains prevalent across numerous European education systems. Studies indicate that experiencing grade repetition before the age of 12 is the most significant predictor of repeated failure at the secondary level, substantially contributing to the risk of ESL (Högberg & Lindgren, 2023; Lavrijsen & Nicaise, 2015). Moreover, research shows that simple repetition of the academic year, without the integration of supplementary instructional support or tailored interventions, fails to improve the academic outcomes of repeaters (Jerrim et al., 2022). This issue is compounded by evidence showing that students from ethnic minority backgrounds, particularly Roma communities, are disproportionately subjected to grade repetition (Alvarez et al., 2018), intersecting with other social determinants such as socio-economic status and cultural background (Lavrijsen & Nicaise, 2015).

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*Grade repetition has been extensively documented as having detrimental effects on both academic performance and student well-being.*

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In contrast, the availability of counselling, academic and career guidance within schools emerged as a buffering factor. Students aged 14 to 16 underscore the importance of accessible counselling services in helping them explore diverse academic and vocational pathways (Hodgson & Spours, 2014). Conversely, in contexts where such support is lacking, students report a constrained sense of agency and limited ability to make informed decisions about their educational trajectories, highlighting the need for more flexible,

personalised, and needs-based guidance systems (Ahola & Kivela, 2007; Savvides et al., 2021). Other buffering factors against the risk of underachievement and ESL were identified as follows: adopting heterogeneous small teacher to student ratio classrooms, promoting a climate of high expectations in schools, implementing critical pedagogies and an engaging, culturally sensitive curriculum, facilitating positive and dialogic interactions with adults and peers, providing tailored support and guidance services, and nurturing a culture of co-creation and equitable involvement of families and communities (García-Cid et al., 2025).

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*Adopting heterogenous classrooms, a climate of high expectations, dialogic and relational pedagogies, an engaging and culturally sensitive curriculum, positive interactions with adults and peers, tailored guidance, and equitable involvement of families and communities mitigate ESL and underachievement.*

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For instance, the exploitation of 2018 Programme for International Student Assessment (PISA) dataset within a non-experimental research design for the analysis of variations in students' beliefs and perceptions between those who had never repeated a grade (Group 1) with those who had repeated two or more grades (Group 2) revealed significant differences, particularly in students' perceptions of teacher interactions, practices, and expectations. Students in Group 2 were more likely to report that teachers had shown limited interest in their learning, rarely provided extra support, and failed to set clear learning goals. These students also indicated that teachers had not always ensured full comprehension or verified understanding during lessons. Furthermore, Group 2 students expressed

significantly lower levels of academic self-confidence and reported a sense that their perspectives had neither been acknowledged nor understood by teachers. These students were also less likely to find their teachers' enthusiasm or passion for teaching inspiring or engaging. Overall, they perceived lower levels of personalised support and emotional responsiveness from their teachers, particularly when experiencing academic difficulties. The data suggest a robust association between students' perceptions of teacher engagement and their academic performance.

To further interrogate this relationship, students' future expectations regarding schooling and career outcomes were analysed. Again, significant differences were observed between the two groups. Students in Group 2 demonstrated notably lower expectations regarding academic progression and future educational attainment. They were also less likely to believe that their efforts at school would result in successful employment outcomes.

In sum, these findings underscore the importance of students' perceptions of teacher behaviour and support, not only in influencing academic performance but also in shaping aspirations and long-term educational and professional expectations.

#### 4. Socio-economic factors

Socio-economic status (SES) is a complex construct traditionally measured by indicators such as parental income, education, occupation, household income, and neighborhood characteristics (De Witte et al., 2015; Early et al., 2022; Harju-Luukkainen et al., 2020; Spencer et al., 2017). Five key socio-economic factors contributing to premature school dropout were identified: poverty; parental education and occupation; social disadvantage; school segregation and neighborhood effects; and resource disparities.



Access to quality education is frequently correlated with financial resources, a connection that risks underestimating the transformative power of human agency in reshaping socio-educational contexts beyond economic limitations. The SCIREARLY initiative seeks to challenge the deterministic view that links SES directly to educational outcomes and early school leaving, a relationship that, despite extensive research, has yielded limited actionable solutions (Doyle et al., 2021; McKinney et al., 2012; O'Connell & Freeney, 2011; Parsons, 2013; Spencer et al., 2017).

One illustrative example is literacy proficiency and confidence, both of which are heavily shaped by enriched and stimulating environments, conditions typically more accessible to students from economically advantaged families (Kellett, 2009). In contrast, students from disadvantaged backgrounds often lack such “concerted cultivation” support (Lareau, 2017). However, as research demonstrates, schools, where children spend a significant portion of their day, hold potential as equitable spaces for cultivating favourable, stimulating learning conditions irrespective of socio-economic status (Cockerill et al., 2021; Hadjar et al., 2021; Lupton & Hempel-Jorgensen, 2012).

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*Schools hold potential as equitable spaces for cultivating favourable, stimulating learning conditions irrespective of socio-economic status.*

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## 5. Cultural factors

When examining culture as a social determinant of underachievement and ESL, SCIREARLY's systematic review revealed the limitations of attributing educational disparities solely to cultural conflicts, such as those relating to ethnicity, religion, gender roles, or parental educational expectations (Van Den Berghe et al., 2022). Given the comprehensive and integrative nature of culture within society, the review did not identify elements uniquely or exclusively cultural in explaining ESL and underachievement.

Nonetheless, it highlighted the ‘immigrant optimism hypothesis’, which suggests that immigrant families and ethnic minorities often hold higher educational aspirations for their children compared to non-immigrant populations (Dollmann & Weißmann, 2020). Paradoxically, these high aspirations are linked both to greater academic success and higher dropout rates. Additionally, limited or incomplete understanding of educational systems among some ethnic minority families may lead to misinformed decisions, reducing their capacity to support their children's academic progression, a phenomenon described as ‘information asymmetry’ (Hartas, 2016; Luu et al., 2019). A potential strategy to address this challenge includes increasing the cultural diversity of the teaching workforce, such as hiring educators from minority backgrounds or those proficient in minority languages, to enhance students' sense of belonging and motivation (Khalifa et al., 2016), as well as providing training for caregivers.



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*A potential strategy involves increasing the cultural diversity of the teaching workforce, such as hiring educators from minority backgrounds or those proficient in minority languages, to enhance students' sense of belonging and motivation.*

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## 6. Linguistic factors

The systematic review identified four main themes regarding linguistic influences on underachievement and ESL: linguistic bias, intercultural awareness and practices, curricular issues, and student agency and autonomy. Three of these are deeply intertwined with cultural background.

Many European education systems have historically encouraged students from migrant backgrounds to abandon their first language in favour of the official language of instruction. However, research increasingly shows that this approach can hinder academic progress, while linguistic diversity, when acknowledged and supported, can enhance academic performance (Backus & Yagmur, 2019). Consequently, there is a growing call to incorporate linguistic diversity training into initial teacher education and ongoing professional development (Hamilton, 2013; Møller et al., 2014).

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*Linguistic diversity, when acknowledged and supported, can enhance academic performance. Crucially, multilingual education should not result in segregation or academic tracking; rather, it should foster peer learning through shared linguistic diversity,*

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Furthermore, recruiting bilingual or multilingual educators, including those fluent in minority languages, is seen as an essential step toward fostering inclusive learning environments (Kárpáti et al., 2014; Lamonica et al., 2020; Martinez-Usarralde et al., 2017). Crucially, multilingual education should not result in segregation or academic tracking; rather, it should foster peer learning through shared linguistic diversity (Agirdag & Vanlaar, 2018).

## 7. Gender factors

Gender emerged as a cross-cutting theme, and specific dynamics were identified that help illuminate its role in underachievement and ESL. Key issues include boys' underperformance, gendered expectations of academic ability, and the underrepresentation of male teachers, particularly in early education.

Extensive research continues to demonstrate that boys consistently achieve lower academic outcomes and experience higher dropout rates than girls (Bastos et al., 2009; Bayon-Calvo et al., 2021; Borgna & Struffolino, 2017; Cavaco, 2021). By age seven, girls typically outperform boys across core subjects such as reading, writing, and mathematics, a trend that persists through secondary school, except in mathematics, where differences are minimal (Cavaglia et al., 2020). This performance gap is often linked to gender stereotypes, which can act as self-fulfilling prophecies, influencing student motivation and teacher expectations (Hartley & Sutton, 2013; Wolter et al., 2015).

Regarding the predominance of female teachers, especially in early childhood and primary education, the evidence remains inconclusive as to whether teacher gender significantly impacts student engagement or performance. What emerges clearly, however, is that teaching quality, rather than teacher gender, is the key determinant of students' academic success and well-being

(Bhana et al., 2022; Brundrett et al., 2018; Carrington & McPhee, 2008; Francis et al., 2008; Geerdink et al., 2010; Grønberg, 2013; Mora, 2012).

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*Teaching quality, rather than teacher gender, is the key determinant of students' academic success and well-being.*

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## 8. Psycho-emotional and well-being factors

Well-being is a multifaceted concept closely interconnected with various educational and emotional domains, including school engagement, emotional regulation, mental health, sense of belonging, and the broader school climate (Allen et al., 2022; Bradshaw et al., 2021; European Commission, 2021; Schlesier et al., 2019). Central to fostering student well-being is the presence of emotionally supportive and trusting relationships, not only with teachers but also with other participants in a school ecosystem. Students' relations with their peers are critical for their well-being and school engagement and learning. Also, relationships between teachers and guardians are essential; such relationships have been identified as foundational for promoting students' engagement and emotional security within the school environment (Greenwood & Kelly, 2019; Khalfaoui et al., 2021; Martins et al., 2022; Quin, 2017; Yang & Huang, 2022; Ulmanen et al., 2025).

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*Central to fostering student well-being is the presence of emotionally supportive and trusting relationships, not only with teachers but also with other participants in a school ecosystem.*

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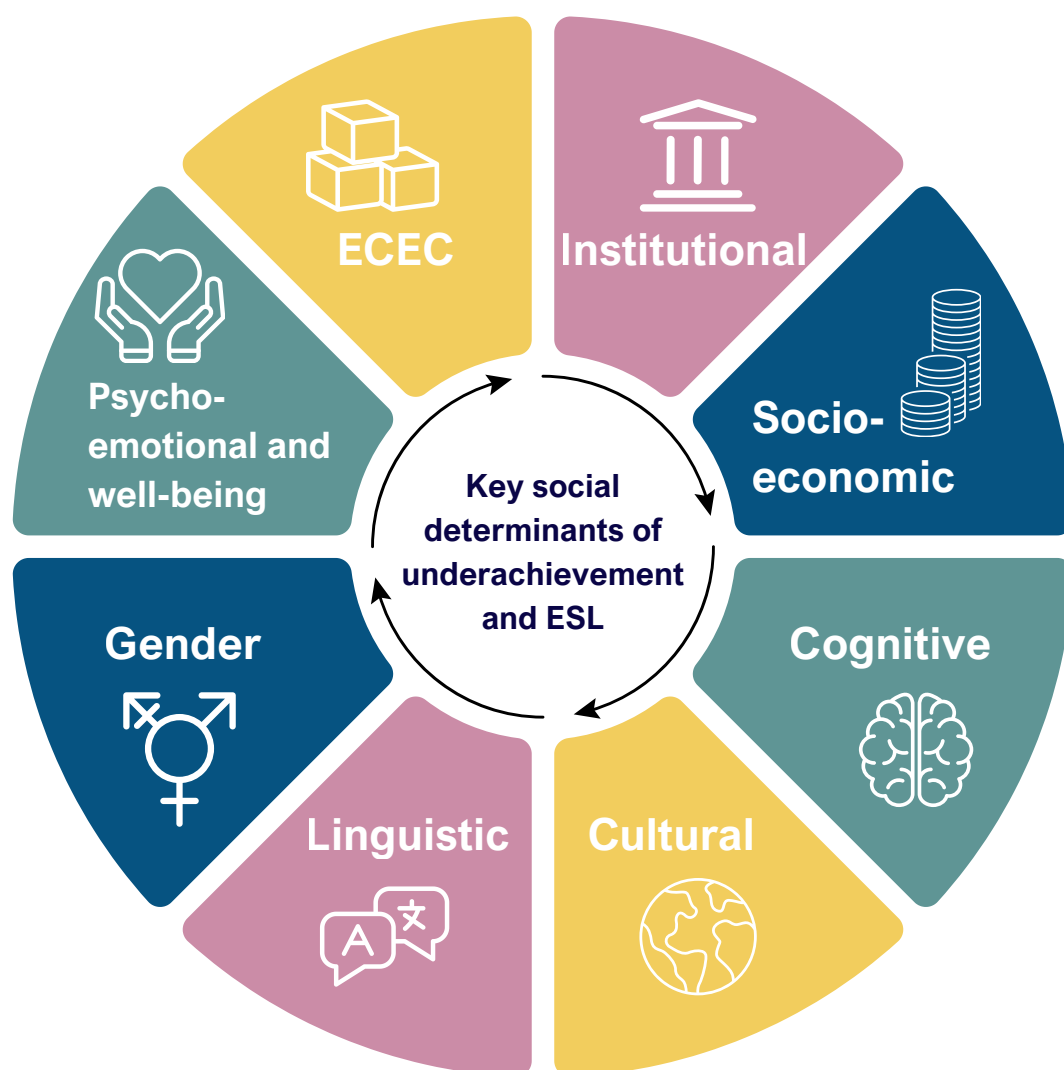




To sum up, the SCIREARLY's analysis identified eight interrelated categories of determinants linked to mitigating the risk of ESL and underachievement (see Fig. 5), including: ECEC (quality and access to early childhood education and care, comprehensive support during academic transitions, governance, professionalisation, and school-family partnerships), institutional (school infrastructure, teaching quality, assessment practices, student-teacher ratios, school autonomy, governance structures, curriculum design, streaming, and educational resources); socio-economic (parental education and occupation, household income, access to learning materials, poverty, and forms of capital: social, human, cultural);

cognitive (students' learning capacities, attention, cognitive abilities, and academic engagement), self-concept; cultural (ethnic background, religious affiliation, family support, social expectations, and cultural deprivation); linguistic (plurilingualism, language motivation, migration-related factors, and curriculum inclusivity); gender (gender identity, stereotyping, discrimination, segregation, and gendered perceptions in teaching); psycho-emotional and well-being (mental health, behavioural challenges, emotional regulation, developmental factors, and support mechanisms).

**Fig. 5.** Categories of key social determinants of underachievement and ESL





## Relationships between social determinants and underachievement

Our findings demonstrate that underachievement and ESL emerge from the interaction of multiple, interrelated social determinants rather than from single causes. These determinants — spanning ECEC quality, linguistic, cognitive, socioeconomic, cultural, gender, institutional, and psycho-emotional and well-being factors — operate as an interconnected system that continuously shapes educational engagement and achievement.

High-quality ECEC plays a foundational role within this system, influencing not only early learning outcomes but also subsequent trajectories of motivation, self-regulation, and social competence. Effective ECEC environments enhance linguistic and cognitive development, build the basis for later academic success, and nurture emotional well-being and social skills that protect against early disengagement (Dumclaus et al., 2014). When coupled with active family engagement, these effects are magnified. Parental participation in early literacy and numeracy activities strengthens home–school links, fosters vocabulary and phonological awareness, and promotes prosocial behaviour while reducing hyperactivity (Evangelou et al., 2007; Högström et al., 2015).

These benefits are also shaped by socioeconomic, institutional, and cultural contexts. While families' material conditions and access to educational resources are usually linked to positive outcomes such as literacy proficiency and confidence, schools hold potential as equitable spaces for cultivating favourable, stimulating learning conditions irrespective of socio-economic status. Also, educational institutions serving culturally diverse settings that promote inclusive parental engagement practices not

only enhance children's learning but also increases the cultural capital of schools, reducing the negative impact of poverty and marginalisation (Balenzano et al., 2019; Behtoui, 2017; Chevalier et al., 2013; Hartas, 2016; Khattab & Modood, 2018; Morris et al., 2016; Payne, 2018; Vryonides, 2007). In this way, socioeconomic, cultural, and institutional factors form mutually reinforcing or, conversely, compounding systems that either promote equity or deepen disadvantage.

Institutional structures such as tracking, streaming, or segregated practices further influence these interconnections. When students are separated by perceived ability, language background, or socioeconomic status, disparities in achievement, motivation, and well-being are intensified (Agirdag & Vanlaar, 2018; Brannstrom, 2004; Frehill & Dunsmuir, 2015; O'Connell & Freeney, 2011; Straková, 2007). Such segregation interacts with both cognitive and linguistic factors: students placed in lower tracks are often denied cognitively stimulating learning environments, which in turn suppresses linguistic and academic growth. Over time, this undermines self-esteem, motivation, and belonging—core well-being dimensions closely associated with underachievement and ESL (Lasarte et al., 2020; Ulmanen et al., 2025; Yang & Huang, 2022).

Curriculum design also mediates the interplay between institutional, cultural, cognitive, and linguistic determinants. Standardised curricula that overlook the linguistic diversity and cultural identities of students can alienate those from minority or disadvantaged backgrounds, limiting their opportunities for meaningful engagement and achievement. For instance, Cudworth (2008) demonstrated that when Roma cultural traditions are excluded from the curriculum, rates of underachievement and ESL increase. Conversely, curricula that integrate culturally responsive pedagogy,



personalised instruction, and extracurricular opportunities promote school belonging, cognitive challenge, and engagement, especially for students at risk (MacMaoilir & McGillicuddy, 2022; Pelin et al., 2022).

Gender factors further intersect with these domains. Gendered expectations—both within families and institutions—shape participation, self-concept, and achievement patterns. For instance, girls may be socialised to excel in literacy but discouraged from STEM fields, while boys are often more vulnerable to behavioural disengagement and early school leaving. These gendered patterns interact with cognitive and socio-emotional development, teacher expectations, and institutional cultures, influencing who is most likely to benefit from or be excluded by existing structures and pedagogies.

Across all determinants, student motivation and engagement act as pivotal mediators. They integrate the effects of institutional, cultural, cognitive, and well-being factors, functioning as key protective mechanisms against underachievement and ESL (Khalifa et al., 2016; Meletiyou-Mavrotheris et al., 2020; Schmitsek, 2022; Spiegler et al., 2018). Motivation and engagement are strongly shaped by teacher–student relationships,

which bridge the institutional and well-being dimensions. Teachers’ relational warmth, communication style, and expectations directly influence students’ sense of belonging, self-efficacy, and academic identity (Warne et al., 2020). Within the broader construct of teacher quality (Duffy & Elwood, 2013; De Castro & Pereira, 2019; Makarova & Herzog, 2013), enthusiasm and equitable expectations act as catalysts for achievement, particularly when they challenge socioeconomic or gender-based stereotypes.

Taken together, these findings reveal that the social determinants of underachievement and early school leaving form an integrated, multi-level ecosystem. ECEC quality, linguistic and cognitive development, socioeconomic resources, cultural inclusion, institutional design, gender dynamics, and well-being factors continually interact. When aligned—through inclusive curricula, equitable teacher practices, strong family engagement, and culturally responsive systems—they generate positive feedback loops that enhance learning, belonging, and long-term educational success. When misaligned—through segregation, standardisation, or exclusion—they reinforce cycles of cognitive under-stimulation, low motivation, and ESL.

## Indicators for successful prevention, intervention, and compensation policies to reduce ESL and underachievement

Complementary to the systematic literature analysis, SCIREARLY examined educational policy frameworks across European countries to identify effective prevention,

intervention, and compensation measures addressing underachievement and ESL. This comparative policy review contextualised the literature findings within real-world practices, enabling the identification of transferable success factors. The outcomes, further enriched through co-creation, are synthesised into indicators of effective policies (Table 2); see [Deliverable D1.1](#) for further details.

**Table 2.** Indicators for effective prevention, intervention, and compensation policies to address ESL

| Key domain                        | Key indicator                                                                                                                                                                                                                                                                               | Key domain                                  | Key indicator                                                                                                                                                                                                                                                                                                                                                                                                   |
|-----------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Inclusive access and equity       | <ul style="list-style-type: none"> <li>Universal access to quality early childhood education and flexible learning pathways (e.g., vocational, second-chance education)</li> <li>Targeted support for marginalised and disadvantaged learners</li> </ul>                                    | Relational and Supportive Environments      | <ul style="list-style-type: none"> <li>Safe, inclusive school climates where students feel seen, valued, and supported</li> <li>Strong peer and teacher relationships that foster belonging and trust</li> <li>Diversity in the educational workforce</li> </ul>                                                                                                                                                |
| Financial and Structural Support  | <ul style="list-style-type: none"> <li>Provision of financial assistance and social support for sustained engagement and re-engagement</li> </ul>                                                                                                                                           | Family and Community Engagement             | <ul style="list-style-type: none"> <li>Structured and ongoing collaboration with families and local communities</li> <li>Shared decision-making and mutual accountability mechanisms</li> </ul>                                                                                                                                                                                                                 |
| Early Childhood Education & Care  | <ul style="list-style-type: none"> <li>Universal access to high-quality ECEC</li> <li>Alignment of national ECEC quality frameworks and professional qualification standards</li> </ul>                                                                                                     | Student Participation and Voice             | <ul style="list-style-type: none"> <li>Meaningful involvement of students in shaping their learning environments and influencing school policies</li> </ul>                                                                                                                                                                                                                                                     |
| Vocational & Alternative Pathways | <ul style="list-style-type: none"> <li>Availability of diverse and recognised vocational and non-formal educational pathways</li> <li>Integration of practical training, workplace exposure, and skill-building opportunities</li> </ul>                                                    | Professional Capacity and Development       | <ul style="list-style-type: none"> <li>Continuous professional development for educators in inclusive practices, relational pedagogy and well-being approaches</li> </ul>                                                                                                                                                                                                                                       |
| Second-Chance Education           | <ul style="list-style-type: none"> <li>Availability and accessibility of flexible re-entry programmes for early school leavers</li> <li>Programmes tailored to the needs of vulnerable populations (e.g., students with disabilities; not in employment, education, or training)</li> </ul> | Integrated Services and Partnerships        | <ul style="list-style-type: none"> <li>In-school access to mental health, social, and welfare services</li> <li>Cross-sectoral collaboration among education, health, employment, and social services</li> <li>Structured programmes for supporting transitions (e.g., ECEC → primary, primary → secondary, etc.)</li> <li>Availability of orientation activities, mentoring, and bridging curricula</li> </ul> |
| Student-Centred Curriculum        | <ul style="list-style-type: none"> <li>Curriculum aligned with students' cultural backgrounds, interests, and real-life contexts</li> <li>Opportunities for project-based, interdisciplinary, and experiential learning</li> </ul>                                                          | Contextual Flexibility                      | <ul style="list-style-type: none"> <li>Policy frameworks that allow local adaptation to respond to specific community and learner contexts</li> </ul>                                                                                                                                                                                                                                                           |
| Extra-curricular Learning         | <ul style="list-style-type: none"> <li>Access to structured extracurricular activities that foster motivation and belonging</li> </ul>                                                                                                                                                      | Data-Driven Decision Making and Co-creation | <ul style="list-style-type: none"> <li>Use of qualitative and quantitative data to identify needs, monitor progress, and inform ongoing improvements</li> <li>Leveraging co-creation to inform change</li> </ul>                                                                                                                                                                                                |
| Flexible Pedagogy and Assessment  | <ul style="list-style-type: none"> <li>Competency-based and formative assessment practices</li> <li>Personalised instruction and adaptability to diverse learner needs</li> <li>High expectations of all learners</li> </ul>                                                                | Systemic, Whole-School Approach             | <ul style="list-style-type: none"> <li>Policies take a holistic, ecologically driven approach—embedding inclusion, quality, and collaboration across all aspects of school life, avoiding reactive or fragmented measures</li> </ul>                                                                                                                                                                            |



## Key examples of prevention policy measures

Among the array of prevention strategies, provision of high-quality and accessible ECEC, support during key educational transitions, alongside the adoption of a whole-school approach, have proven as key measures in averting ESL.

High-quality ECEC is closely linked to reducing early school leaving, as it plays a critical role in laying the groundwork for lifelong learning. By supporting the development of key cognitive, linguistic, and socio-emotional competencies, quality ECEC contributes to a positive perception of education and significantly lowers the likelihood of students disengaging from school at an early stage (Dumclaus et al., 2014). Additionally, a smooth transition from ECEC to primary education ensures a child's readiness for school, reducing the likelihood of early school dropout.

A universal access to ECEC is paramount, as is the quality of the ECEC workforce and providers. In the case of England, government-funded early education schemes provide free childcare for eligible two-year-olds and all three and four-year-olds, with voluntary ECEC attendance based on parental choice (UK Parliament Post, 2021; OECD, 2023). England adheres to the 'Early Years Foundation Stage' for children from birth to five years old, applicable to all early years education providers (Government of the UK, n.d.). Moreover, staff must have at least a full and relevant Level 2 qualification, and early years teachers need a degree, along with specific GCSE qualifications and early years initial teacher training (OECD, 2023; Professional Association for Childcare and Early Years, 2023). In the case of low-income families, the government gives vouchers to further cover the costs of the pre-school. Additional support for ECEC service is provided through the **Family Hubs** and the **Start for Life programme** launched

in 2021. These Family Hubs serve as 'one-stop shops', bringing together multiple organisations and encouraging professionals to collaborate, making it easier for families to access the help they require. They are likely to provide guidance on various areas, including infant feeding, mental health support, health visits, and parenting classes.

A whole-school approach – characterised by ecologically-driven and systematic efforts from within the school to foster multidimensional collaboration and integrative actions with the wider community (European Commission, n.d.) - has also been successfully employed to tackle ESL and underachievement. This approach is reflected in Ireland's **Delivering Equality of Opportunity in Schools (DEIS) programme**, which serves both as a comprehensive intervention as well as a prevention measure in practice in designated schools in the country since 2005 (Department of Education, 2017, 2022). It does so by encouraging strong connections with parents, families, and the wider community, enabling personalised support for each student. Simultaneously, the programme places significant emphasis on cross-sectoral and interagency collaboration. For example, the Professional Development Service for Teachers plays a key role in designing and delivering literacy and numeracy programmes, as well as training teachers in their implementation. Guidance counsellors work closely with education institutions and additional partnerships include agencies such as the Department of Social Protection, Departments of Health, Housing, Planning, Community and Local Government, and Children and Youth Affairs. The success of the DEIS programme is firmly rooted in robust scientific evidence, meticulously collected and assessed through extensive evaluations conducted by the Education Research Council. These evaluations have systematically examined the programme's impact on student achievement and retention, consistently revealing positive trends over time.



## Key examples of intervention policy measures

Intervention measures refer to those focused on addressing emerging risk factors to prevent ESL. Effective policies in this regard include comprehensive policy frameworks aimed at equity and inclusion, active family and community involvement, competence-based curriculum design, curriculum autonomy and flexibility, and continuous evaluation.

One such example is the **Schools as Learning Communities** initiative in Spain. In the region of Andalusia, this holistic approach has been formally integrated into the regional education system through a comprehensive policy framework established by the regional government, Junta de Andalucía (Boletín Oficial de la Junta de Andalucía, 2012). This initiative aims to transform schools into equitable, inclusive, participatory environments that foster educational success and social cohesion (García-Carrión & Díez-Palomar, 2015). Key elements of this policy include inclusive participation through the active involvement of families, associations, and volunteers in both the management processes of the school and the development of student learning; collaborative decision-making by establishing working committees composed of members from different sectors of the educational community to implement, manage, and develop the project, and continuous evaluation through the implementation of evaluation processes and proposals for improvement to ensure the effectiveness of the Learning Community model. A substantial body of research shows the benefits of this approach as a whole-school strategy resulting in enhanced learning outcomes, increased student confidence and motivation, improved social cohesion, and greater involvement of families and the community (García-Carrión, 2016; Gírbés-Peco et al., 2019).

Another example, in Portugal, under the Decree-Law No. 55/2018 of 6 July (Curricular Autonomy and Flexibility Project - PASEO) — a comprehensive legislative framework spanning all levels of education (OECD, 2024) — two major reforms have aimed to address underachievement and reduce early school leaving: the creation of the **‘Students’ Profile by the End of Compulsory Education’** and the **expansion of curricular autonomy** for schools. Developed through a broad consultation with educators, families, students, and civil society, the Student Profile outlines key values (citizenship, inclusion, sustainability), principles (adaptability, boldness), and competencies (critical thinking, creativity, problem-solving) to guide curriculum development nationwide. To support this vision, schools are granted autonomy to adapt curricula to their students’ contexts, using interdisciplinary collaboration, project-based learning, with a strong focus on citizenship education. Teachers act as both instructors and curriculum designers, while students and families are invited to participate in shaping educational content. Personalised instruction, formative assessment, and flexible methodologies support inclusive teaching and student-centred learning, particularly in secondary education, where diverse pathways align with individual aspirations. A key feature of this model is interdisciplinary curriculum management through integrated projects that deepen learning and encourage student agency. Emphasising digital literacy, foreign language acquisition, and intercultural understanding, the curriculum affirms pluralism and global competence. Continuous internal and external evaluations ensure quality and accountability.



## Key examples of compensation policy measures

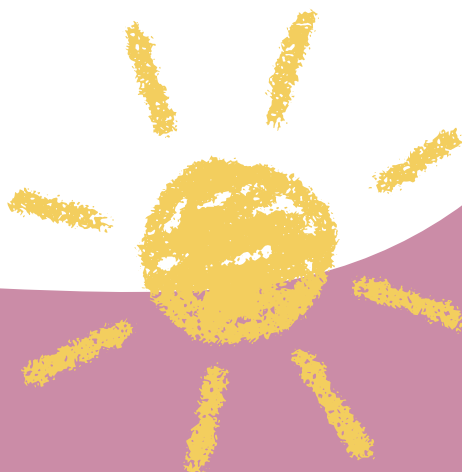
Within the overarching strategy, compensation measures are strategically designed to address the needs of students who prematurely leave compulsory schooling without acquiring the essential qualifications. These measures are fundamentally oriented towards the reintegration of these students into mainstream education through **second-chance education programmes** and **alternative learning pathways**.

Under the direction of the Ministry for Education, Malta employs **data profiling for youth aged 15 to 24** who are not in education, employment, or training (European Commission, 2022a, b). The data informs the implementation of the Youth Guarantee Scheme, a programme aligned with European Council recommendations, to ensure that every person under 25 receives a quality offer, whether for continued education, employment, apprenticeship, or traineeship, within four months of becoming unemployed or leaving school.

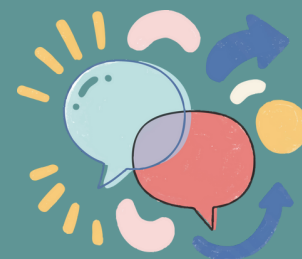
The Youth Guarantee specifically targets the most vulnerable students. Pilot programmes for vulnerable groups are designed in collaboration with both public and private stakeholders to deliver integrated solutions that combine education, training, and job-placement opportunities. These strategic partnerships play a crucial role in providing comprehensive, wraparound support to young people in need of a second educational chance, including individuals with disabilities, thereby enhancing their prospects for a more promising future.

## Section summary

The analysis of national and regional policies across Europe reveals a convergence around effective prevention, intervention, and compensation strategies to reduce early school leaving, summarised in Table 2. These policies are most impactful when they are holistic, systemic, and embedded within a whole-school approach, integrating leadership, curriculum, school culture, and community engagement. Context-sensitive implementation, such as curricular flexibility and integrated second-chance education opportunities, allows for tailored responses to local needs. The SCIREARLY policy review highlights that effective measures must be evidence-informed, participatory, and multidimensional, addressing not only individual student needs but also broader structural and institutional factors. Core indicators of success include equity-focused design, co-creation with stakeholders (especially learners), ongoing evaluation, professional capacity building, and cross-sectoral collaboration. Together, these elements support a paradigmatic shift from reactive or deficit-based approaches toward transformative, inclusive education systems that enable all learners to thrive.



# STAKEHOLDER VOICES



## Priority factors to tackle ESL and underachievement

This section synthesises the outcomes of SCIREARLY's national and transnational dialogic co-creation seminars, which engaged a wide range of stakeholders—including students, teachers, families, policymakers, and community actors. The co-creation produced context-rich insights and recommendations rooted in lived experience and collective analysis.



### Curriculum relevance and cultural inclusion

**"It's about valuing diversity... So they [students] don't feel like it [curriculum] has nothing to do with how I dress, what I like, or how I talk."**

*Teaching staff, Spain*



### Student belonging and recognition

**"If you're in an environment where you feel valued, you're much more likely to want to be there and want to learn."**

*Participant, UK*



### Assessment reform

**"Many times, you end up doing the same exam you did 20 years ago, even though the law is telling you that you have to assess differently."**

*School admin, Spain*



### Pedagogy and learning environment

**"Everything is very visual, very entertaining... and then in class, it's a complete drop—'calm down'... That creates distance."**

*Family member, Spain*



### Mental health and wellbeing support

**"The systems aren't working... by the time you get to see somebody [referring to a specialist], you're in crisis."**

*Participant, UK*

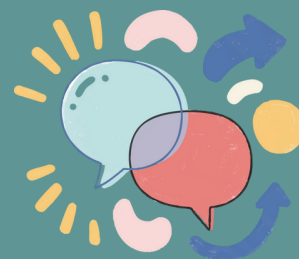


### Teacher-student relationships

**"I needed someone to pay attention to me, to notice me... to feel like they know what's happening to me."**

*Student, Spain*

# STAKEHOLDER VOICES



Priority factors to tackle  
ESL and underachievement



**Family engagement  
and partnerships**

**"For families to participate, you have to allow them to participate... and the school closes the door."**

*Teacher, Spain*



**Diversity of  
educational workforce**

**"They had a guidance counsellor who lives near them... so they can relate. It's just better."**

*Student, Ireland*



**Community-based  
services and  
collaboration**

**"The school alone cannot do all of this... it requires a broader community and services located in the neighbourhood."**

*Teacher, Spain*



**Student voice and  
peer support**

**"Have [student leaders] trained... It's easier to go to someone your age who knows your problems."**

*Student, Ireland*



**Financial support to  
educational participation**

**"I did like, pay 100 Euro in the form... then there's add-ons like exam papers, books, trips... They should learn to pay for it."**

*Student, UK*



**Evidence-based and  
participatory  
policy making**

**"There's a lot of research in education, but not a lot of government policies reflect it."**

*Participant, UK*



## Dimension 2: Prevent

### *Preventing underachievement and early school leaving through high-quality Early Childhood Education and Care*

This section highlights the key characteristics of high-quality early childhood education and care programmes that support the development of foundational skills critical for children's future learning trajectories and academic achievement. In addition, it presents findings from a large-scale survey.

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*Early Childhood Education and Care (ECEC) serves as a critical protective factor in promoting academic success for all children. This section delves into existing evidence and exemplary practices that facilitate the provision of high-quality ECEC across diverse educational and socio-cultural contexts.*

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#### **'PREVENT' KEY TAKEAWAYS**

High-quality Early Childhood Education and Care is foundational to children's cognitive and socio-emotional development, driven by emotionally secure, intellectually stimulating, and inclusive teacher–child interactions.

The professionalism of educators, supported by culturally responsive, child-centered curricula and strong relational dynamics, is critical to fostering holistic development.

Quality ECEC features diverse, play-based, and experiential learning environments alongside robust, structurally embedded school–family–community partnerships.

Persistent challenges remain, especially in ECEC workforce training and effective family collaboration.

Raising parental awareness of ECEC benefits, coupled with providing parents with educational opportunities, is essential to strengthening school–family partnerships and enhancing family engagement.

Inclusive co-creation with educators, families, and children promotes relevance, ownership, and improved outcomes, particularly for vulnerable populations.

Sustainable quality requires a coordinated, equity-focused strategy involving comprehensive workforce capacity-building, inclusive partnerships, supportive policy frameworks, and rigorous evaluation to ensure fidelity, adaptability, and lasting impact across diverse contexts.

## Impact of ECEC on students' basic and transversal skills development, including digital skills

SCIREARLY's scoping review revealed critical insights into the effectiveness of high-quality early childhood education and care interventions in promoting optimal learning outcomes across key foundational domains: early literacy, numeracy, and science, transversal and digital skills, as well as empirical evidence of the transferability of learning acquired in the early years to later stages of formal education.

### Literacy development

To begin with, processual quality in Early Childhood Education and Care, both in its holistic and domain-specific manifestations, including the quality of facilitation and cognitive scaffolding across developmental domains, has been empirically linked to advancements in language acquisition and emergent literacy (Ulferts et al., 2019). Substantive enhancements in children's reading and literacy proficiencies were consistently associated with interventions characterised by a dialogic educational action (Gutierrez Fresneda, 2017; Kim & Riley, 2021; Vargas-García et al., 2020). Specifically, dialogic story reading and shared reading techniques yielded pronounced benefits, particularly among children with disabilities and those residing in socioeconomically marginalised environments (Hodgins & Harrison, 2021), resulting in growth in foundational academic competencies and socio-emotional development (Burgoyne et al., 2018; Chacko et al., 2018). Structured shared reading interventions that incorporate teacher prompts to encourage reasoning, perspective-taking, thematic elaboration, and conceptual play have been found to enhance children's vocabulary, grammatical understanding, and empathy (Grøver et al.,

2020), particularly children's socio-cognitive faculties, capacity for perspective-taking, and affective empathy (Gerhom et al., 2019). Dialogic interventions demonstrated remarkable efficacy in cultivating phonological awareness, receptive and expressive linguistic capacities, and grapheme identification (Albuquerque & Martins, 2019; Amorim et al., 2020). The benefits of dialogic learning have also been substantiated by numerous longitudinal inquiries. Dialogue-enhanced interventions underscore that high-quality educational contexts where children are offered affectively rich and experientially meaningful learning opportunities from early childhood substantially influence their academic trajectories and can function as compensatory mechanisms for literacy-related learning impediments (Vadasy & Sanders, 2013; Wake et al., 2015). In academically rigorous dialogic settings where high expectations are maintained for all children, significant improvements in early literacy skills have been observed (Zettler-Greeley et al., 2018). Dialogic approaches also correlate with a reduction in grade repetition (Toll & Van Luit, 2013; Ulferts et al., 2019; Zvoch & Stevens, 2013) and result in cognitive transfer.

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*High-quality educational contexts where children are offered affectively rich and experientially meaningful learning opportunities from early childhood substantially influence their academic trajectories and can function as compensatory mechanisms for literacy-related learning impediments.*

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Other impactful interventions encompass symbolic or dramatic role-play (Hutagalung et al., 2020); activities integrating music and kinaesthetic movement (Augustine, 2015;



Kempert et al., 2016; Kirk & Kirk, 2016); phonological manipulation exercises such as rhyming and alliteration; as well as visual-perceptual training involving image and letter recognition (Both-de Vries et al., 2014). Supplementary evidence favours intensive, individualised instructional modalities, including one-on-one tutoring (Lindo et al., 2018), early augmented reading schemes (Kortecamp et al., 2023), and phonics instruction (Parpucu & Dinç, 2017).

Nevertheless, it is crucial to caution against prematurely imposing rigidly formalised literacy curricula on young learners, as such an approach may engender maladaptive literacy behaviours and erode children's intrinsic epistemic curiosity (Bonello, 2022). This pedagogical misalignment may obstruct the cultivation of foundational literacies essential for informed and participatory citizenship.

Conversely, preschool interventions grounded in contextualised, interactive instruction have been shown to elicit substantial improvements in expressive language among children with disabilities, as they promote acquisition through authentic, socially meaningful engagements (Cohen-Mimran et al., 2016). These dialogic and participatory spaces, enriched through parental engagement in curricular and extracurricular settings, foster children's semiotic development. Parallel outcomes have been observed in literacy acquisition among children in foster care via school readiness programmes designed to optimise didactic potential embedded in daily routines and transitional periods (Pears et al., 2013).

### Early numeracy development

In parallel with literacy, early numeracy, encompassing competencies such as number sense and visual-spatial skills, constitutes a foundational pillar of cognitive maturation (Lewis Presser et al., 2015; Nişan & Kızıltepe, 2019; Oughton et al., 2022). Like early literacy, early numeracy competence results in growth in dialogue-rich learning environments. For instance, studies demonstrate how mathematics-infused storybook reading (Durmaz, 2023; Green et al., 2018; Jylänki et al., 2023) enhances young learners' numeracy competencies, including number sense, spatial relationality, comparative magnitude concepts (e.g., more and less), foundational numerical benchmarks (such as five and ten), mental and non-verbal computation strategies, arithmetic proficiency, abstract mathematical reasoning, and problem-solving acumen (Barnes et al., 2016; Davies & Qudisat, 2015). Importantly, these cognitive gains were consistently observed across diverse demographic cohorts, irrespective of socioeconomic status, baseline numerical proficiency, parental education levels, or pre-identified risk of mathematical learning disorders.

Comparably, instructional modalities integrating somatic engagement and psychomotor activity into mathematical instruction yield positive outcomes in numeracy acquisition (Jylänki et al., 2023; Mavilidi et al., 2017) alongside appropriate and intentional use of educational mobile applications and digital tools (Merkelbach et al., 2022; Outhwaite et al., 2019).



Play-based learning paradigms underpinned by iterative and repetitive practice, and personalised feedback mechanisms also result in numeracy skills growth (Grimes et al., 2021). Overall, curricula that privilege structured play guided by pedagogical intent substantially bolster mathematical preparedness and school readiness (Størksen et al., 2023).

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*Studies demonstrate how mathematics-infused storybook reading enhances young learners' numeracy competencies. These cognitive gains were consistently observed across diverse demographic cohorts, irrespective of socioeconomic status, baseline numerical proficiency, parental education levels, or pre-identified risk of mathematical learning disorders.*

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Specifically for children at heightened risk for developmental delays, meticulously designed numeracy environments, marked by structured and purposive instructional scaffolding aligned with age-appropriate curricular expectations, enhance the inclusivity of mathematical learning experiences (Hardy et al., 2019; Merkelbach et al., 2022). However, the research also points out that not all curricular frameworks sufficiently cultivate mathematical aptitude in early childhood.

## Early science

Engagement in early scientific inquiry and exploratory learning fosters children's curiosity, prompting them to pose questions, make predictions, generate hypotheses, and interact meaningfully with their environment. Core competencies in early science education encompass investigative inquiry, observational acuity, data collection and documentation, conceptual reflection, and the generation of explanatory models that align with children's lived experiences (Cremin et al., 2018; Johnston, 2005). Interventions shaped by experiential learning, particularly through iterative experimentation and multisensory engagement, act as a catalyst for conceptual consolidation (Bulunuz, 2013). Overall, interventions explicitly targeting children's capacity to construct evidence-based claims, employ domain-specific vocabulary receptively and expressively, and apply scientific terminology contextually result in significant gains, including superior academic outcomes and a more nuanced comprehension of scientific principles compared to conventional didactic approaches (Gropen et al., 2017; Henrichs et al., 2014). Additionally, interventions leveraging digital technologies and educational applications, with a carefully designed pedagogical intent, prove beneficial across diverse learner demographics, irrespective of socioeconomic status, academic proficiency, or familial context. Skillful integration of technological tools helps mitigate barriers to learning by providing alternative educational





pathways, particularly during periods when access to structured educational environments is disrupted, such as summer recesses or extraordinary circumstances like the COVID-19 pandemic (Cassady et al., 2018; Forné et al., 2022; Griffith et al., 2019; OECD, 2021).

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*Interventions shaped by experiential learning, particularly through iterative experimentation and multisensory engagement, act as a catalyst for conceptual consolidation.*

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Furthermore, elevated academic performance and sustained engagement in early science education are contingent upon high-quality instruction delivered by adept educators, the intentional selection of content, and the strategic utilisation of available learning resources and environments. Such carefully orchestrated learning ecosystems demonstrably amplify the educational impact of early science curricula (Arteaga et al., 2019; Bleses et al., 2020; Kermani et al., 2015). Nevertheless, the professional development of science educators, especially in scientific content knowledge and linguistic scaffolding, has been identified as a critical determinant of enhanced learning trajectories among young learners (Skarstein & Ugelstad, 2020).

### Digital and transversal skills

ECEC also makes a positive impact on transversal skills growth, which are broadly applicable competences that retain relevance across a multiplicity of contexts and throughout the lifespan. They encompass critical thinking, interpersonal and intrapersonal capacities, global citizenship awareness, and media and information literacy, among other cognitive and

socio-emotional domains (UNESCO, 2014). High-quality ECEC environments offer a pivotal window of opportunity for the emergence and cultivation of such competencies.

For instance, children's emotional regulation, including the ability to manage affective states such as sadness and anger within classroom contexts, is considered one of the most important social competences for peaceful co-existence (UNESCO, 2014). Dialogic pedagogical strategies, including dialogic reading, result effective in cultivating emotional literacy by promoting emotion recognition and expression (Vargas-García et al., 2020), developing capacities of perspective-taking and the Theory of Mind, and the ability to infer and understand the emotional and cognitive states of others (Ebert, 2020; Grøver et al., 2020). Similarly, interactive classroom dynamics and narrative-based pedagogical approaches, characterised by strategic questioning and the intentional use of 'thinking language', function as effective mediators in fostering critical thinking, which is an essential transversal competence (O'Reilly et al., 2022).

Furthermore, robust school readiness initiatives, culturally responsive routines with intentional literacy instruction underpinned by guided practice and adaptive feedback that prioritise self-regulatory development have also demonstrated efficacy in optimising learning across diverse settings. Emphasising the development of self-regulation is particularly salient for children from vulnerable backgrounds, such as those in foster care, for whom fluctuations in caregiving relationships may impair executive functions, particularly inhibitory control (Pears et al., 2013).



For instance, engagement in cognitively demanding physical activities enhances executive functioning capacities, including sustained attention, response inhibition, working memory, and strategic planning (Alesi et al., 2021; Erasmus et al., 2016; Gray et al., 2022; Jylänki et al., 2023).

As a separate point, it should be highlighted that social and emotional domains are intricately interwoven with cognitive and academic development (Immordino-Yang, 2016). Hence, instructional support coupled with affective relational bonds makes a positive impact on the acquisition of foundational competencies essential for future success (Sabol et al., 2013). To that end, nurturing and responsive teacher-child relationships, characterised by emotional warmth and perceived closeness, have also been linked to the development of self-regulatory capacities in children (Størksen et al., 2023). Such affective relationships foster rich verbal exchanges and enhance the quality of teacher-student talk (Cadima et al., 2016), which promotes children's language development, reasoning, and internalised verbal regulation strategies (Bernier et al., 2010).

As already mentioned, effective interventions, especially for children at risk, involve families and communities. For instance, practices such as extending literacy experiences into the home environment, providing supportive resources, and enabling children to choose their own reading materials (Graham et al., 2023), as well as implementing dialogic reading and collaborative storytelling that involve active co-participation between adults and children, have consistently been shown to enhance early language and literacy development (Gutiérrez Fresneda, 2017; Kim & Riley, 2021; Vargas-García et al., 2020), including in children with disabilities and those from socioeconomically disadvantaged communities (Hodgins & Harrison, 2021).

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*Social and emotional domains are intricately interwoven with cognitive and academic development. Hence, instructional support coupled with affective relational bonds makes a positive impact on the acquisition of foundational competencies essential for future success.*

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Evidence suggests that dialogic reading is effective when caregivers and educators are jointly engaged, working with the same set of books across contexts and receiving continuous support and accessible resources (Grøver et al., 2020; Hirsh et al., 2019). Nevertheless, in such initiatives, the vitality of continuous support and guidance for caregivers should be emphasised. A notable example is the Motherread/Fatheread intervention, which equips caregivers, including those with limited literacy, with strategies for dialogic reading, such as encouraging child participation, expanding narrative content, and using guided questioning techniques. This culturally responsive programme fosters a home-based reading culture and enhances vocabulary, comprehension, and relational bonding (Hirsh et al., 2019).

These findings align with broader research on dialogic education, exemplified by interventions such as Dialogic Literary Gatherings (DLG), which have demonstrated significant success across diverse settings (Ruiz-Eugenio et al., 2023). In early childhood environments, DLGs promote high-quality classroom discourse by fostering collective reasoning and co-construction of knowledge (Girbés-Peco et al., 2024). These interactive reading experiences illustrate the pivotal role of family-school partnerships in supporting young children's academic and emotional

development and have been shown to produce measurable social impact (García-Carrión et al., 2020).

Additionally, for children at heightened risk of academic delay, supplemental interventions, such as school readiness initiatives (Pears et al., 2013), summer learning programmes (Zvoch & Stevens, 2013), remedial mathematics and reading support (Graham et al., 2023; Toll & Van Luit, 2013), and after-school tutoring (Lindo et al., 2018), have demonstrated positive impacts. Crucially, the effectiveness of these programmes hinges on quality indicators such as instructional intensity, reduced group sizes, teacher preparedness, ongoing supervision, and personalised learning support. In some instances, improvements have been achieved even when instruction was delivered by paraprofessionals, provided that adequate supervision and structured curricula were in place (Lindo et al., 2018).

However, it should be stressed that high-calibre ECEC provision is inseparable from continuous, evidence-based professional development (PD) for educators. PD initiatives focusing on school readiness, socio-emotional competencies through interactive pedagogy, and language and literacy development are strongly correlated with positive gains in a wide spectrum of child developmental outcomes (Brunsek et al., 2020). Moreover, PD models that incorporate collaborative relationships between content experts and educators, centred on instructional refinement, modelling, and iterative feedback, are

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*High-calibre ECEC provision is inseparable from continuous, evidence-based professional development (PD) for educators.*

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consistently associated with improved pedagogical effectiveness (Brock & Carter, 2017; Eadie et al., 2024). One illustrative example is a science literacy PD programme that integrates coaching with formal coursework, comprising individualised and small-group sessions between instructors and coaches, conducted concurrently with teaching responsibilities (Gropen et al., 2017).

Evidence also points to the amplified impact of professional training when paired with parent education initiatives. For instance, combining teacher PD with structured parenting education yields significantly higher developmental scores in both language and socio-emotional domains (Özler et al., 2018). These findings advocate for a multidimensional, multiprofessional, and ecological approach to professional development, one that recognises educator competence as embedded within broader systemic, structural, and policy contexts (Eadie et al., 2024; Urban et al., 2012). Consequently, prioritising ongoing investment in in-service teacher training, policy-backed ongoing PD infrastructure, and research-informed instructional improvement is essential for enhancing ECEC quality at scale (Brunsek et al., 2020).





## Learning transfer from ECEC to primary and secondary school

There is a notable paucity of longitudinal research investigating the learning transfer or cognitive transfer (Barnett & Ceci, 2002) from kindergarten to subsequent stages of formal education. Nonetheless, existing studies underscore that early literacy interventions, particularly those focused on phonological awareness and dialogic learning, facilitate the transfer of skills from early childhood education and care to later educational phases, including Year 1 (Albuquerque & Martins, 2019; Engel de Abreu et al., 2020; Eghbaria-Ghanamah et al., 2022; Lyster et al., 2016; Reese et al., 2023; Vadasy & Sanders, 2013; Wake et al., 2015; Zijlstra et al., 2021), Year 6 (Cassady et al., 2018; Lyster et al., 2016; Zijlstra et al., 2021), and other grade levels (Vadasy & Sanders, 2013).

In the domain of numeracy, evidence of delayed effects from ECEC interventions is also emerging. Studies conducted in Year 1 (Toll & Van Luit, 2013) and Year 4 (Davies & Qudisat, 2015) highlight the critical importance of early numeracy engagement in establishing a strong foundation for subsequent academic achievement.





## Pan-European survey results on ECEC quality: Educators' perspectives

The SCIREARLY European-wide survey of 2,594 early years practitioners across 18 EU countries revealed a generally positive perception of the presence of certain features of high-quality ECEC in their settings. Table 3 presents an excerpt from the larger dataset, showing the distribution of respondents (out of the total number of participants) converted into percentages, reflecting the proportion of participants selecting each response category on the indicated scale. Consult [Deliverable D2.2.](#) for more details.

For instance, the survey data indicated positive responses to items concerning nurturing classroom environments, responsive interactions, and educational strategies within early childhood education and care settings.

However, the findings also indicate moderate levels of family involvement and institutional support, pointing to areas requiring further development. Given the well-established importance of family engagement in children's academic and emotional growth, alongside robust institutional frameworks to sustain high-quality practice, these results suggest that key structural and relational components of ECEC systems remain underdeveloped and warrant targeted improvement efforts.

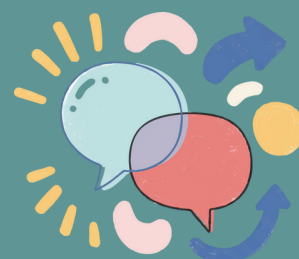
Furthermore, the data show that most educators perceive their professional development and collaborative leadership as strong, with nearly 90% rating these practices as medium-high or high. However, around 12% report lower engagement, indicating uneven access and implementation. While many benefit from research-informed professional learning, targeted efforts are needed to ensure equitable and consistent access to high-quality professional development and leadership opportunities across ECEC settings.

**Table 3.** Survey results on ECEC quality: Educators' perspectives

| Items (N = 2,594)                                                           | Scale                                                                            | Descriptive                                              |
|-----------------------------------------------------------------------------|----------------------------------------------------------------------------------|----------------------------------------------------------|
| F1. Nurturing environment and responsive interactions                       | 1. <i>Low</i><br>2. <i>Low medium</i><br>3. <i>Medium high</i><br>4. <i>High</i> | 0.4% (11)<br>3.8% (98)<br>21.1% (548)<br>74.7% (1937)    |
| F2. Engaging pedagogical practices                                          | 1. <i>Low</i><br>2. <i>Low medium</i><br>3. <i>Medium high</i><br>4. <i>High</i> | 1.2% (32)<br>7.7% (200)<br>35.3% (916)<br>55.7% (1446)   |
| F3. Family engagement in learning                                           | 1. <i>Low</i><br>2. <i>Low medium</i><br>3. <i>Medium high</i><br>4. <i>High</i> | 1.6% (42)<br>12.9% (334)<br>43.8% (1136)<br>41.7% (1082) |
| F4. Research-informed professional development and collaborative leadership | 1. <i>Low</i><br>2. <i>Low medium</i><br>3. <i>Medium high</i><br>4. <i>High</i> | 1.3% (33)<br>10.7% (277)<br>52.5% (1362)<br>35.5% (922)  |

# STAKEHOLDER VOICES

## High-quality Early Childhood Education and Care



This section synthesises the co-created insights from various stakeholders, including policymakers, educators, school leadership, students, families, and communities on what constitutes high-quality early childhood education and care.

### Play-based and experiential learning



**“It is important to integrate basic skills in reading, math and science in early childhood education [...] always in play mode and especially using hands...”**

*Caregiver, Italy*

**“[About mud kitchen] We like to fetch water, fill it up and make wet soil to give to the bugs.”**

*ECEC Student, Portugal*

**“Learning to read, systemically, in a goal-oriented way, reading aloud, on their own. Reading challenges set by the teacher have been really motivating.”**

*Guardian, Finland*

### Emotional security, stability, and wellbeing



**“Stability, continuity and safety are highly important. This is important to guarantee during the early years.**

**Minimising the changes and challenges is important.”**

*Teacher, Finland*

### Self-regulation and social-emotional development



**“It is most important in ECEC and early school years to start learning, regulating own behaviours is essential. If these skills are not strong, there will be troubles in the future.”**

*Guardian, Finland*

### Equity and inclusive practices



**“At my daughter’s preschool, there are a certain number of reserved spots... there are three girls from a foster home, and a boy, who I believe is also from that foster home and clearly doesn’t have Italian origins. I don’t create educational programmes, but in my opinion, it’s fine for them all to have the same programme at that age.”**

*Caregiver, Italy*

### Family and community engagement



**“...we weave nice relationships with other families, we are actually building our community thanks to the school.”**

*Adult volunteer, Spain*

### Intentional use of digital tools



**“The controlled use of digital technologies is important.”**

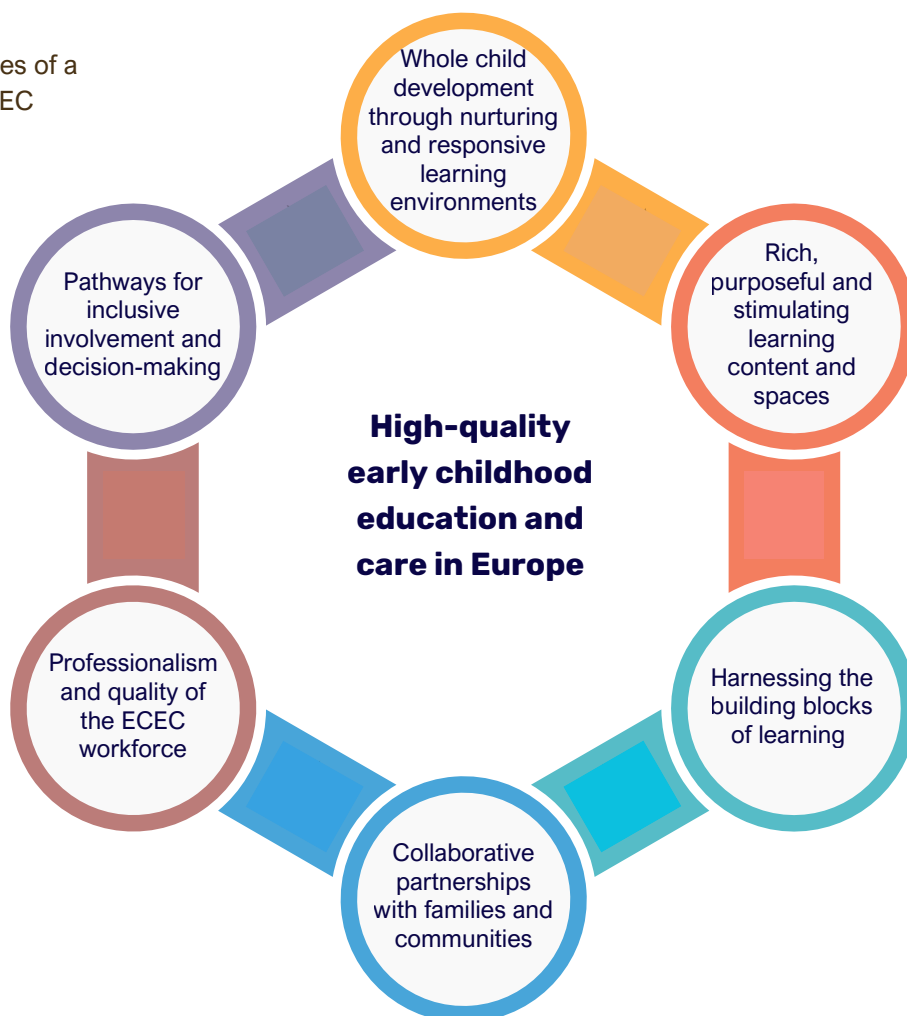
*Guardian, Finland*

## Essential features of high-quality ECEC

Findings from SCIREARLY's scoping review, pan-European survey, and co-creation in focus groups with diverse stakeholders have informed the development of a conceptual framework identifying core features of high-quality Early Childhood Education and Care. They are organised across six interdependent domains: Whole child development through nurturing and responsive learning environments; Rich, purposeful and stimulating learning content and spaces; Harnessing the building blocks of learning; Collaborative partnerships with families and communities; Professionalism and quality of the ECEC workforce; and Pathways for inclusive involvement and decision-making (see Fig. 6).



**Fig. 6.**  
Essential features of a  
high-quality ECEC



### Whole child development through nurturing and responsive learning environments

Cultivating a nurturing, affectively attuned, and intellectually stimulating educational milieu, wherein all children experience psychological safety, recognition, and engagement, is pivotal. Key identified features of a nurturing learning environment include responsive, dialogically rich interactions, assessment for learning, inclusion and child agency through participatory engagement.

**Responsive and dialogically rich interactions.** Pedagogical encounters characterised by reciprocal, attuned, and dialogic exchanges are central to facilitating children's cognitive, linguistic, and socio-emotional development. Such interactions, marked by contingent feedback, synchronised communicative rhythms, and emotional reciprocity, serve as both relational and epistemic catalysts (García-Carrión et al., 2020; Melhuish et al., 2015). These relational dynamics equip children with linguistic tools for cognitive self-regulation and are instrumental in fostering secure attachment and academic readiness (Bernier et al., 2010).

**Assessment for learning.** Intentional pedagogical support, including calibrated scaffolding and cognitively demanding prompts, enables learners to navigate conceptual complexities, synthesise prior knowledge with new experiences, and engage in higher-order thinking within dialogic spaces (Burchinal, 2018; Gírbés-Peco et al., 2024). These strategies facilitate the internalisation of abstract concepts and foster metacognitive development.

**Inclusivity.** Empirical evidence consistently underscores the efficacy of inclusive

educational settings in promoting both academic attainment and socio-relational competencies (Aubert et al., 2017). Inclusive classrooms, where diversity is embraced as a pedagogical asset, amplify dialogic exchanges among peers and foster a communal ethos of mutual respect and support (Khalfaoui et al., 2020).

**Child agency and participatory engagement.** Recognising children as epistemic agents entails not only listening to their perspectives but also enacting structural changes in response (Lundy et al., 2024). Neuroscientific evidence on the socio-affective foundations of learning (Oh-Young & Filler, 2015) highlights the imperative for educators to create pedagogical spaces that empower student voice and children's agency.

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*Recognising children as epistemic agents entails not only listening to their perspectives but also enacting structural changes in response.*

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### Rich, purposeful, and stimulating learning content and spaces

The creation of responsive and pedagogically intentional learning environments, where the physical and social dimensions are synergistically aligned, constitutes a cornerstone of high-quality ECEC. Such spaces are characterised by the provision of diverse, high-quality content and multi-sensory resources, the implementation of intentional and pedagogically informed spatial design, and the integration of outdoor and nature-infused learning areas.





**Diverse, high-quality content and multi-sensory resources.** The integration of hands-on, exploratory, and multi-modal learning experiences, rooted in dialogue, play, music, and movement, ensures that classroom materials are contextually adapted and pedagogically purposeful. Such resources must be aligned with curricular goals and responsive to the unique dynamics of each learner cohort. The capacity of educators to tailor these materials to specific children’s needs, contexts, and instructional moments is essential to maximising developmental outcomes.

**Intentional spatial design.** Thoughtfully curated physical environments amplify pedagogical efficacy by scaffolding meaningful child-environment interactions. Spatial configuration, such as dividing the classroom into distinct, developmentally targeted “learning environments” and increasing adult presence, can significantly enhance children’s engagement, autonomy, and opportunities for high-quality adult-child and peer interaction. The educator’s deliberate orchestration of spatial elements plays a determinative role in establishing an enriched, cognitively and affectively stimulating learning ecology.

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*Hands-on, exploratory, and multi-modal learning experiences, rooted in dialogue, play, music, and movement, ensures that classroom materials are contextually adapted and pedagogically purposeful.*

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**Outdoor and nature-infused learning spaces.** While access to outdoor environments confers substantial benefits, including language enrichment, imaginative play, and socio-emotional growth, ECEC centres situated in urban or spatially constrained contexts can still harness natural elements within indoor settings.

Examples, such as the “mud kitchen” used in Portuguese classrooms, illustrate how nature-based materials facilitate contextualised, child-initiated learning that nurtures creativity and interpersonal collaboration.

### Harnessing the building blocks of learning for well-being and success

Essential academic and transversal skills are best cultivated in contextually meaningful, safe and pedagogically stimulating learning environments. Such environments are characterised by dialogic educational interventions, play-based and contextually situated learning, peer learning coupled with self-regulation, movement-integrated activities, and evidence-based digital engagement.

#### **Dialogic educational interventions.**

Approaches grounded in dialogic learning, particularly shared and dialogic reading, have demonstrated significant efficacy in improving literacy, numeracy, emotional regulation, and social skills, especially among children with disabilities and those from underrepresented backgrounds (Hodgins & Harrison, 2021). Such methodologies foster perspective-taking, empathy, and cognitive flexibility (Grøver et al., 2020), equipping children with the dispositional capacities necessary for lifelong learning and achievement.

#### **Play-based learning and situated contexts.**

Instructional strategies that are embedded in naturalistic, play-oriented, and interactive contexts, often incorporating movement, music, and the arts, have been shown to improve both academic and social-emotional outcomes. This is particularly salient for children from marginalised or vulnerable groups (e.g., those in foster care or with disabilities) (Cohen-Mimran et al., 2016; Pears et al., 2013). Transitions and informal moments, too, offer potent opportunities to scaffold curiosity, linguistic development, and problem-solving skills.

**Peer learning and self-regulation.**

Encouraging peer collaboration and assigning meaningful roles within the daily school rhythm constitute another avenue for deepening student engagement. Qualitative accounts, for example, describe the experience of a five-year-old child serving as a “delegate,” a shared leadership role that rotates among classmates. In this role, the child is responsible for recording attendance and coordinating transitions between activities (e.g., moving to the playground), thereby fostering a sense of agency, collective responsibility, and emerging leadership through the development of self-regulation skills. Engaging in paired tasks also mitigates social isolation and reinforces cooperative behaviours within a dialogic and inclusive learning climate.

**Movement-integrated learning.** Evidence increasingly affirms the cognitive and motivational benefits of physical activity, including improvements in literacy, numeracy, metacognition, and affective engagement (Augustine, 2015; Mavilidi et al., 2017). Integrating movement into instructional routines thus constitutes a vital mechanism for enhancing holistic development.

**Evidence-based digital engagement.**

Digital technologies, when employed with a carefully designed pedagogical intent, can enhance engagement, motivation, and basic skill development (Merkelbach et al., 2022; Outhwaite et al., 2019). The use of technology must be pedagogically grounded and developmentally appropriate.

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*Digital technologies, when employed with a carefully designed pedagogical intent, can enhance engagement, motivation, and basic skill development.*

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### Collaborative partnerships with families and communities

A growing body of empirical research underscores the pedagogical efficacy of caregivers' engagement in shared and dialogic practices for advancing children's foundational skills as well as their socio-emotional competencies (Burgoyne et al., 2018; Chacko et al., 2018; Hirsh et al., 2019).

The **triadic engagement through dialogic reading** is best illustrated by the *Motheread/Fatheread* early literacy programme, which operationalises culturally attuned dialogic reading strategies to engage caregivers, including those with limited literacy proficiency. The curriculum emphasises interactive storytelling techniques such as encouraging children's active participation, elaborating on narrative elements, and shifting from passive listening to shared verbal engagement. When caregivers are equipped with guided reading methodologies that foster narrative comprehension, it results in increased vocabulary acquisition, and a robust home-based reading culture (Hirsh et al., 2019). Hence, studies highlight the importance of contextual supports, such as caregiver education, accessible resources, and pedagogical guidance, in enhancing the efficacy of school-family partnership programs (Vargas-García et al., 2020). For instance, engaging families through dialogic literacy gatherings or other forms of family-led learning opportunities has been shown to positively influence children's language, literacy, and socio-emotional development.



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*Structures that facilitate authentic family involvement, especially in contexts of socio-economic disadvantage, enhance relational trust and deepen parents' understanding of pedagogical goals.*

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### Professionalism and quality of the ECEC workforce

Teacher quality exerts a substantial influence on a broad array of child outcomes, including cognitive, emotional, and social domains (Brunsek et al., 2020). A consistently demonstrated determinant of high-quality ECEC provision is the professional quality and ongoing evidence-driven development of the teaching and caring workforce, supportive school culture and strategic recruitment and retention policies.

**Evidence-informed professional development.** In-service training that is research-led and practice-oriented is critical to equipping educators with the competencies necessary to support diverse learner profiles. Teachers who engage in evidence-based pedagogical decision-making not only improve student learning and well-being but also contribute to broader community enrichment (García-Carrión, 2017). Professional development programmes must be intentional in design, inclusive of families and communities where appropriate, and oriented toward fostering critical reflection, democratic engagement, and inclusive practice (Early et al., 2007; García-Carrión et al., 2020).

**Supportive School Culture.** A collegial and affirming work climate, marked by shared pedagogical vision, collaborative exchange, and interpersonal trust, enables teachers to

thrive professionally. Such environments encourage innovation, mitigate burnout, and contribute to higher retention and morale.

**Strategic recruitment and retention policies.** High staff turnover remains a key challenge, undermining consistency and emotional security in ECEC settings. Policies that promote workforce stability, offer career progression pathways, enable workforce diversity and ensure adequate professional recognition are vital for sustaining high-quality educational practices.

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*Teacher quality exerts a substantial influence on a broad array of child outcomes, including cognitive, emotional, and social domains.*

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### Establishing inclusive pathways for participation and educational governance

High-quality ECEC settings implement inclusive, participatory approaches that actively engage families and communities as equal partners in the educational process. By involving families into decision-making, and fostering trust-based communication, these settings promote democratic governance and enhance ECEC quality.

#### **Family engagement in learning processes.**

Systems that support genuine family engagement, particularly in socio-economically disadvantaged settings, strengthen relational trust and increase parents' comprehension of educational objectives. The transformation of schools into *Learning Communities*, as exemplified by a Spanish case study, has shown efficacy in mobilising families as active agents in their children's education, fostering mutual respect and reciprocity (García Yeste et al., 2018).

#### **Systematic and relational communication.**

Frequent, dialogically oriented communication practices, ranging from biweekly updates to daily informal interactions, promote transparency, build relational capital, and ensure that families feel acknowledged and respected. Open-door policies and reciprocal feedback mechanisms further enhance trust and cohesion between home and school.

#### **Democratised educational leadership.**

School leadership practices play a critical role of in fostering inclusive governance structures. By enabling educators, families, and community members to participate meaningfully in strategic planning and pedagogical innovation, leadership cultivates a shared vision that aligns with local aspirations and broader systemic goals.

## Section summary

High-quality Early Childhood Education and Care constitutes a fundamental foundation for children's cognitive and socio-emotional development. Core characteristics of high-quality ECEC include an inclusive, child-centered curriculum; relational pedagogies and high expectations for all learners; play-based, dialogic and experiential learning methodologies; well-established school–family–community partnerships that are structurally embedded rather than peripheral, and high-quality ECEC workforce. Particularly, inclusive collaboration between schools and families enhances both the relevance and ownership of educational practices, thereby improving student outcomes, particularly for children from vulnerable backgrounds.

The professionalism of ECEC workforce and their competence in cultivating emotionally secure, intellectually stimulating, and inclusive learning environments—through strong relational dynamics—is essential for high-quality practice. Nevertheless, persistent challenges exist, especially concerning the enhancement of ECEC workforce quality and the development of effective school-family partnerships. The SCIREARLY project underscores that the quality of ECEC educators should occupy a central role in policy and practice discourse, advocating for the elevation of teachers' professional status, improved working conditions, and expanded pre-service and in-service professional development opportunities. Additionally, raising awareness among parents regarding the benefits of ECEC, including providing training and educational opportunities for parents, is crucial for fostering quality. In sum, sustainable progress in ECEC quality necessitates a coordinated, equity-driven approach encompassing supportive policy frameworks and rigorous evaluation to ensure fidelity, adaptability, and long-term impact across diverse educational contexts.



## Dimension 3: Implement

*Implementing and scaling up successful learning environments in primary and secondary education*

This section identifies the common features of “Successful Learning Environments” (SLEs) associated with positive educational outcomes, particularly for students from vulnerable backgrounds. The section illustrates these environments through concrete examples and reflects on the impact of their implementation, with particular attention to their effectiveness for at-risk learners and the potential for scaling these practices in diverse educational contexts.

*Despite the diversity in schools and the populations that they serve, there are common features found in learning contexts that have shown positive educational outcomes, especially for those who are systematically disadvantaged. These contexts are identified as “Successful Learning Environments.” Under certain conditions and using a variety of strategies, they can be implemented and scaled to other settings.*



### ‘IMPLEMENT’ KEY TAKEAWAYS

Empirical evidence shows that the implementation of Successful Learning Environments (SLEs) leads to measurable improvements across varied educational contexts. These include increased student engagement and participation, enhanced teacher support, greater caregivers involvement, stronger peer and teacher–student relationships, and heightened feelings of relatedness and belonging, accompanied by declines in student isolation and absenteeism.

Successful Learning Environments reflect inclusive and dialogic learning spaces, high expectations for all learners, strong teacher–student and peer relationships, supportive leadership, multi-professional collaboration, and embedded school–family–community partnerships.

Structurally embedded family and community engagement is essential to ensure equity and improve learning outcomes for all children, particularly those from socioeconomically disadvantaged or vulnerable backgrounds.

Inclusive co-creation with educators, families, and students enhances the relevance, ownership, and effectiveness of educational interventions.

Effective scaling of SLEs requires a coordinated, equity-driven approach that integrates sustained teacher capacity-building, inclusive partnerships, supportive policy frameworks, and rigorous evaluation to ensure adaptability and long-term impact.

## Successful Learning Environments: Examples from eight national contexts

Eight Successful Learning Environments were carefully selected from diverse European contexts based on their demonstrated impact and transferability (see Table 4).

For more details, consult the [SCIREARLY Toolkit](#).

**Table 4.** Replicable and Scalable Examples of Successful Learning Environments

| Successful learning environment                                     | Short description                                                                                                                                                                                                                                                                   |
|---------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Forest School, UK</b>                                            | Learner-centred, hands-on experiences in a natural outdoor setting                                                                                                                                                                                                                  |
| <b>Dialogic Literary Gatherings, Spain</b>                          | A structured reading and discussion session                                                                                                                                                                                                                                         |
| <b>Nurture Room, Ireland</b>                                        | Short-term, targeted interventions to address non-cognitive barriers using psychosocial assessment                                                                                                                                                                                  |
| <b>Translanguaging, Denmark</b>                                     | Using home language/s alongside official school language in everyday classroom practice                                                                                                                                                                                             |
| <b>Parental engagement to enhance literacy, Malta</b>               | Parental involvement to improve literacy among students                                                                                                                                                                                                                             |
| <b>School clubs, Portugal</b>                                       | Non-mandatory activities developed by teachers and available during school time (e.g., language club, school sports, music, art, chess, etc.)                                                                                                                                       |
| <b>Multiprofessional support network, Finland</b>                   | A team of special education teachers, language teachers, school psychologists, speech therapists, social workers, youth workers, multicultural counsellors, school coaches, school personal trainers, and school nurses collaborate to address and support students' specific needs |
| <b>Personalised Curriculum and Student-Centred Learning, Greece</b> | Adjusting teaching methods and curricula to the needs of students                                                                                                                                                                                                                   |

### Forest School (UK)

Forest School is a learner-centred, long-term educational approach that takes place in natural outdoor environments, promoting holistic development through hands-on, experiential learning. Forest School supports play, exploration, and appropriate risk-taking to foster confidence, resilience, and independence (FSA, n.d.). Sessions are led by qualified practitioners and tailored to children's interests, using a reflective cycle of planning, observation, and adaptation. Key features include high staff-to-pupil ratios, consistent sessions over time, and a strong focus on relational pedagogy and environmental connection. Research highlights positive outcomes in children's social-emotional well-being, academic attainment, language development, and environmental attitudes. Forest School can be implemented in both formal and non-formal learning environments from early years to adult groups, but is most frequently practised in early years, primary, and alternative secondary school settings, and can function as a whole-school provision or targeted intervention. The approach is particularly effective for diverse and vulnerable groups, such as children with English as an additional language or special educational needs. Strong leadership, parental engagement, and sustainable site development are essential for success. Forest School enables schools to move beyond narrow academic targets by supporting the whole child in a context that values curiosity, collaboration, and well-being.



### Dialogic Literary Gatherings (Spain)

Dialogic Literary Gatherings (DLGs) are structured educational sessions grounded in the principles of dialogic learning, where students collaboratively explore universal literature through egalitarian dialogue. DLG practice values every participant's voice - especially those traditionally less heard - while promoting mutual respect and inclusive turn-taking. Sessions are based on high-quality texts, with students preparing by selecting a meaningful passage to share and discuss. The teacher acts as a facilitator, not an instructor, ensuring that all contributions are heard and respected in a supportive, non-judgmental environment. Research demonstrates DLGs significantly improve reading comprehension, vocabulary, oracy, writing, and academic confidence, particularly for multilingual students and those with special educational needs. These gatherings also strengthen social-emotional skills, prosocial behaviour, and school engagement while reducing bullying and exclusion. DLGs can be adapted across subjects (e.g., science, music) and age groups, from early years to adult education, and can involve family and community members. The practice is scalable and has been implemented in over many schools globally, showing consistent success regardless of socio-economic context. Overall, Dialogic Literary Gatherings foster deep critical thinking, cultural understanding, and a passion for reading that extends beyond the classroom (Ruiz-Eugenio et al., 2023).



### Nurture Room & Student Support Team (Ireland)

The Nurture Room is part of the Student Support Team (SST) framework in Ireland, which is a school-wide initiative aimed at supporting the emotional, social, and academic well-being of students aged 6–16. Mandated by the Department of Education (2017, 2022), the SST uses ongoing psychosocial assessments to identify students' needs and deliver appropriate, often personalised, support strategies. At the heart of this tool is the Nurture Room, a dedicated, safe in-school space where students can explore their emotions, develop language and communication skills, and build trust with adults and peers through structured activities (e.g., emotional literacy sessions, turn-taking games, shared meals). The Nurture Room prioritises relational support and is especially effective for students facing non-cognitive barriers to learning, including trauma, anxiety, or behavioural challenges. The school principal chairs the team, and regular SST meetings ensure early identification, coordination of referrals, and monitoring of outcomes. SSTs work closely with families and, where needed, external agencies, promoting a whole-school culture of inclusion, care, and student voice. Research demonstrates the following benefits: early identification and intervention for emotional or behavioural difficulties, stronger collaboration among staff and with families, increased student engagement and school retention, improved mental health, communication, and classroom participation. The holistic, multi-tiered approach of SST and the Nurture Room model is a sustainable, adaptable tool for inclusive education, able to meet complex student needs while building stronger, more connected school communities.



### Translanguaging (Denmark)

Translanguaging is a pedagogical approach used in Danish reception classes to support newly arrived children with limited Danish proficiency. This approach recognises all languages as valuable learning resources and allows students to use their home languages alongside Danish in everyday classroom interactions (Ticheloven et al., 2021). The tool is grounded in three pillars: stance (teachers view multilingualism as an asset), design (lessons incorporate multiple languages and modalities), and shift (teachers adapt flexibly to learners' needs in real time). Teachers collaborate actively with families, drawing on students' cultural and linguistic backgrounds to enhance engagement and support emotional development. In practice, students mix languages strategically when learning, using tools like dictionaries, music, games, and peer collaboration. Lessons are designed to encourage participation through clear instructions and mutual support, with teachers facilitating rather than directing learning. Translanguaging strengthens both first and second language skills, boosts confidence, affirms identity, and fosters inclusion. The approach supports second language acquisition through cognitive transfer and creates a classroom culture where students feel seen, valued, and motivated. Ultimately, translanguaging enhances academic learning while promoting well-being, especially for migrant and multilingual learners transitioning into mainstream education.





### Parental Involvement to Enhance Literacy (Malta)

Rooted in a whole-school approach, the school leadership team prioritises trust-building and regular communication with families, aiming to overcome barriers linked to educational disadvantage, absenteeism, and limited parental literacy. Through literacy-focused events, workshops, and home visits, the school fosters a culture of co-responsibility, where parents become active partners in their children's learning. Tailored support, such as small-group sessions, personalised feedback, and culturally relevant family activities, further helps build relationships and increase participation. Strategies are embedded in a responsive structure of monitoring and evaluation, using SMART goals and stakeholder feedback to adjust approaches and demonstrate impact. The evidence shows that this approach results in improved student attendance, academic progress, and family-school trust. Teachers report stronger collaboration with parents, and students benefit from a more secure, engaged learning environment. The tool highlights the importance of early outreach, transparent communication, and community alignment in making family involvement a sustainable and impactful element of inclusive education.



### School Clubs (Portugal)

This tool presents school clubs as a flexible, student-centred approach that fosters engagement, creativity, and informal teacher-student relationships within a non-mandatory, mixed-age framework. Designed for students aged 12–19, clubs are organised by teachers based on their own interests and expertise, offering a range of activities such as art, music, chess, sports, or environmental science. Students choose which club to join, promoting autonomy and personal investment in learning.

Clubs operate during or after school hours, depending on the school's structure, and serve as spaces where dynamic, interactive pedagogies can be explored. The emphasis is on social and emotional development, inclusion, and fostering a sense of belonging. Teachers are given autonomy to design and adapt their club activities, promoting innovation and professional growth. Monitoring focuses on student attendance and engagement, with self-assessment and feedback encouraged, while formal evaluation is avoided to maintain a non-pressured, exploratory atmosphere. Clubs can evolve or merge based on student interest and teacher reflection, ensuring responsiveness and sustainability. Ultimately, school clubs offer a low-cost yet high-impact model that enriches the school climate, strengthens teacher-student relationships, and supports students' holistic development beyond academic achievement (Blanchard et al., 2023; Moura et al., 2014; Pjanić et al., 2021).

### Multiprofessional Welfare Support (Finland)

This tool provides a comprehensive approach to supporting students' learning and well-being through a multiprofessional support network within schools. A team of specialists, including special education teachers, language teachers, psychologists, speech therapists, social workers, youth workers, and multicultural counsellors, work together with classroom teachers to identify and respond to individual student needs. Support can be offered at different levels: to individual students, small groups, or entire classes, and is ideally delivered within regular classroom settings through co-teaching models. Close collaboration with parents or guardians is essential, including culturally responsive communication and joint planning of support measures. The approach promotes early, targeted, and tailored intervention, aiming to improve academic achievement, student well-being, and school engagement. Ongoing monitoring and evaluation ensure that support remains effective and adaptable. The model requires a strong whole-school commitment and is most effective when embedded in everyday teaching practices.



### Personalised Curriculum and Student-Centred Learning (Greece)

This tool outlines a personalised and student-centred learning approach designed to support secondary students (ages 12–19) from diverse linguistic, cultural, and socio-economic backgrounds, particularly those with immigrant or refugee experiences. Its primary aims are to enhance engagement, reduce dropout rates, and improve academic achievement in multicultural classrooms. Teachers adapt the national curriculum to students' needs, incorporating differentiated materials and strategies from second language instruction. Emphasis is placed on reading, writing, and cultural understanding, with student experiences serving as key resources for learning. The approach fosters active participation, critical thinking, and collaborative learning, positioning teachers as facilitators. Assessment is formative and learner-driven, using tools such as project-based tasks, reflective journals, and learning contracts. While recognising the constraints of systems reliant on standardised testing, the model encourages balancing individualised learning with test preparedness. Evidence-based benefits include increased student motivation, academic progress, and a stronger sense of belonging. Effective implementation relies on teacher collaboration, professional development, and strong communication with families. Overall, the tool promotes inclusive, flexible pedagogy that responds to the diverse needs of today's classrooms.





## Successful Learning Environments: Key Features

Analysis of effective practices targeting underachievement and early school leaving across 20 case studies identified six core features of inclusive, high-quality Successful Learning Environments: skilled educators, inclusive curricula, and engaging pedagogies; supportive peer interactions; positive teacher–student relationships; whole-school approaches with supportive leadership; comprehensive academic and

career guidance; and active family and community engagement (Fig. 7).

These six dimensions constitute the foundation of inclusive, high-quality learning experiences, especially in socioeconomically disadvantaged contexts.

**Fig. 7.** Dimensions of inclusive, high-quality Successful Learning Environments



### Skilled Educators, Inclusive Curriculum, and Engaging Pedagogies

This feature mirrors the conclusions outlined in Fig. 6 on high-quality Early Childhood Education and Care (ECEC), underscoring the central role of well-prepared and continuously supported educators, inclusive and culturally responsive content and pedagogical approaches that actively engage all learners. Effective teaching practices in Successful Learning Environments (SLEs) are grounded in developmental appropriateness, responsiveness to diverse needs through meaningful and culturally responsive learning, dialogic and relational teaching and learning approaches.

Particularly, the research underscores the critical role of teachers in fostering inclusive and aspirational learning environments. Case studies consistently highlight the significance of practitioners' dispositions in sustaining high academic expectations for all learners, identifying this as a central strategy for addressing underachievement. When educators uphold rigorous expectations and actively engage all students through stimulating, dialogic and inclusive teaching resources, intentional, pedagogically grounded dialogue and structured opportunities for collaborative, mixed-age peer learning, they contribute to enhanced academic, emotional, and social outcomes.

### Supportive Peer Interactions

Positive peer relationships emerged as a critical factor contributing to children's well-being and school engagement (Allen et al., 2022; European Commission, 2021; Greenwood & Kelly, 2019; Khalfaoui et al., 2021; Martins et al., 2022; Quin, 2017).

Rooted in Vygotsky's sociocultural theory (1978) and Habermas's notion of transformative dialogue (1985), collaborative activity is widely recognised as a key driver of enhanced cognitive and developmental outcomes. Peer interaction plays a foundational role in both learning processes and overall human development (Vygotsky & Cole, 1978). Empirical research demonstrates that pedagogical strategies grounded in interactive methods significantly enhance both academic performance and social competence (García-Carrión et al., 2020). The following pedagogical practices exemplify the focus on promoting constructive peer-to-peer interaction and dialogic learning: Interactive Groups (Spain), Dialogic Literary Gatherings (Spain), Roots of Empathy (Ireland), Peer Mentoring Programme (Portugal), Ubuntu Programme (Portugal), Translanguaging (Denmark), Forest School (UK), Poverty Impact Reduction (UK), and Praise Culture (UK).

Notably, Forest School was found to yield numerous benefits, including improvements in social-emotional development (Coates & Pimlott-Wilson, 2019; Roe & Aspinall, 2011; Tiplady & Menter, 2021), academic outcomes and school attendance (McCree et al., 2018), and environmental consciousness (Ridgers et al., 2012; Turtle et al., 2015). Similarly, the Interactive Groups implemented in Spanish schools have consistently demonstrated their effectiveness in enhancing prosocial behaviour and peer cohesion (Villardón-Gallego et al., 2018), fostering reciprocal academic support and promoting solidarity between culturally diverse learners, including native and immigrant students (Valero et al., 2018) and Roma children (Khalfaoui et al., 2023).



## Positive Teacher-Student Relationships

Throughout all educational stages, positive teacher–student interactions play a critical role in preventing early school leaving and student disengagement. Warm and supportive relationships are closely associated with positive impact on student well-being, academic performance, emotional regulation, mental health, sense of belonging, and overall school climate. The teacher–student relationship, alongside interactions with other school personnel, is especially vital in culturally diverse and socially vulnerable contexts (Khalfaoui et al., 2021; Liebenberg & Ungar, 2008). When teachers embrace both academic and social-emotional roles, students show greater motivation and confidence. Studies highlight that teachers' emotional availability, training in psychosocial support, inclusive practices, and trauma-informed approaches are essential for establishing effective relationships with learners.

The following educational interventions are directly associated with the enhancement of teacher–student relationships: Reception Classes and Translanguaging (Denmark), Teaching Greek Language and Culture to Ethnic Minorities (Greece), Dialogic Teaching Approach for Migrant Students (Greece), Nurture Room (Ireland), Comprehensive Well-being Approach (Malta), School Clubs (Portugal), Forest School (UK), Praise Culture (UK), Poverty Impact Reduction Initiatives (UK), and Tracking Pupil Progress Strategies (UK).

For instance, in Translanguaging classes in Denmark, students engage freely with teachers, showing no signs of fear or inhibition when seeking assistance, which is an indicator of trust-based relationships.

Overall, the responsibility for cultivating such inclusive, safe, and emotionally supportive classrooms is widely regarded as integral to the professional identity and pedagogical ethos of effective educators.

## A Whole-School Approach and Supportive Leadership

The case studies also identified several enablers of successful teacher–student relationships. Supportive school leadership and a commitment to a whole-school approach are crucial to fostering positive emotional and academic outcomes.

According to the European Commission (2020), a whole-school approach focuses on elevating educational quality through collective engagement of the entire school community. Institutions that integrate continuous self-assessment and collaborative practice involving all stakeholders - students, staff, families, and external actors - are better positioned to combat early school leaving. This model relies on cross-sectoral coordination involving local authorities, NGOs, healthcare providers, and other community resources to address complex educational challenges beyond the capacity of schools alone.

An essential element of this approach is the integration of multi-professional teams capable of addressing a range of academic, emotional, and familial needs. A case study in Ireland illustrates this model through the implementation of a Student Support Team comprising diverse specialists who meet regularly to guide all major school decisions.



Cross-departmental communication and collaboration within schools, including leadership, pedagogical staff, technical staff, and operational assistants, are essential for responding to student needs and supporting their development.

Support from school leadership is another foundational element in sustaining positive relationships and maintaining high educational standards. Strong, supportive, and value-driven school leadership is crucial to fostering positive emotional and academic outcomes, establishing and sustaining high-performing and inclusive learning environments. Inspirational and committed school leadership fosters a positive institutional culture, which, in turn, encourages the development of dedicated and collaborative teaching staff and support personnel (Leithwood et al., 2020; McTigue et al., 2023).

Effective school leadership is also central to recognising the value of student support programmes in shaping students' educational aspirations and post-secondary transitions. Lumby and English (2009) advocate for dynamic and context-sensitive leadership development programmes, which respond to the complex and evolving realities of modern schooling. They reject one-size-fits-all leadership models and instead emphasise the necessity of adaptive strategies, particularly in diverse educational settings where leaders must engage with varied student populations and a broad array of stakeholders. These scholars argue that school leaders must proactively dismantle barriers to academic success, fostering inclusivity and equity. This imperative has been reflected in the emergence of "benevolent leadership" - a style marked by empathy, relational trust, and a holistic commitment to student development.

Further success factors include transparent governance structures, clearly delineated roles and responsibilities, and sustained opportunities for professional development. These elements collectively enable educational practices to be both consistent and impactful. All members of the school community must align around shared goals aimed at delivering high-quality, holistic education.

The following practices exemplify robust leadership: Benevolent Leadership Approach (Ireland), Team Teaching Methodology (Finland), Student Support Team Model (Finland), Evidence-Based Teaching Strategies (Ireland), Support Network Initiatives (Finland), Assessment for Learning and Planning Framework (Malta), Whole-School Approach (UK), and Central Curriculum Structure (UK).

### Comprehensive Academic and Career Guidance

The importance of multidisciplinary teams, comprising social workers, psychologists, and other specialised professionals, collaborating to address students' diverse needs are essential buffering factor against underachievement and ESL. The cornerstone of effective multiprofessional support provision lies in the shared awareness among educators, school leaders, and professionals regarding each pupil's specific learning and support needs, underpinned by evidence-based assessments and a comprehensive understanding of students' contexts.



The supports offered at various levels, from whole-class interventions to individualised support strategies, including academic and career guidance during key educational transitions, ranging in duration from a single session to year-long engagement, is a necessary and crucial condition for equipping students with the knowledge and competencies necessary to make informed educational and career-related decisions and sustain well-being.

Empirical research supports the assertion that students who are guided to formulate clear academic or vocational plans demonstrate higher retention rates and deeper educational engagement (Haug & Plant, 2015; Oomen & Plant, 2014; Psifidou et al., 2022). Career guidance and counselling, when integrated systematically, significantly aid transitions between educational levels and into employment. To be effective, such guidance should be embedded early within the curriculum and enriched through extracurricular initiatives. These may include work placement schemes, job shadowing, career simulation games, and exploratory courses across diverse educational pathways (European Commission, 2015). These services facilitate smooth transitions across educational stages and from school to employment, mitigating risks associated with limited information, misplaced expectations, or inadequate planning (O’Sullivan et al., 2017; van Rens et al., 2018). Furthermore, for those who have prematurely exited the education system, these services provide essential support to re-enter and complete secondary education successfully (Oomen & Plant, 2014; Psifidou et al., 2022). This aligns with the European Commission’s tripartite strategy to address ESL through preventive, interventive, and compensatory measures.

As mentioned before, effective school leadership is central to recognising the value of such programmes in shaping students’ educational aspirations and post-secondary transitions. Schools that successfully support students in navigating complex educational trajectories often offer a comprehensive suite of structured resources aimed at fostering academic and career readiness. These include enhanced allocation of guidance counselling hours and the establishment of collaborative guidance teams that can share responsibilities and provide tailored support. In parallel, school leadership teams that cultivate strategic partnerships with community organisations and businesses, especially for learners from disadvantaged backgrounds, prove instrumental in improving outcomes.

The following practices from the case studies exemplify effective practices in providing targeted guidance during key transitional phases, such as from primary to secondary or secondary to tertiary education: Stepping Over to Secondary School Programme (Ireland), College for Every Student Brilliant Pathways (Ireland), Trinity Access Programme (Ireland), Guidance and Counselling Services (Ireland), Benevolent Leadership Approach (Ireland), Team Teaching Methodology (Finland), Student Support Team Model (Finland), Evidence-Based Teaching Strategies (Ireland), Support Network Initiatives (Finland), Assessment for Learning and Planning Framework (Malta), Whole-School Approach (UK), and Central Curriculum Structure (UK).





## Active Family and Community Engagement

Educational interventions that actively engage families and the broader community in school life and governance significantly enhance children's well-being and developmental outcomes. Such strategies not only improve the overall school climate and learning outcomes but also effectively reduce absenteeism, lower dropout rates, and counteract social exclusion. The European Commission (2015) has highlighted that comprehensive, community-engaged strategies to prevent early school leaving yield long-lasting societal benefits. Epstein's Framework of Six Types of Involvement (1995) emphasises the importance of holistic partnerships between families and schools, advocating for effective practices across six dimensions: communication, volunteering, learning at home, shared decision-making, and collaboration with community entities. Empirically, a substantial body of evidence supports the role of family involvement in improving educational outcomes across all school levels, particularly for students from marginalised or minority backgrounds (Fan & Chen, 2001; Goodall & Montgomery, 2014).

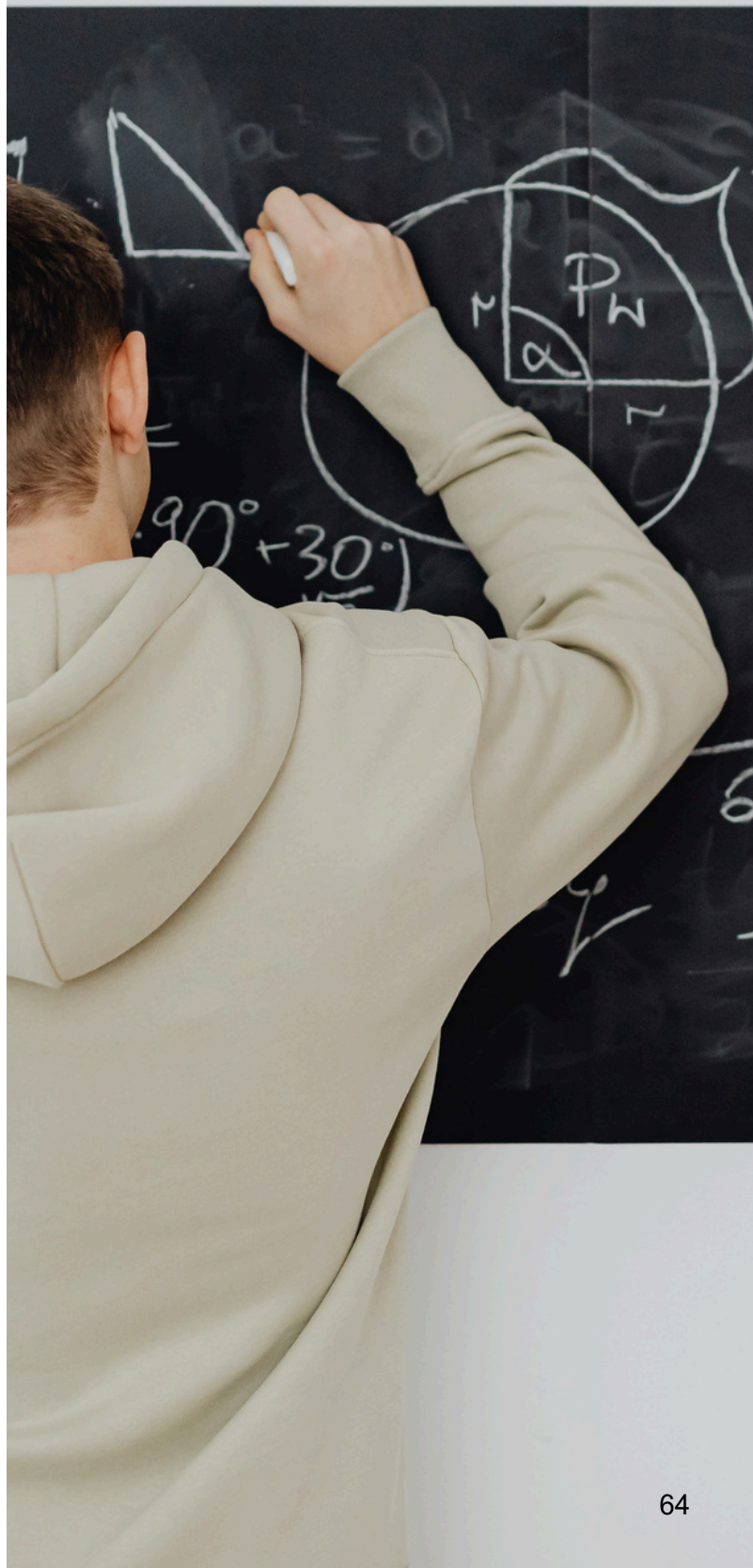
Initiatives that incorporate family participation in early literacy have shown improvements not only in academic outcomes but also in children's social development. Moreover, the inclusion of diverse family perspectives enriches the school's cultural capital, mitigating the effects of poverty and social exclusion. Parental involvement in school governance further ensures equitable participation in educational decision-making processes. The practices selected to exemplify this dimension include: After-School Programme (Ireland, UK), Attendance Clinic (Ireland), Curriculum Night and Grandparents' Day (Ireland), Parents' Association (Ireland), Amber Flag Initiative (Ireland), Active School Flag (Ireland), Blue Star Flag Programme (Ireland), Green Flag Programme (Ireland), Learning Communities (Spain), Librarian Project (Portugal), Multi-Professional Support (Finland), Parental and Community Involvement (Malta), Literacy-Focused Parental Engagement (Malta), Collaborative Professional Development (Malta), Co-Teaching (Malta), Poverty Impact Reduction (UK), and the Whole-School Approach (UK).



## Successful Learning Environments: Evidence of Effectiveness

Table 5 provides a summary of the findings from the quantitative statistical analyses of surveys conducted across multiple contexts. Table 6 presents the key qualitative findings. For further details, refer to the [Milestone Report \(MS4\)](#).

As for quantitative analysis, from each country sample, the most statistically significant standard deviation (SD) was selected to illustrate the extent of variation. Overall, across varied contexts, a moderate improvement was observed in student engagement and participation, the quality of teacher support and home involvement, in feelings of relatedness and belonging, and the quality of teacher–student and peer relationships. Concurrently, rates of student isolation and absenteeism demonstrated a notable decline.



**Table 5.** Quantitative Outcomes of Successful Learning Environments Implementation

| Country                           | Variable                      | Mean T1<br>(SD) | Mean T2<br>(SD) | Mean T3<br>(SD) | Scale |
|-----------------------------------|-------------------------------|-----------------|-----------------|-----------------|-------|
| <b>Pupil-reported outcomes</b>    |                               |                 |                 |                 |       |
| <b>FI</b>                         | Engagement                    | 5,51 (1,00)     | 5,32 (1,09)     | 5,71 (0,93)     | 1-7   |
| <b>IE</b>                         | Teacher support               | 4.59 (1.03)     | 4.64 (1.37)     | 5.22 (1.02)     | 1-7   |
| <b>IE</b>                         | Relatedness                   | 5.19 (1.39)     | 5.32 (1.02)     | 5.85 (0.78)     | 1-7   |
| <b>EL</b>                         | Isolation                     | 3.70 (1.28)     | 3.69 (1.50)     | 3.48 (1.69)     | 1-7   |
| <b>UK</b>                         | Home support                  | 3.22 (1.03)     | 3.62 (0.87)     | 3.41 (1.03)     | 1-5   |
| <b>ES</b>                         | Participation                 | 5.49 (1.23)     | 5.48 (0.89)     | 5.62 (1.12)     | 1-7   |
| <b>FI</b>                         | Schooling                     | 3,33 (0,62)     | 3,12 (0,71)     | 3,31 (0,64)     | 1-4   |
| <b>ES</b>                         | School attendance             | 3.51 (1.39)     | 3.67 (1.23)     | 3.37 (1.28)     | 1-5   |
| <b>Guardian-reported outcomes</b> |                               |                 |                 |                 |       |
| <b>PT</b>                         | Guardian support              | -               | 4.72 (0.37)     | 4.82 (0.31)     | 1-5   |
| <b>EL</b>                         | School adjustment             | 4.18 (0.49)     | -               | 4.37 (0.63)     | 1-5   |
| <b>FI</b>                         | Absence                       | -               | 1,46 (0,85)     | 1,29 (0,42)     | 1-5   |
| <b>PT</b>                         | Home-school collaboration     | -               | 4.35 (0.79)     | 4.62 (0.68)     | 1-5   |
| <b>IE</b>                         | Teacher-student relationships | -               | 3.77 (0.72)     | 4.09 (0.50)     | 1-5   |
| <b>FI</b>                         | Peer relationships            | -               | 4,35 (0,51)     | 4,68 (0,42)     | 1-5   |
| <b>EL</b>                         | Family conditions             | 4.56 (0.46)     | -               | 4.76 (0.41)     | 1-5   |
| <b>FI</b>                         | Leisure and wellbeing         | -               | 4,27 (0,74)     | 4,54 (0,50)     | 1-5   |

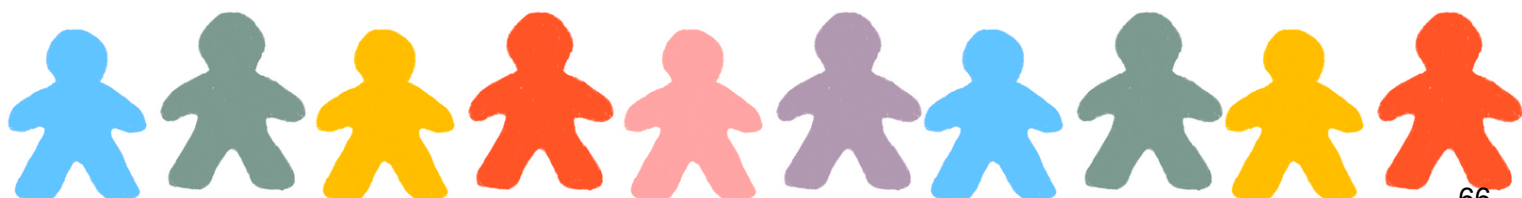


Regarding the qualitative thematic analysis, the results are structured around three core dimensions of Successful Learning Environments: teacher–student relations, peer relations, and home–school collaboration.

Each entry includes the key impact and a representative quote drawn from the data.

**Table 6.** Qualitative Outcomes of Successful Learning Environments Implementation

| Core Dimension                   | Key Impact                                                                                                                                                             | Representative quote                                                                                                                             |
|----------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Teacher–Student Relations</b> | Strengthened emotional safety, trust, and consistent support; teachers adopted facilitative roles, creating inclusive and responsive environments.                     | "I put a lot of effort in building a good atmosphere [...] the intervention was a good reminder of what matters most." - Teacher, Finland        |
| <b>Peer Relations</b>            | Increased collaboration, mutual support, and respect for diversity; students showed greater motivation and behavioral self-regulation through peer learning.           | "Some peers find certain things harder [...] we all help each other and understand it much better." - Student, 3rd grade, Spain                  |
| <b>Home-School Collaboration</b> | Recognised value of family involvement, but highlighted need for clearer guidance and more flexible, accessible engagement models (e.g., digital or rotating formats). | "It's useful for us to understand how to work at home [...] how we can support children better or explain things differently." - Guardian, Spain |





## Successful Learning Environments: Scaling up strategies

Informed by teacher survey and co-creation, the subsection offers actionable recommendations for policy and practice, with particular emphasis on scalability of SLEs across diverse educational contexts. The findings are structured around four interrelated dimensions of scalability: effectiveness, reach, fidelity, and adaptability (see Fig. 8), followed by overarching conclusions. For more details, consult [Milestone Report 4](#), [Scalability Report 4.1](#), and [Policy Brief 4.2](#).

Based on the teacher survey results, the implementation of SLEs was perceived as highly **effective** by participating teachers, with high mean scores indicating both satisfaction with outcomes ( $M=4.5$ ) and likelihood of continued use ( $M=4.6$ ). Most teachers believed that scaling the SLEs would have a neutral or positive impact on effectiveness, with several highlighting potential benefits such as increased collaboration, cross-curricular integration, and enriched student experiences. No major risks were identified with scaling, and some teachers noted that broader implementation could enhance teamwork and adaptability. Based on the insights, several actionable recommendations emerge for policy and practice. To further promote inclusive and collaborative learning environments, broader participation is desirable. To ensure effectiveness at scale, key factors such as whole-school commitment, strong leadership support, teacher autonomy, and sustained professional development should be prioritized. Policymakers and school leaders are encouraged to create frameworks that enable these conditions, supporting both the quality and reach of SLEs across varied educational settings.

The **reach** of the intervention was generally viewed positively by participating teachers, who rated the ease of involving more colleagues at  $M=3.9$ , suggesting moderate optimism. Many believed broader teacher engagement was feasible, especially due to the intervention's alignment with everyday school practices and its low demand for additional resources. Hence, policymakers and school leaders should leverage these features of SLEs. However, targeted strategies are needed to address potential barriers, including increased teacher workload, bureaucratic constraints, and variable motivation. In settings where schools face resource pressures or where SLEs require cross-disciplinary or community collaboration, additional support, such as dedicated planning time, streamlined administrative procedures, and incentives for teacher engagement, should be provided to facilitate successful scaling without compromising effectiveness.

Fidelity, referring to the consistent implementation of an intervention's core principles, was considered unlikely to be compromised through scaling, with participating teachers reporting a low perceived risk of inconsistency ( $M=1.9$ ). However, maintaining fidelity was strongly linked to the provision of targeted teacher training ( $M=4.7$ ), which was widely seen as essential for ensuring proper and motivated use of the tools across new contexts. However, while training supports consistency and inspires best practices, it can also be perceived as burdensome, particularly in contexts where teachers face training fatigue. Supportive measures like ongoing monitoring and peer collaboration within schools were identified as crucial for sustaining fidelity, promoting reflective implementation, and enabling a positive diffusion effect that could enhance both scalability and intervention quality.



**Adaptability** is a critical factor for the successful scaling of the SLEs, and participating teachers reported a strong belief in the tools' adaptability across grade levels (M=4.6 for both likelihood of use with different grades and adaptability to higher levels). While the tools were generally seen as flexible and easy to apply across contexts, especially in primary education, some challenges emerged when adapting them to higher education levels, requiring more structural integration and teacher engagement. Country-specific reports highlighted that deeper adaptations, such as those involving family engagement and cultural responsiveness, are necessary to ensure effectiveness in diverse contexts. Limited family-school collaboration and concerns about cultural relevance and equity indicate that successful adaptation must address systemic barriers and inequalities. Moreover, ensuring engagement of marginalised or disengaged students further underscores the need for context-sensitive and inclusive adaptation strategies that go beyond surface-level adjustments to promote meaningful educational equity.

In conclusion, the analysis demonstrates that Successful Learning Environments exhibit strong potential for effective scalability, particularly in advancing both academic achievement and student well-being, with primary education offering the most favourable entry point for wider implementation.

In sum, based on evidence from implementation experiences, teacher survey data, and insights gathered through a co-creation-based policy seminar, a set of **nine strategic recommendations** has been developed to support the scalable, replicable, and sustainable adoption of SLEs across diverse educational contexts (Fig. 9).

**Fig. 8.** Dimensions of scalability



## Successful Learning Environments: Scaling Conditions

To start, a **phased approach** to scaling is recommended, beginning in early years where alignment with existing pedagogical routines and minimal structural disruption facilitate integration. To support this, the development of detailed, context-sensitive implementation guidelines and adaptable tools for monitoring student engagement and outcomes is essential. Strengthening the infrastructure for sustained use, including mechanisms for intentionality, consistency, and feedback, will underpin long-term impact.

Additionally, **equity** must be central to any scaling strategy. Particular attention is required to mitigate the risk of exacerbating existing educational inequalities, especially for marginalised, low-income, and minority students. This calls for deliberate, context-responsive adaptations and continuous critical reflection to ensure that interventions do not reproduce systemic disparities. Central to this approach is a commitment to inclusion: marginalised groups, such as students with special educational needs or those experiencing chronic absenteeism, must be embedded in intervention design through relational pedagogies that foster emotional safety and belonging.

Then, while the SLEs have been found effective and scalable with low perceived risk to fidelity, the success of interventions hinges on **whole-school engagement**, leadership buy-in, and collaborative professional cultures.

Thus, at the institutional level, it is essential to embed the SLEs within a whole-school framework and engage the entire school communities through co-creation to enable collective learning, the institutionalisation of successful learning environments, and systemic change.

To achieve that, **family and community engagement** are vital. Building flexible, low-barrier pathways to family involvement, such as digital communication tools or alternative meeting times, can foster meaningful partnerships, especially in contexts where parental involvement has been historically limited.

**Teacher capacity-building** is crucial: successful scaling depends on educators who are empowered to adapt their practices, participate in peer learning, and engage in shared pedagogical innovation. Formal training programs must be complemented by ongoing investment in collaborative learning structures, such as professional learning communities, to support the diffusion of effective practices.

From a policy perspective, **systemic enablers** must be addressed to support scalability. Integrating successful learning environments into national curricula legitimises these practices and allows schools to allocate time and resources effectively. At the same time, policy frameworks should support flexible adaptation and teacher autonomy to accommodate context and needs-specific, student-centred, dialogic learning while maintaining accountability for outcomes.

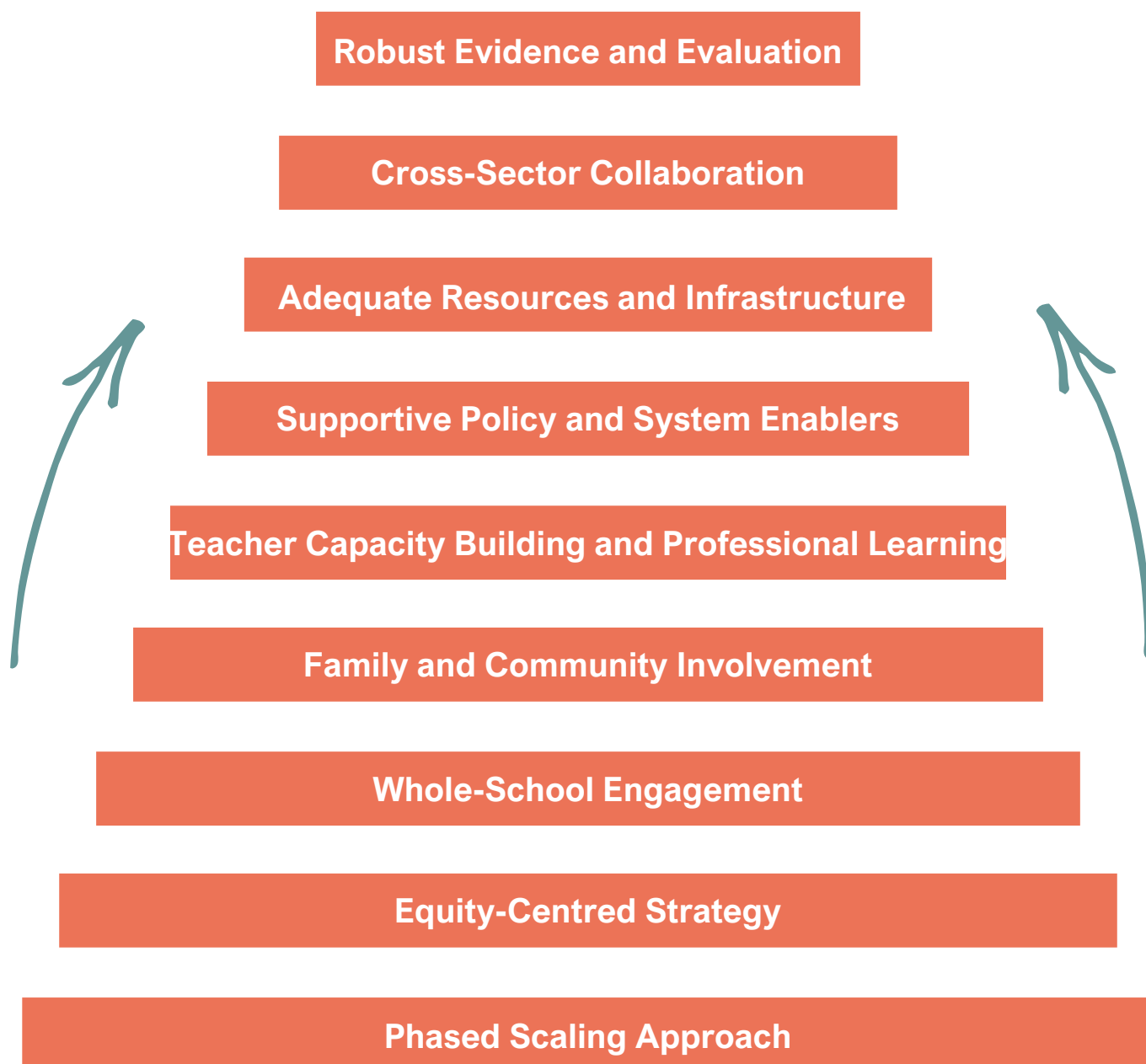




Effective scaling also requires **adequate resourcing**. Dedicated funding, time, and staffing are necessary to support innovation, and relational pedagogies must be formally recognized as legitimate and impactful. High-quality materials and co-design opportunities should be made available to ensure contextually relevant adaptations. Additionally, **cross-sector collaboration**, including with health and social services, is vital for addressing the complex needs of students facing social or emotional challenges.

Finally, **robust evidence** and **evaluation systems** are essential. Sustained partnerships between researchers and practitioners should inform iterative development, supported by longitudinal, mixed-methods research that captures cognitive, emotional, and social outcomes. These findings must feed directly into both practice and policy, ensuring that scaling efforts remain responsive to the lived realities of schools and students.

**Fig. 9.** Successful Learning Environments Scaling Conditions



## Section Summary

Successful Learning Environments represent a relational, inclusive, and equity-driven approach to education that fosters student engagement, foundational and transversal competences, and long-term well-being. Empirical evidence demonstrates that SLE implementation leads to tangible improvements across diverse educational contexts, including increased student participation, strengthened teacher–student and peer relationships, greater home involvement, and reduced isolation and absenteeism. These environments are characterised by dialogic, inclusive and student-centered content and pedagogy, high expectations for all, supportive leadership, multi-professional collaboration, personalised support and embedded school–family–community partnerships. To ensure long-term, system-wide impact, SLEs must be embedded within national education frameworks and supported through adequate funding, staffing, and professional learning opportunities. Their effectiveness is further reinforced by inclusive co-creation with educators, students, families, and policymakers, as well as robust, mixed-methods research and evaluation. This ongoing, collaborative approach enables SLEs to remain contextually relevant, adaptable, and capable of driving lasting educational transformation.



## Dimension 4: Inspire

### *Identifying transformative drivers of successful educational trajectories*

This section reveals transformative drivers that enable and sustain the academic engagement of students from disadvantaged and vulnerable backgrounds. It highlights key motivational and systemic factors that contribute to long-term educational commitment. For further details, see [Deliverable D5.1](#).

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*Transformative drivers are the interrelated personal, relational, and structural conditions that shape and sustain students' educational engagement. They foster resilience, motivation, and equity, enabling learners to overcome adversity and achieve long-term success.*

---



#### **‘INSPIRE’ KEY TAKEAWAYS**

Early adversity profoundly affects educational trajectories, with familial instability and systemic barriers disrupting learning and identity formation.

Supportive relationships, within families, schools, and peer groups, are fundamental catalysts for educational success.

Inclusive and engaging school environments, including extracurricular activities, foster emotional well-being, identity development, and academic motivation.

Personal agency, characterised by resilience, resourcefulness, and a belief in education's transformative power, drives persistence despite obstacles.

Institutional support factors such as scholarships, flexible pathways, and professional services are indispensable enablers for overcoming structural disadvantages.

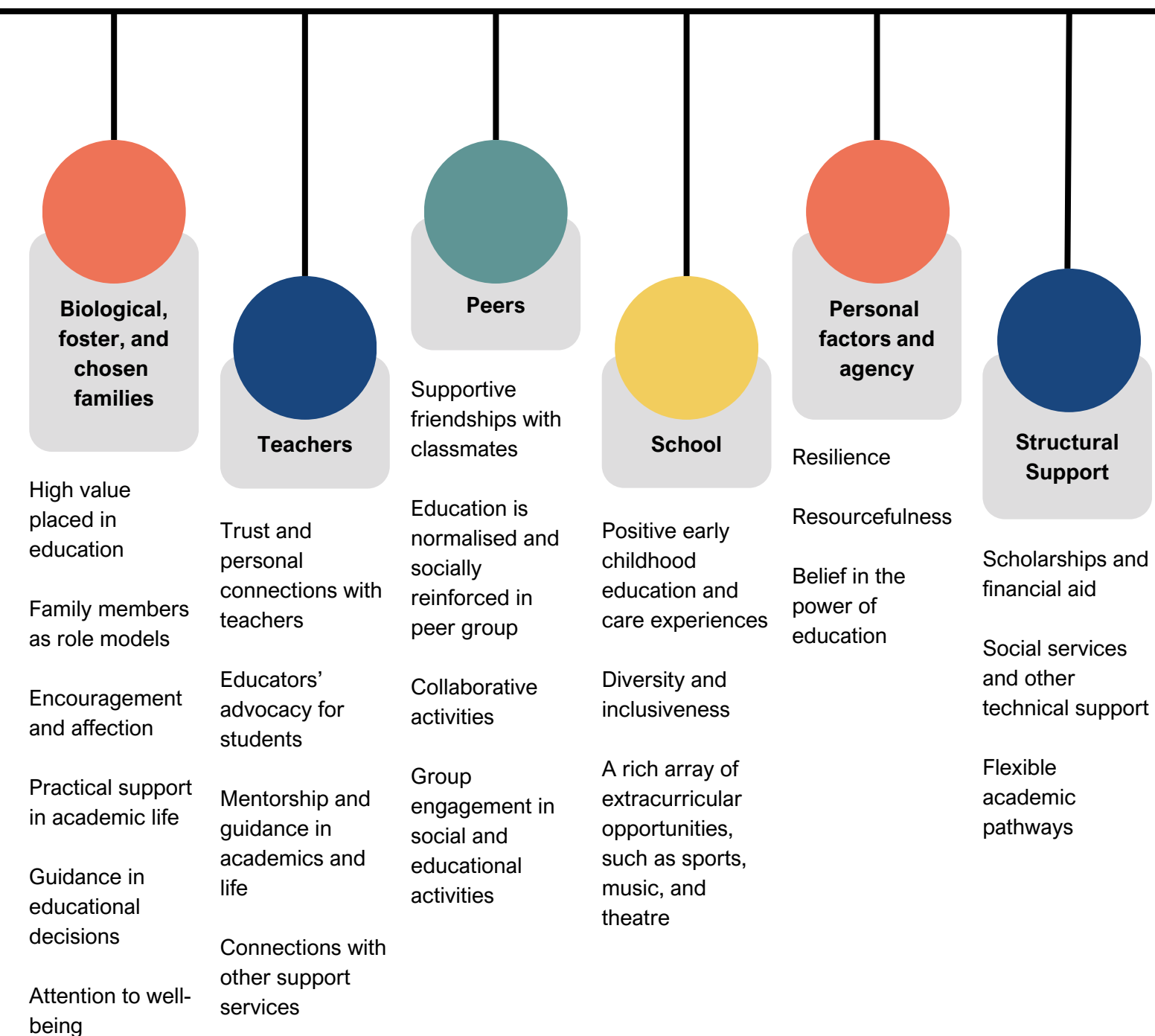
Transformative change emerges from the dynamic interplay of structural, relational, institutional, and personal factors rather than isolated influences.



## Key Transformative Drivers

Fig. 10 overviews six key transformative drivers discerned from participants' narratives, including family support, teacher and peer support, school, personal factors and agency, and structural support.

**Fig. 10.** Transformative drivers of successful educational paths in vulnerable youth



## The Role of Families of Origin and Choice

The detrimental effects of early adversity on educational outcomes are well documented. Children facing family instability, neglect, or socio-economic hardship experience elevated risks of emotional and cognitive challenges, which compromise school engagement and achievement (Repetti et al., 2002). Structural inequalities, including discriminatory school environments and under-resourced institutions, disproportionately affect marginalised groups such as Roma and migrant students (European Commission, 2011; 2017). These adversities intersect with processes of identity formation, navigating competing cultural expectations and stigma, thereby might potentially undermine educational aspirations (Shpigelman et al., 2022).

In this study, consistent with Bronfenbrenner's ecological systems theory (1979), which highlights the centrality of proximal processes in child development, participants emphasised the critical role of nurturing family relationships for "succeeding against all odds". The sustenance provided by familial networks, whether biological, foster, or elective, consistently was reported as foundational infrastructure supporting youths' educational trajectories.

For Roma participants, the nuclear family often served as a key source of educational support. One student, despite resistance from extended relatives who viewed education as a cultural threat, was motivated by her Roma parents, particularly her father's activism and aspirations for university education. Similarly, another participant emphasised his family's belief in the value of education, viewing their support as reflective of a shifting cultural outlook within the Roma community.

---

*My parents wanted me to be a great student. My parents are smart people. Yes. The gypsies are generally smart people. You will see that from now on, in the next 50 years, more and more gypsies will graduate from school. (Participant, Roma background)*

---

Siblings often served as key academic role models for Roma participants. One was inspired by a brother with a university degree and a stable job; another by an elder sister who modeled strong study habits and offered academic help. A third credited her motivation to the support of her mother, siblings, and stepmother, who encouraged academic commitment.

---

*The people who always supported me were mainly my mum, while she was alive, then my sister and my brother, and stepmother. They always supported me with my studies, they always gave me motivation, they always told me that I had to pay attention to my grades: 'that's what's going to make your future, so you can go to university'. (...) I always wanted to be the pride of the family, so I always tried my best to get the best grades. And those were the people who really marked me in my life, very important people, because they were the ones I spent my best moments in life with and without them, honestly, I don't think I'd be anything now. (Participant, Roma background)*

---



Supportive foster families often played a key role in reshaping youth trajectories. One respondent found belonging in a nurturing foster home, marked by a meaningful baptismal celebration. Another participant credited his foster family with steering him away from delinquency and toward education. Beyond family, involvement in church and scouting offered mentorship and peer support, fostering social integration and empowerment.

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*You can get into being a scout without knowing anything, and you will still be accepted for who you are. (Participant, foster home background)*

---

Collectively, these narratives elucidate how affective encouragement, structured guidance, cultural capital transmission, and community embeddedness coalesce to enable youths to negotiate identity formation, overcome structural adversities, and envision attainable educational futures. Parental encouragement, even in the face of structural hardship, acts as a powerful driver of educational persistence. This aligns with the research on parental expectations and emotional support, which have been shown to predict educational attainment, even in disadvantaged contexts (García-Carrión, 2018; Jaynes, 2024).

### Educators as Providers of Emotional Support, Mentorship, Advocacy, and Interpersonal Connection

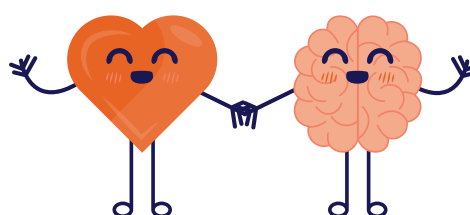
Teacher support similarly enhances student motivation and resilience, serving as a protective factor against adverse school experiences (Khalfaoui et al., 2021). Participants' narratives underscored how educational institutions, particularly teachers and other school personnel, frequently constituted stabilising agents within their lives. These role figures were consistently identified as pivotal contributors to the youths' sustained academic pathways. Typically, teachers and mentors in formal and informal settings aided in decision-making processes and functioned as reliable sources of emotional, pragmatic, and relational support amidst turmoil or bereavement.

One participant recounted the instrumental role of his secondary school English instructor, who identified and addressed his linguistic difficulties.

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*My English teacher in secondary school was a huge support because I was really struggling. He noticed my difficulties, not just in his class but in other subjects as well. In geography, for example, when the teacher asked me something, I wouldn't understand, and they'd get frustrated with me. It was embarrassing. (Participant, minority background)*

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The same participant further acknowledged that his linguistic competence markedly improved, which enabled transitioning from a student challenged by English to one writing poetry. Their relationship extended beyond academics into shared interests such as football, fostering social integration, and extracurricular participation. The teacher reflected,

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*I remember in transition year he wrote a poem about his favourite footballer. It was fantastic. (...) What I loved about teaching was building relationships. I wouldn't always talk to [name] about English—I'd talk to him about football. And once you have that connection, you can do great things. (Participant's teacher)*

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Another respondent's narrative illustrates how institutional attentiveness and educator sensitivity can pivot outcomes. When her absenteeism elicited concern, a vice principal arranged for her to engage with a study counsellor, which precipitated her transfer to a continuation school and access to therapeutic services. She recounted the exceptional nature of this support.



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*The study counsellor even visited different continuation schools for me. That sounds like a fantasy thinking of it now. (Participant, migrant background)*

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Similarly, another participant fondly recalled the role of her first teacher in nurturing a passion for reading and offering small yet significant affirmations.

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*She would always give us books to read because she knew I was a bit of a book nerd. She had kids just a few years older than me, so she'd bring in books from home and let me take them....She would say little things like, 'You're doing well today,' or 'You look nice today.' Even those small comments made me feel noticed and cared for. (Participant, minority background)*

---

Collectively, these testimonies highlight the multifarious functions of educators and school environments in supporting vulnerable learners. When staff respond with compassion, vigilance, and advocacy, they facilitate not only scholastic attainment but also serve as crucial emotional anchors for youth.

### Friendships, Collaborative Endeavors and Peer Engagement

Peer relationships also significantly shape academic engagement, where positive peer norms correlate with higher motivation and persistence (Wentzel et al., 2021). Participants' testimonies reveal that affirmative peer affiliations substantially augment scholastic achievement. For a Roma student, the establishment of positive connections with non-Roma peers was instrumental in galvanising her resolve to persist in her educational pursuits. Immersed within a milieu wherein education was an incontrovertible norm, she inhabited a cultural nexus that valorised and anticipated academic continuation. She accentuated that the educational dispositions of her peers served as a salutary counterbalance to less supportive influences within her community, thereby affording her access to enabling study environments and forms of social reinforcement that collectively fostered a milieu in which academic engagement was both normative and valued.

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*That has also made me grow up in a circle with people who already had guaranteed success in school, my non-Roma friends. In the end, what I have achieved is to grow up in an environment with a positive influence and not a negative one. That has made me, within my own neighbourhood, to have the support of going to my friends' house to study, because there wasn't a space to study in my house. So, I have lived in a context of privilege. Maybe my cousins haven't been able to have that opportunity. (Participant, Roma background)*

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In another student's trajectory, collaborative peer learning constituted a crucial component. Upon his transition to secondary education and in response to increased academic demands, he cooperated with similarly motivated classmates to enhance collective success, an approach he sustained into his university studies when encountering difficult subjects.

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*That's when I started to create a specific group of classmates so I could study every afternoon. And that changed everything because I noticed that there were subjects I was good at and others I wasn't. Some classmates had a good, solid foundation in technology and a poor foundation in mathematics, and that made up for it. (Participant, minority background)*

---

Collectively, these vignettes underscore the integral role of peer companionship, collaborative learning, and group participation in educational and social activities in fostering an inclusive and motivating academic trajectory, particularly for students negotiating multifaceted sociocultural impediments.





### The School as a Locus of Inclusion and Enriched Pedagogical Experience

Research supports the notion that schools that cultivate inclusive, holistic learning experiences promote not only cognitive development but also socio-emotional well-being and identity integration (Yuen & Wu, 2024). Engagement in extracurricular activities is linked to improved self-esteem, social competence, and academic perseverance, particularly among marginalised youth (Heath et al., 2022). Inclusive school climates that embrace diversity and encourage student expression mitigate exclusionary experiences and foster a sense of belonging crucial to motivation and retention (Hoferichter et al., 2021). These perspectives were reflected in the participants' stories.

One participant reminisced about her formative schooling in her country of origin, emphasising the efficacy of play-based pedagogy as a source of joy. Early childhood education was highlighted as a crucial factor when characterised by positive experiences, including curricula that integrated song-based traditions and emphasised resilience-building. These elements significantly contributed to sustaining the respondent's educational perseverance. As she articulated,

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*And then we also learnt things by singing. For example, the alphabet or the vowels. So it was another kind of learning that made it fun. (...) I think that was fundamental, because from an early age I was taught not to give up and to seek support from other people when I needed it. (Participant, migrant background)*

---



Another participant's engagement with school-based theatrical projects furnished alternative avenues for engagement and flourishing. She characterised theatre as a conduit for fostering intimate, supportive relations and cultivating self-awareness, dimensions inadequately addressed within traditional academic frameworks.

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*The theatre teacher... really stimulated the other part that the school has, in my opinion, failed to offer in recent years, which is the human aspect, the relational aspect, who we are. (Participant, disadvantaged circumstances)*

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These narratives collectively illuminate how an inclusive school environment, enriched through diverse extracurricular and social opportunities, can profoundly facilitate meaningful engagement with both pedagogy and peer networks, thereby amplifying the impact of other transformative influences.



### Personal Factors and Agency: Resilience, Resourcefulness, and Belief in Education's Transformative Potential

Resilience theory highlights how personal agency and self-efficacy beliefs empower youth to overcome adversity and pursue educational goals (Masten, 2014; Theron & Ungar, 2023). The conviction that education serves as a pathway to social mobility acts as a powerful motivator among disadvantaged students (Martin et al., 2022). Such agency is nurtured through early socialisation and reinforced by positive experiences within educational settings, emphasising the reciprocal relationship between individual capacities and environmental supports (Bandura, 1997).

The presence of positive relational networks, with peers, family, or educators, cultivated personal attributes that underpinned participants' educational perseverance. Many identified a steadfast belief in education as a catalyst for transformation, alongside resourcefulness, resilience, commitment, and dedication as pivotal drivers of their success.

For instance, one participant attributed his accomplishments to a profound conviction in the emancipatory power of education and an ability to mobilise support when necessary. Having witnessed firsthand that scholastic achievement could unlock opportunities and disrupt cycles of deprivation, he remarked,

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*It's not magic, it's not voodoo, it's nothing out of this world, it's simply believing that education is the key to everything. (Participant, minority background)*

---

Another participant from a migrant background credited his achievements to a synergy of external support and personal initiative. His decision to apply for a mentoring role for underage migrants, concurrent with university entrance preparations, proved decisive. This bold move facilitated his social, academic, and professional integration, culminating in employment he enjoys alongside admission to his preferred university program.

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*When I was preparing for the exams to enter university in [city], I saw this position in [city] asking for a mentor for underage migrants at [place], and I applied. After my exams, I was offered to do an interview for the job, and I was accepted. I decided to thus leave [city] and move to [city]. I also passed my exams for university, and I got in my first choice, which was [degree]. So now I am working and studying at the same time. (Participant, migrant background)*

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In conclusion, fostering personal resilience alongside external support is vital for educational success among disadvantaged youth. Agency and a growth mindset enable students to overcome challenges, while belief in education as a path to social mobility motivates sustained engagement. This agency and resilience develop through early socialisation and positive educational experiences, underscoring the interplay between individual strengths and supportive environments.

### Structural Support through Financial Aid, Services, and Flexible Academic Pathways

Structural support refers to the systemic, institutional, and policy-level mechanisms put in place to reduce educational inequities and ensure all students, particularly those from socioeconomically, culturally, or linguistically marginalised backgrounds, can access and succeed in learning opportunities. These forms of support build on the principles of educational equity, which demand tailored resources and policies responsive to diverse learner needs (OECD, 2018b) and include scholarships and financial aid that alleviate economic barriers to access, and flexible academic pathways that accommodate heterogeneous learning styles and life circumstances (Mulvey, 2021). Additionally, professional services, such as counseling and mentoring, provide critical socio-emotional support that enhances retention and academic success for vulnerable populations (Claro & Perelmiter, 2022). These mechanisms serve as vital systemic enablers complementing relational and individual factors.

Participants highlighted the role of institutional policies and programs in providing essential support at crucial junctures.

For example, one participant emphasised the significance of scholarships and financial aid in enabling his pursuit of higher education,

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*I am lucky because coming here with a scholarship and for my family to not have to pay for me and maintain me, everybody wants this.*  
(Participant, minor background)

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In sum, the interviews highlighted the pivotal role of a broad constellation of institutional supports enabling disadvantaged students' educational success. These included technical and pedagogical guidance from mentors, educators, and counsellors; integrated social and welfare services; and financial mechanisms such as scholarships, bursaries, and mobility programs that alleviated material constraints while expanding students' horizons and aspirations. Equally important were flexible academic pathways responsive to individual needs and ambitions. For many, achievement against substantial odds would have been impossible without these essential forms of systemic support.





## Section Summary

Young individuals from vulnerable backgrounds require multifaceted and sustained forms of support to navigate the intersecting structural and contextual challenges that constrain their educational participation and achievement. Promoting social inclusion and fostering educational resilience therefore necessitate multi-level, ecological approaches that integrate individual, relational, and systemic dimensions. Analysing such factors in isolation risks oversimplifying the complex realities of marginalised learners; hence, holistic interventions that address material, emotional, and social needs are essential to achieving equitable educational outcomes. This synthesis demonstrates that transformative learning trajectories emerge from the dynamic interplay between adversity, networks of care involving caregivers and educators, inclusive learning environments, personal agency, and institutional practices. The six identified transformative drivers collectively provide a robust conceptual foundation for understanding diverse pathways to academic success “against all the odds” and offer actionable insights for educators and policymakers seeking to strengthen resilience, engagement, and equity. Overall, the findings underscore the imperative for systemic, relational, and individualised strategies to redress educational disparities, prevent underachievement, and mitigate the risk of early school leaving. Only through coherent collaboration between policy and practice, education systems can more effectively enable all students to realise their full potential and achieve meaningful success.





## Dimension 5: Engage

*Engaging with stakeholders through community and resource building*

Lasting educational impact depends on meaningful collaboration among everyone who shapes learning – schools, families, students, policymakers, and communities. The ‘Engage’ dimension connects these actors through shared resources, networks, and opportunities for dialogue and co-creation, helping transform knowledge into sustained collective action.

At the heart of the ‘Engage’ dimension are two key features: the SCIREARLY Impact Platform and the STUDENET Community of Practice. Together, they foster collaboration, amplify voices, and ensure that the lessons and innovations from SCIREARLY continue to inspire action well beyond the project’s lifetime.

### The SCIREARLY Impact Platform

This platform offers a dynamic, resource-rich space for schools, educators, and policymakers. It integrates research, policy, and practice across the educational continuum, housed in a user-friendly platform structured around SCIREARLY’s five dimensions for holistically addressing ESL and underachievement: Understand, Prevent, Implement, Inspire, and Engage. Users will be able to navigate and peruse the project outcomes adapted to an accessible language and format. Examples of resources include the Toolkit (for schools and educators), policy briefs (for policymakers), and inspiring vignettes of students who have succeeded against all odds.



### STUDENET Community of Practice

STUDENET is a collaborative online community developed by SCIREARLY to support students at risk of early school leaving across Europe. Hosted on the project website alongside the Impact Platform, it provides a safe and inclusive environment where students can share experiences, seek advice, and access resources related to academic success, mobility, and personal development. Grounded in dialogue and peer connection, STUDENET fosters mentorship among students and engagement with educators and mentors. It also offers access to inspiring stories and practical guidance, empowering young people, particularly those who experience systemic marginalisation, to navigate challenges and pursue their aspirations through shared knowledge and mutual support.

Together, the Impact Platform and STUDENET embody the Engage dimension’s purpose: to connect people, ideas, and practices that collectively drive equitable and lasting improvement in education across Europe and beyond.



# 5

## KEY INSIGHTS AND RECOMMENDATIONS

This concluding section provides a concise overview of the core takeaways highlighted throughout the report (Subsection 5.1, Key Insights and Contributions) and offers concrete, evidence-informed recommendations for policymakers, practitioners, families, students, and other stakeholders (Subsection 5.2, From Evidence to Action: Recommendations and Resources) to reduce early school leaving and underachievement and advance inclusive and equitable educational practices for all students to thrive.

### SCIREARLY'S key insights and contributions

Over the past three years, the SCIREARLY project has pursued its ambitious aim of advancing scientific knowledge to contribute to reducing early school leaving and underachievement across Europe. Grounded in a robust analysis of impactful ECEC experimental studies, comprehensive research literature, exemplary policy models, successful learning environments, and life-course trajectories, the SCIREARLY project provides a strong empirical basis for actionable change. Particular attention is devoted to children in vulnerable circumstances, with an emphasis on the transformative potential of education in reshaping trajectories marked by structural disadvantage.



Recognising the significance of lived experience, the project foregrounds the voices of students who have succeeded against considerable odds, using their narratives to inform evidence-based policy and practice, and to inspire both their peers and broader systemic change.

Firstly, most importantly, SCIREARLY has brought renewed attention to the quality of Early Childhood Education and Care (ECEC), framing it as foundational for lifelong academic and psychosocial success. Drawing on extensive literature and empirical study, it has documented how high-quality ECEC confers long-term benefits, especially for disadvantaged children. SCIREARLY's evidence underscores several interwoven themes: that social determinants of educational outcomes are interactive rather than isolated; that reproductionist structures limit agency and perpetuate inequality; that early identification of students at risk, coupled with preventive practices, is essential; that caring relationships—with teachers, families, and peers—are central to learning and well-being; and that effective policy must be inclusive, adaptive, and operate at the individual, school, and community levels.

Secondly, SCIREARLY succeeded in identifying exemplary preventive, interventionist and compensatory policy models from across Europe that offer transferable lessons. It emphasised the crucial role of whole-school and community-based strategies, for example, Ireland's DEIS programme and Spain's Schools as Learning Communities; accentuated curricular flexibility tailored to local needs, like in the example of Portugal, and integrated, accessible second-chance pathways, as in Malta's model.

Although SCIREARLY embraced a transformative stance, aiming to reframe how early school leaving and underachievement are understood and addressed, it also maintained a critical and evidence-based lens that allowed it to identify persistent, structural challenges within European education systems, such as limited resources, uneven workforce capacity, and insufficient training, and provide research-informed policy and practice recommendations to address them.

Thirdly, at the classroom and school levels, SCIREARLY developed several practical tools and resources—such as the teacher self-evaluation instrument, indicators for high-quality ECEC, and the Toolkit of successful learning environments—that provide concrete levers for change. The project showed that successful learning environments characterised by emotionally secure, intellectually engaging teacher-child interactions, early focus on literacy/numeracy/scientific reasoning, dialogic and relational pedagogies, inclusive settings, strong school-family partnerships, and ongoing professional learning strengthen the sense of belonging of vulnerable students in challenging schools and deliver the greatest equity-oriented impact.

Additionally, SCIREARLY has made a significant contribution to advancing understanding of the transformative drivers of academic success in contexts of vulnerability by systematically collecting and amplifying the voices of individuals who attained positive educational outcomes despite experiencing considerable adversity and structural disadvantage. These narratives yield critical insights into a constellation of enabling conditions, including sustained relational support, resilience, and individual agency, that collectively foster academic achievement. Beyond their inspirational value, these accounts serve as empirically grounded entry points for the design of more holistic, inclusive, and contextually responsive educational policies and practices. In doing so, SCIREARLY contributes to the development of cross-sectoral strategies aimed at addressing educational inequalities and reinforcing comprehensive support systems for learners at heightened risk of marginalisation.



Finally, the project successfully developed SCIREARLY's comprehensive, evidence-based framework for reducing underachievement and early school leaving, reflected in five interlinked dimensions - Understand, Prevent, Implement, Inspire, and Engage. This framework provides a coherent structure to this final report and serves not only as a synthesis of the project's research and practical insights but also as a transferable tool that can guide future initiatives aimed at educational transformation and social impact. In the context of Europe's complex geopolitical challenges, the framework offers a coherent and integrated structure for addressing multifaceted social issues. It spans from rigorous knowledge generation and early intervention to effective implementation and sustained stakeholder engagement, thereby ensuring robustness, rigor, and adaptability of a project design.

To conclude, SCIREARLY has decisively highlighted the paramount importance of high-quality Early Childhood Education and Care as the essential foundation for lifelong academic achievement, while effectively demonstrating the need for developing cohesive and evidence-based policies and practices to address underachievement and early school leaving. Through its comprehensive and interdisciplinary approach, firmly anchored in systematic co-creation, SCIREARLY has made substantial progress in tackling these persistent challenges by uniting diverse stakeholders, producing rigorous and impactful evidence, and designing evidence-based, practical tools and frameworks. The project's compelling outcomes foster a justified sense of hope that, with sustained dedication and collaborative effort, transformative and enduring change is attainable—thereby establishing a more equitable and resilient foundation for the educational trajectories of children throughout Europe.



## From evidence to action: Recommendations and SCIREARLY resources

### Recommendations for policymakers

#### 1. **Strengthen Early Childhood Education and Care (ECEC) as a foundational component of educational equity.**

Recognise the pivotal role of ECEC in preventing early school leaving and addressing structural inequalities. Elevate the professional status of ECEC educators through comprehensive, evidence-based training, ongoing professional development, and equitable compensation, recognising their critical contribution to fostering cognitive, emotional, and social development among vulnerable and diverse learner populations.

**2. Ensure equitable access to high-quality, culturally responsive educational services.** Implement policies that guarantee universal availability of inclusive curricula and learning environments that are sensitive to cultural and linguistic diversity and responsive to the needs of all students.

**3. Prioritise safe, inclusive, and culturally affirming educational environments.** Encourage the intentional design of physical and social spaces that promote positive peer interactions and a sense of belonging, while embedding cultural representation and visibility to affirm all student identities.

**4. Promote flexible, compassionate approaches to attendance and engagement.** Design school-wide strategies that prioritise sustained attendance and active participation, incorporating responsive measures that acknowledge and address individual barriers and diverse circumstances.

**5. Develop coherent support frameworks to facilitate smooth educational transitions.** Establish standardised, cross-institutional protocols that provide continuous and consistent academic, social, and emotional support as students advance through different levels of education, minimising disruption and attrition.

**6. Strengthen collaborative partnerships among families, schools, and communities.** Allocate resources to enhance home-school-community engagement initiatives, recognising these partnerships as essential to comprehensive support systems that address multifaceted student needs.

**7. Expand access to mental health and alternative pathways for success.** Increase investment in school-based mental health and psychosocial services, alongside the development and recognition of multiple academic and vocational pathways, to accommodate diverse learner profiles and promote holistic well-being.

**8. Prioritise comprehensive, evidence-based professional development for educators and school staff.** Allocate sustained resources to the design and implementation of rigorous, research-informed professional development programs that equip educators and school personnel with the skills and competencies necessary to effectively support vulnerable and diverse learner populations across all educational levels.

**9. Foster collaborative and inclusive governance through shared decision-making.** Actively engage families, educators, and community stakeholders in participatory and egalitarian decision-making processes. Ensure that the diverse voices of policy recipients are meaningfully represented.





## Recommendations for school leaders

**1. Prioritise whole-child development through culturally responsive curricula and relational, dialogic pedagogies.** Ensure that curricula are thoughtfully adapted to address the diverse, context-specific needs of learners. Foster a school culture that emphasises dialogic pedagogical approaches, actively promoting children's agency and voice, and ensuring that students feel recognised, valued, and supported throughout their educational trajectory.

**2. Implement structured support systems to facilitate smooth educational transitions.** Establish coherent frameworks that provide continuous and consistent support to students as they navigate key educational transitions, minimising disruption and ensuring ongoing academic and psychosocial development.

**3. Prioritise relationship-building to enhance educational outcomes.** Foster a school culture that values and promotes meaningful, supportive relationships among students, educators, families, and peers, recognising these connections as fundamental to academic success and socio-emotional well-being.

## **4. Foster collaborative partnerships with families and community stakeholders.**

Actively expand and strengthen home-school-community collaborations by engaging families, communities, and local organisations, thereby creating holistic support networks that address learners' diverse needs.

**5. Promote collaborative and inclusive governance through participatory decision-making.** Engage families, educators, students and community stakeholders in collaborative and egalitarian decision-making processes to ensure that diverse perspectives meaningfully inform policy development.

**6. Ensure continuous needs-based professional development.** Commit to ongoing, evidence-based professional learning opportunities for educators and staff, equipping them with the knowledge and skills necessary to effectively support vulnerable and diverse student populations and to implement inclusive pedagogical practices.





## Recommendations for practitioners

### 1. Systematically implement inclusive and evidence-based learning environments.

Adopt frameworks such as the SCIREARLY Toolkit to guide the implementation of learning environments that are culturally responsive, inclusive, and supportive of diverse student needs.

**2. Foster strong, sustained relationships across the school community.** Cultivate meaningful between educators and students, among peers and families, recognising the critical role of these connections in promoting engagement, belonging, and academic success.

**3. Prioritise early identification and targeted remedial interventions for at-risk students.** Implement collaborative instructional models, including team-teaching and focused remedial tutoring, to deliver timely, individualised support for students exhibiting academic difficulties.

**4. Utilise student voice and relational indicators as tools for continuous improvement.** Regularly engage students in providing feedback to inform pedagogical practices and employ relational indicators to identify early signs of disengagement, enabling timely and responsive interventions.

**5. Integrate cultural responsiveness and linguistic diversity into curricula and pedagogy.** Embed the histories, values, traditions, and languages of ethnic minorities within learning materials and activities, thereby validating students' identities and enriching the educational experience.

**6. Prioritise professional growth and collaborative learning networks.** Participate in ongoing professional development and engage in communities of practice, fostering shared learning and innovation across schools and educational contexts.





## Recommendations for caregivers

**1. Active engagement and building strong partnerships with schools.** Participate in school activities and seek ongoing education on how to effectively support your children's learning and well-being at home. Utilise resources such as the SCIREARLY Toolkit (see Annex 1) for practical strategies and guidance. Explore the Toolkit by discussing its ideas with your children or other parents to better understand how to support learning at home and strengthen your role as an active partner in your child's education.

**2. Read together.** Make it a habit to read with your children regularly, choose books they enjoy, and take time to ask open-ended questions about the story. Imagine together what could happen next, or how the characters feel. These shared reading moments not only improve literacy but also build curiosity, creativity, and emotional connection.



## Recommendations for students

**1. Get involved and share your voice.** You play an important role in your own education. By getting actively involved in class, school activities, and decision-making, you can help shape your learning environment and school culture. Your voice matters, sharing your ideas and experiences can help make school more supportive, fair, and fun for everyone. If you're facing challenges, don't hesitate to speak up. Ask for help from teachers, counsellors, or family members, and work together to find solutions.

**2. Build strong relationships.** Having positive, respectful relationships with your classmates and teachers makes school a better place to learn and grow. Join clubs, sports, or school events to meet new people and feel more connected. Taking on leadership roles or helping out in your school community can also boost your confidence and motivation. Strong relationships create a sense of belonging, and that helps you succeed both in and out of the classroom.

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## ***Successful Learning Practices for All Children to Thrive***

SCIREARLY Toolkit is a comprehensive, evidence-based and practice-oriented resource designed to support the replication and adaptation of Successful Learning Environments across diverse educational contexts.

The toolkit was developed as part of Work Package 3 of the project, which involved an extensive analysis of 20 case studies conducted in 10 European Union countries—including Portugal, Ireland, Finland, Denmark, Spain, Greece, Italy, the United Kingdom, and Malta.

Developed through a rigorous process of comparative case study analysis and synthesis, this dynamic and interactive online resource, available publicly at <https://scirearly.eu/tools/> aims to empower teachers, school leaders, and other education stakeholders with practical tools and guidance to create, adapt, and sustain thriving learning environments that meet the diverse needs of all learners to mitigate underachievement and reduce early school leaving.

Drawing from empirical evidence gathered from both primary and secondary education settings, the toolkit distils successful practices that have demonstrably reduced underachievement, fostered socio-emotional development, and promoted inclusive education. Importantly, the tools included were rigorously tested and co-constructed with end users through a dialogic co-creation process that engaged nearly 1,000 participants—including teachers, students, families, and community members—within the SCIREARLY project.

It is structured around several key dimensions—such as pedagogies, teacher–student interaction, peer collaboration, home–school collaboration, and wellbeing and support—each encompassing a range of actionable strategies.

All materials are fully accessible in seven languages (Spanish, Portuguese, English, Finnish, Maltese, Greek, and Italian), ensuring broad accessibility across Europe.

