



PREVENTING AND FIGHTING EARLY LEAVING
FROM EDUCATION & TRAINING WITH AI

stAI

Act before it happens: Preventing and fighting Early
Leaving from Education and Training with Artificial
Intelligence

T3.1 Collection of case studies and good practices about the
potentials/benefits of using/integrating data-driven
technologies for decision support in educational settings

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Introduction

This handbook serves as a comprehensive collection of case studies and good practices from Iceland, Belgium, Italy, Romania, Portugal and Cyprus, focusing on the transformative potential of data-driven technologies in the field of education. As education systems worldwide increasingly embrace digital innovation, the use of data analytics, artificial intelligence, machine learning, and other data-driven tools has emerged as a key driver for enhancing educational outcomes, personalizing learning experiences, and fostering inclusive environments.

This handbook aims to showcase diverse approaches to implementing these technologies and their impact on education. The cases highlight the strategies, challenges, and successes encountered in integrating data-driven technologies, providing valuable insights for educators, policymakers, and stakeholders interested in leveraging technology for educational improvement.

Each case study explores different aspects of data usage, ranging from learning analytics and student monitoring to the use of big data for institutional decision-making and the implementation of AI-powered tools for adaptive learning. By documenting these practices, this handbook seeks to promote knowledge sharing and inspire new initiatives that harness the power of data to enhance teaching and learning across different educational settings.

Ultimately, this collection serves as a resource to guide and support the development of data-driven educational practices, ensuring that education systems worldwide can effectively adapt to the demands of the digital age while fostering equity, engagement, and student success.

Country Case studies

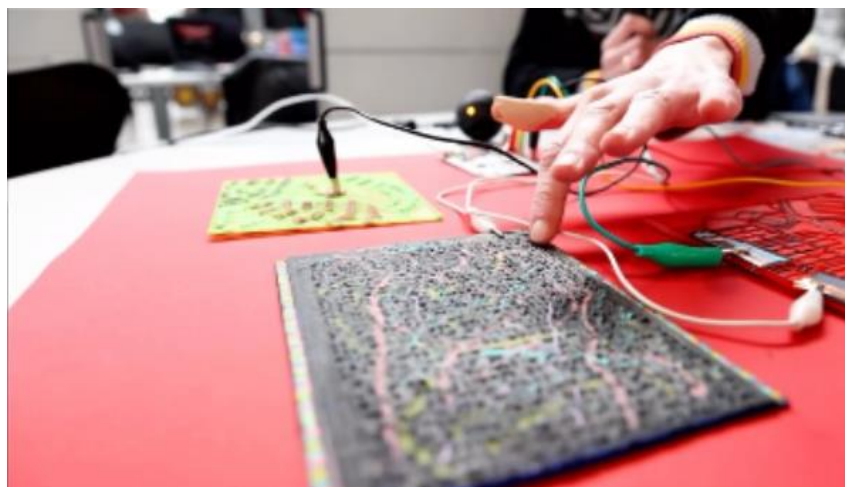
Country 1: Iceland

Case Study 1: Mixtúra - Knowledge and Innovation Centre:

Location: Reykjavík, Iceland

Website: <https://reykjavik.is/mixtura>

Short Description: Mixtúra is the City of Reykjavík's dedicated knowledge and innovation center supporting the digital transformation and pedagogical development within its compulsory schools (age 6-16) and leisure time centers. Operating under the Department of Education and Youth, Mixtúra provides targeted professional development, consultancy, and resources for educators, leisure time staff, and leaders. Its key focus areas include integrating digital learning tools effectively, implementing creative technologies (such as coding, robotics, and digital fabrication), fostering innovative teaching practices, and supporting the city's education policy aims ("Látum draumana rætast" - Let Dreams Come True).



https://www.instagram.com/mixtura_reykjavik/

Why is it considered a good practice?

- **Systemic, City-Wide Support:** It offers a centralized, coherent strategy for innovation and support across a large number of educational and leisure institutions, ensuring broader reach and more equitable access to development opportunities for staff throughout Reykjavík.
- **Focus on Professional Empowerment:** By prioritizing the continuous professional development of staff, Mixtúra builds the capacity of those working directly with children and youth, equipping them with the necessary skills and confidence to utilize modern pedagogical approaches and technologies effectively.
- **Integration of Digital and Creative Technologies:** Actively promotes and supports the meaningful integration of diverse technologies into learning and leisure



environments, enhancing students' digital literacy and fostering crucial 21st-century skills like creativity, collaboration, and computational thinking.

- **Creating Communities of Practice:** Mixtúra facilitates collaboration and knowledge sharing among professionals through workshops, networks, and project support, helping to build a sustainable culture of innovation and peer learning across the city's educational landscape.
- **Enhancing Learning Environments for Student Engagement and Opportunity:** By investing in the skills of educators and leisure staff and promoting engaging, technology-enhanced learning activities, Mixtúra directly contributes to creating more positive, inclusive, and motivating environments for children and adolescents. This improved environment supports student well-being, fosters a sense of belonging and achievement, and thereby plays a significant role in preventing disengagement and early school leaving.

Case Study 2: Nýsköpunarstofa menntavísinda (Innovation Centre for Educational Sciences)

Location: School of Education, University of Iceland, Reykjavík, Iceland

Website: <https://nyskopunarstofa.hi.is/is>

Short Description: Nýsköpunarstofa menntavísinda (the Innovation Centre for Educational Sciences) operates within the University of Iceland's School of Education, serving as a vital link between educational research, schools (K-12 and beyond), and the educational technology (EdTech) industry. The Centre actively promotes innovation by supporting EdTech entrepreneurs, fostering collaboration through events, and running a dedicated testing platform where educators and students can pilot and evaluate new EdTech solutions. A key focus is ensuring technology enhances learning for all, highlighted by its think tank on inclusive educational technology.

Why is it considered a good practice?

- **Bridging Research, Practice, and Development:** It creates a crucial ecosystem connecting academic insights, the real-world needs and experiences of schools, and the innovative capacity of EdTech developers, facilitating relevant and impactful educational innovation.
- **Promoting Evidence-Based EdTech Adoption:** Testing Platform empowers schools to make informed decisions about technology by allowing them to test solutions in practice and gather feedback on usability and effectiveness, ensuring investments are made in tools that genuinely support teaching and learning.
- **Fostering Educational Innovation & Entrepreneurship:** By providing support and guidance to EdTech startups and researchers, the Centre stimulates the development of new educational tools, potentially addressing unmet needs within the Icelandic education system and beyond.
- **Commitment to Inclusive Technology:** The dedicated focus on inclusive EdTech ensures that principles of equity and accessibility are central to the conversation

about educational technology, aiming to leverage tech to support diverse learners and reduce barriers for students, including those from disadvantaged backgrounds.

- **Enhancing Educational Environments for Opportunity:** By facilitating the thoughtful selection, development, and implementation of effective EdTech, the Centre contributes to creating richer, more engaging, and potentially more personalized learning environments. This ultimately supports student success, fosters essential skills, and helps create pathways to future opportunities, counteracting factors that can lead to early school leaving.

Case Study 3: Austur-Vestur Sköpunarsmiðjur (East-West Creative Labs/Makerspaces)

Location: Reykjavík Compulsory Schools (Collaboration between schools in East and West districts), Iceland

Website: <https://sites.google.com/rvkskolar.is/austurvestur/heim>



<https://menntastefna.is/strengths/austur-vestur-skopunar-og-taeknismidjur/>

Short Description: Austur-Vestur ('East-West') is a collaborative educational project implemented across compulsory schools in Reykjavík, centered around establishing and utilising 'Sköpunarsmiðjur' – dedicated Creative Labs or Makerspaces. The initiative champions hands-on, project-based learning through creative technology, design thinking, digital fabrication, and coding. It aims to integrate these innovative practices into the curriculum, aligning with Reykjavík's education policy ("Látum draumana rætast"). The project provides resources, activity examples ('Verkefnasafn'), and significant focus on teacher professional development ('Menntabúðir') and collaboration between participating schools.

Why is it considered a good practice?

- **Innovative Learning Environments:** Introduces and supports makerspaces within schools, providing students access to tools and technologies for hands-on creation, experimentation, and design, fostering a different and often highly engaging mode of learning.

- **Developing Key 21st-Century Skills:** Directly cultivates creativity, critical thinking, problem-solving, collaboration, and digital/technical skills through practical, project-based work, preparing students for future challenges and opportunities.
- **Boosting Student Engagement and Motivation:** The active, creative, and often self-directed nature of makerspace learning appeals to a wide range of students, significantly boosting engagement and making learning more relevant and enjoyable, which are key factors in preventing disengagement and potential dropout.
- **Strong Teacher Support and Collaboration:** Features dedicated professional development ('Menntabúðir') and encourages collaboration and resource sharing among teachers and schools, building the necessary capacity and community of practice for successfully implementing these new learning environments.
- **Providing Alternative Pathways to Success:** Offers students, particularly those who may not thrive in traditional academic settings, alternative ways to demonstrate their understanding, showcase their talents, and experience success, building confidence and promoting a more inclusive view of achievement.

Case Study 4: STEM Húsavík

Location: Húsavík, Iceland

Website: <https://stemhusavik.is/>

Short Description: STEM Húsavík is Iceland's first formal "STEM Learning Ecosystem," a community-based initiative in North Iceland focused on enhancing education and skills in Science, Technology, Engineering, and Mathematics. It works by connecting diverse local resources – including schools (from kindergarten to upper secondary), Fab Lab Húsavík, museums, businesses, community organizations, and families. The project provides hands-on workshops, teacher training, access to a STEM materials lending library (with items like robots and microscopes), coding clubs, and nature camps, aiming to make STEM accessible, engaging, and relevant to the local community and its future.



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<https://stemhusavik.is/>

Why is it considered a good practice?

- **Ecosystem Approach to Learning:** It moves beyond isolated school activities by building a collaborative network (ecosystem) involving multiple community stakeholders. This creates richer, more diverse, and sustainable learning opportunities connected to the local context.
- **Hands-On Experiential Learning:** Emphasizes active, inquiry-based learning through practical workshops, experiments, and use of tools (like those in Fab Lab Húsavík and the lending library), fostering deeper understanding, creativity, and problem-solving skills in STEM.
- **Teacher Capacity Building:** Directly supports educators across different school levels with professional development workshops and resources (lending library), empowering them to implement high-quality, engaging STEM teaching practices.
- **Developing Future-Ready Skills:** Provides direct access to technology (digital fabrication, robotics, coding) and focuses on developing not only technical competencies but also crucial 21st-century skills like teamwork, communication, and perseverance through project-based activities.
- **Promoting Regional Access and Equity:** Makes innovative STEM learning opportunities and resources accessible to students and teachers in a rural area, helping to bridge potential geographical gaps in educational offerings and inspiring broader participation in STEM fields.
- **Fostering Interest and Motivation:** By making STEM learning relevant, interactive, and connected to the community and nature, the initiative effectively sparks curiosity and increases student motivation and engagement, which are fundamental for sustained learning and pursuing further education or careers in STEM.

Country 2: Belgium

Case Study 1: Project A'REA UP: the emergency plan for qualified outflow

Location: Antwerp, Belgium

Website:

<https://pers.antwerpen.be/stad-rolt-programma-area-up-voor-gekwalficeerde-uitstroom-verder-uit>

<https://www.onderwijsantwerpen.be/nl/onderwijsnetwerk-antwerpen-0/areaup>

<https://www.vvsg.be/kennis/praktijken/praktijkendatabank/area-up-samen-kansrijk-leren>

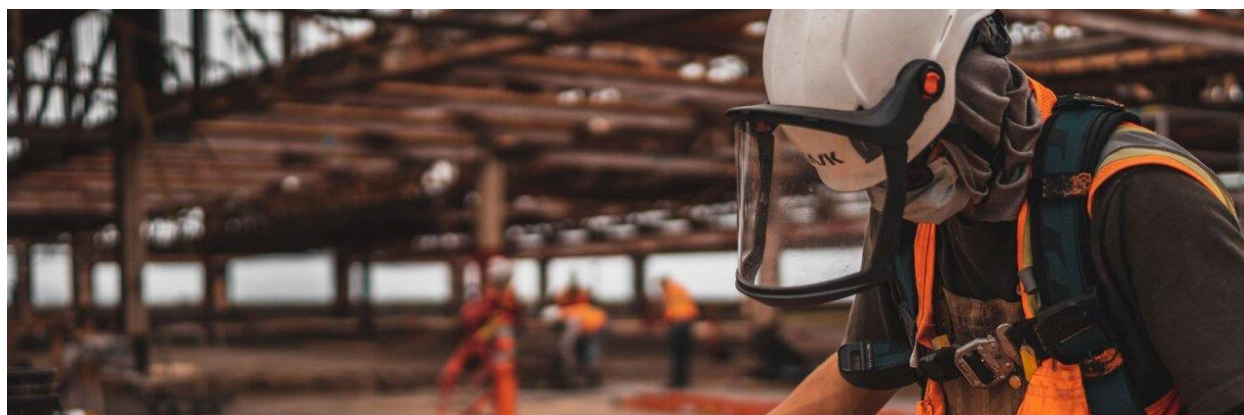
Short Description:

In response to the high number of young people in Antwerp leaving school without a diploma, the city launched the A'REA UP programme in September 2021. This programme aims to ensure that more students obtain a qualification in Antwerp education through an overarching approach with concrete actions. After an initial interim report and evaluation, the actions will now be continued or adjusted if necessary.

The 'governance & coordination' and 'data, analysis & monitoring' trajectories form the basis for realizing the more concrete approach of A'REA UP. The core of this scheme lies in the three defined pillars: prevention, intervention and compensation. In practice, each action is linked to domains and follow-up trajectories that run across the pillars.

Through vision exercises, working groups, and pilot sub-projects (e.g., support for secondary schools and flexible learning paths), the program identifies and addresses dropout risks by engaging with at-risk youth and guiding them toward education or the labor market.

Each year, an updated action plan outlines preventive, interventional, and curative strategies. Clear communication, stakeholder alignment, and a focused mission are crucial for managing diverse interests. Success factors include tangible sub-projects with measurable impact, strong school support, and meaningful partnerships. Municipalities are advised to clearly define objectives, remain realistic in scope, and engage process supervisors for effective coordination.



Why is it considered a good practice?

- **Holistic, multi-stakeholder approach:** This project tackles early school leaving through partnerships among the city of Antwerp, schools, young people, and specialized partners. It recognizes that no single actor can address the complex causes of early school leaving alone.
- **Child- and youth-centered design:** Children and young people are central to all actions. Activities are designed based on the talents, interests, and needs of students.
- **Evidence-based interventions:** Actions are scientifically grounded and based on current problem analyses. It includes effective didactics, language policy, and tailored support strategies.
- **Continuous monitoring and adaptation:** Ongoing impact measurement and evaluation provide the flexibility to refine, adjust, or continue interventions based on observed outcomes.
- **Data-Driven coordination:** The project applies central coordination and data collection for city-wide monitoring, and collaborates with Flanders to enhance data sharing and impact analysis.
- **Broad scope across multiple domains:** Structured around 10 thematic domains, ensuring a comprehensive strategy. The project includes leisure activities, parental involvement, and career choice guidance.
- **Long-term vision and sustainability:** The project emphasizes a sustainable, long-term effort to reduce dropout rates. It builds a consistent urban policy around education with shared goals.
- **Focus on early prevention:** The project extends efforts into primary education to detect and mitigate risk early. It recognizes the importance of early intervention in shaping long-term outcomes.

Case Study 2: The Leuven Support Center against School Dropout

Location: Leuven, Belgium

Website: <https://www.leuvenvoorscholen.be/leuven-steunpunt-tegen-schooluitval>
<https://pers.leuven.be/leuvense-onderwijsmakers-leren-signaalgedrag-leerlingen-lezen>

Short Description:

The Leuven Support Center against School Dropout is a collaboration between education and welfare partners to combat early school leaving.

In Leuven, 13% of students finish their school career without a diploma. These young people are much more likely to encounter unemployment, poverty, poorer health and crime.

School drop-out is too complex for an educational institution to tackle alone. That is why the Leuven Support Center against School Dropout supports Leuven school teams together with welfare partners.

Action points: (1) Strengthening the connection between student, teacher and school, (2) Learn to better deal with difficult behavior, and (3) Strengthening the school's care policy regarding school drop-out





Why is it considered a good practice?

The Leuven Support Center against School Dropout represents a good practice due to its **holistic, collaborative, and sustained approach** to tackling early school leaving. Here are the key reasons:

- **Multi-stakeholder collaboration:** The initiative is a joint effort by the city of Leuven, the Local Consultation Platform, involving schools, CLBs, youth and welfare organizations. This integrated network approach acknowledges that school dropout is a complex issue that cannot be solved by educational institutions alone.
- **Sustainability and local ownership:** It builds on existing local collaborations and initiatives that have organically emerged among partners. The institutionalization of the Support Center ensures continuity, structure, and shared ownership of the problem and its solutions.
- **Targeted, structured support:** The program implements concrete actions such as intervention groups for care coordinators, temporary accommodations for at-risk youth, and training to improve how schools manage difficult behavior. These actions are focused, practical, and directly address day-to-day challenges.

- **Data-informed decision-making:** The Support Center gathers and uses school dropout data to guide policy, monitor impact, and adjust interventions accordingly—enabling an evidence-based approach to combating dropout.
- **Focus on positive school climate and student engagement:** Emphasis is placed on fostering strong student-teacher-school relationships and on inclusive, empathetic school environments—key to preventing disengagement and eventual dropout.
- **Professional development and capacity building:** Regular training and experience exchange among partners help build local capacity to recognize and respond to early warning signs of dropout effectively.
- **Community and policy-level commitment:** With high participation and continued support from local policymakers, the program demonstrates strong political and social commitment.
- **Shared goals and funding:** Common objectives and funding mechanisms ensure that all partners are aligned and resourced, reducing fragmentation and fostering accountability.

Case Study 3: The Network Together against School Dropout

Location: Antwerp, Belgium

Website: <https://www.provincieantwerpen.be/aanbod/doe/netwerk-samen-tegen-schooluitval.html>

Short Description:

The Network Together against School Dropout mobilizes, unites and connects local actors from Education, Welfare, Work and Justice to implement a policy on truancy, early school leaving, young people with increased vulnerability and unqualified outflow through the preparation, implementation and evaluation of concrete policy actions within local agreement frameworks.

This network aims to:

- provide insight into local figures on early school leaving, truancy, permanent exclusions and unqualified outflow
- provide an information-rich environment by making available an overview of good practices within the province of Antwerp.
- develop, publicize and locally implement a provincial truancy action plan
- focus on a warm transfer of young people from school to the labor market, raising awareness, mobilizing and stimulating local authorities around the theme of Together against School Dropout



Why is it considered a good practice?

The "Network Together Against School Dropout" is a strong example of a best practice due to its systemic, data-driven, and collaborative approach to addressing early school leaving. Below are the key reasons this network stands out:

- **Cross-sector collaboration:** The network brings together the Education, Welfare, Work, and Justice sectors, ensuring a holistic and multidisciplinary response to the complex problem of early school leaving and unqualified outflow.
- **Policy-driven and action-oriented:** Rather than offering ad-hoc support, the network focuses on the design, implementation, and evaluation of concrete policy actions within local agreement frameworks. This structured approach leads to sustainable, scalable interventions.
- **Localized, data-informed strategy:** By generating local insights into ESL-related figures (e.g., truancy, permanent exclusions, unqualified outflow), the network tailors its actions to specific regional needs, increasing the relevance and effectiveness of interventions.
- **Knowledge sharing and best practices:** The initiative promotes an information-rich environment by mapping and disseminating proven good practices within the province. This fosters learning, prevents duplication of effort, and supports continuous improvement.
- **Warm transitions and youth support:** A key focus is placed on ensuring the "warm transfer" of students from school to the labor market, which helps bridge the gap for vulnerable youth and supports their social and professional integration.
- **Local authority engagement and capacity building:** The network actively works to sensitize, mobilize, and empower local governments, helping them prioritize and invest in tackling ESL within their jurisdictions.
- **Evaluation and accountability:** By embedding evaluation into its framework, the network ensures that its strategies are evidence-based, measurable, and adaptable to changing needs.

Case Study 4: The Central Reporting Point for at-risk youth

Location: Boom, Antwerpen, and Mechelen, Belgium

Website:

<https://www.antwerpen.be/contact/centraal-meldpunt-voor-risicjongeren>

<https://www.provincieantwerpen.be/aanbod/doe/netwerk-samen-tegen-schooluitval/acties/cmp-s.html>

<https://www.provincieantwerpen.be/aanbod/doe/netwerk-samen-tegen-schooluitval/acties/cmp-s.html#contact>

<https://www.provincieantwerpen.be/aanbod/doe/netwerk-samen-tegen-schooluitval/acties/cmp-s.html#contact>

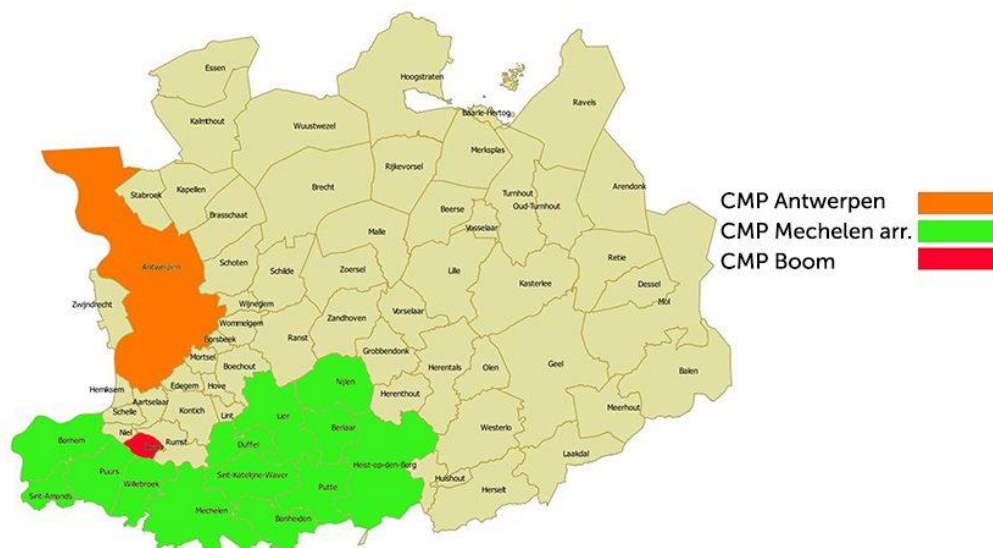
Short Description:

The Central Reporting Point for at-risk youth - in Dutch Centraal Meldpunt (CMP) voor risicjongeren - is the point of contact for all CLB employees who are looking for an external partner who can support and strengthen the young person and the school within their area of operation in order to reconnect with education.

This CMP is committed within its area of operation to:

- Centralize registrations.
- Dispatching registrations to the various providers
- Consult with providers to find the most appropriate path for a student.
- Follow-up of the trajectories in collaboration with the providers and CLBs.
- Making the various school-external initiatives known to CLB employees.





Why is it considered a good practice?

The **Central Reporting Points for At-Risk Youth** are considered a good practice for preventing early school leaving due to their **coordinated, responsive, and student-centered approach** to reconnecting vulnerable students with education. Here are the main reasons why CMPs are effective:

- **Centralized support system:** CMPs provide a single, accessible point of contact for CLB (Pupil Guidance Center) employees seeking external support. This streamlines access to services, reduces fragmentation, and ensures that no student “falls through the cracks”.
- **Tailored, multi-partner response:** By consulting with various service providers, CMPs identify and coordinate the most appropriate support pathway for each individual student. This ensures that interventions are personalized, effective, and aligned with the student's specific needs.
- **Proactive case management and follow-up:** CMPs go beyond referral by also monitoring the progress of each student's trajectory in collaboration with CLBs and external providers. This ongoing follow-up helps ensure continuity, accountability, and long-term support.
- **Enhanced collaboration between sectors:** CMPs strengthen intersectoral collaboration (education, youth care, mental health, social work, etc.) by acting as a coordinating hub, which is crucial for addressing the complex, multifaceted causes of school dropout.
- **Knowledge sharing and awareness:** By informing CLB staff about available school-external initiatives, CMPs help ensure that guidance professionals are aware of and can access the full range of support available in their area. This expands their toolkit for intervention.



- **Reintegration-focused approach:** CMPs are focused not only on problem identification but also on reintegrating students into education through suitable pathways, making them an essential link in the preventive and curative chain against early school leaving.



Country 3: Italy

Case Study 1: Steam 4 Future

Location: Secondary schools in Lombardy, Lazio, Campania, and Puglia, Italy

Website: <https://www.scuolattiva.it/project/steam-4-future/>

Short Description: STEAM4Future is an innovative P.C.T.O. (Pathways for Transversal Skills and Orientation) program supported by Boeing Italy, engaging students from eight Italian upper secondary schools in a multidisciplinary curriculum focused on STEAM (Science, Technology, Engineering, Arts, and Mathematics). The initiative blends scientific disciplines with creativity, offering students a mix of theoretical modules, practical workshops, career orientation events, and collaborative project work to explore academic and professional futures in STEAM fields. The project is recognized by the Italian Ministry of Education and involves key university partners like RomaTre Università degli Studi di Roma, Università Commerciale Luigi Bocconi, Politecnico di Bari e Università degli Studi di Napoli Federico II



Why is it considered a good practice:

- **Multidisciplinary Learning Approach:** The program integrates science with the arts, highlighting real-world applications and encouraging cross-disciplinary thinking.
- **Career and Academic Orientation:** Two dedicated Career Days help students explore future paths, both in higher education and the labor market.
- **Diversity & Inclusion Focus:** The initiative actively promotes inclusivity, especially in technology and science sectors, with particular attention to reducing the gender gap and encouraging female participation in traditionally male-dominated fields.

- **University and Industry Engagement:** Students interact directly with university professors, researchers, professionals, and role models, bridging the gap between education and career.
- **Hands-On Group Work:** Through the "AI 4SocialGood" project work, participants develop problem-solving and teamwork skills.

Case Study 2 : Scuole Senza Frontiere

Location: Nationwide – Italy, Secondary Schools (Upper Secondary Education)

Website: <https://www.scuolattiva.it/project/scuole-senza-frontiere/>

Short Description: Scuole Senza Frontiere is a national P.C.T.O. (Pathways for Transversal Skills and Orientation) initiative developed in partnership with Médecins Sans Frontières (Doctors Without Borders), aimed at engaging both teachers and students in exploring the theme of global public health. The program raises awareness about the importance of equitable access to healthcare and provides students with the tools to develop communication campaigns promoting the values of humanitarian aid. Teachers receive digital training materials and participate in accredited webinars, while students work on creative outreach challenges focused on social impact communication.

The winning projects of the competition



Why is it considered a good practice?

- **Focus on Global Health Education:** Encourages critical thinking about the importance of public health access and global humanitarian issues.
- **Empowerment Through Communication:** Students build essential soft skills and learn to create effective awareness campaigns aligned with Médecins Sans Frontières' core values.
- **Teacher Involvement and Training:** Educators become active facilitators by joining training programs on the national S.O.F.I.A. platform and using dedicated educational kits.
- **Creative and Experiential Learning:** Through workshops and a final challenge in collaboration with communication experts from Latte Creative, students experience real-world project work.
- **Nationwide Engagement:** The initiative involves over 50,000 students, 2,000 classes, and 1,000 teachers across Italy, promoting shared civic values and public responsibility.

Case Study 3 Classe AI - Artificial Intelligence for Education

Location: Nationwide – Italy, Secondary Schools (Upper Secondary Education)

Website: <https://www.classeai.it/>

Short Description: Classe AI is a national initiative aiming to integrate Artificial Intelligence into school curricula. Developed by Fondazione Golinelli in collaboration with Fondazione Vodafone Italia, the project offers teacher training, interdisciplinary modules, PCTO (Transversal Skills and Orientation Pathways) experiences, and practical workshops for students. The programme promotes critical and inclusive approaches to AI, encouraging digital citizenship and reducing the digital divide.

Why is it considered a good practice?

- **Promotes digital literacy** and advanced digital skills among both students and teachers
- Provides **free, structured resources** for inclusive AI education
- **Encourages student engagement** through active, real-world learning
- **Bridges regional gaps** by reaching underserved schools and communities
- Strengthens 21st-century skills including **computational thinking and problem solving**

Case Study 4 Fuoriclasse - Against Early School Leaving

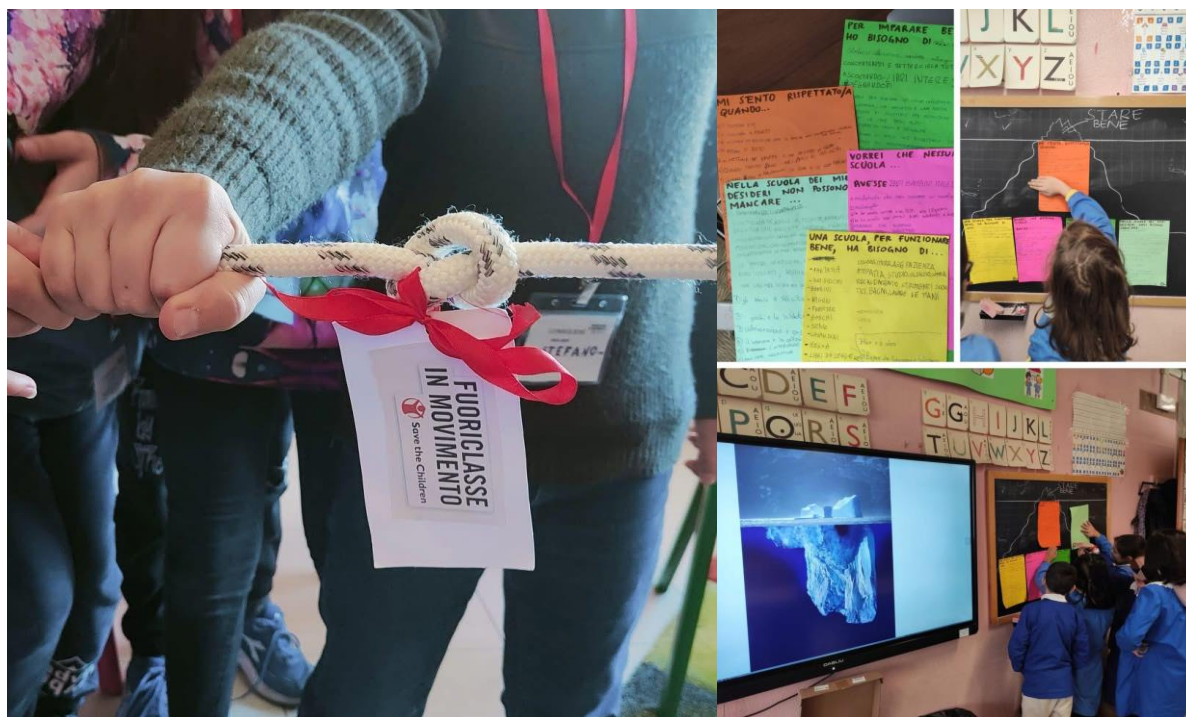
Location: Nationwide – Italy

Website: <https://www.savethechildren.it/cosa-facciamo/progetti/fuoriclasse>

Short Description: Fuoriclasse is a national programme launched by Save the Children Italy to combat early school leaving in socio-economically disadvantaged areas. It implements motivational workshops, study support sessions, teacher training, and family engagement activities. The programme uses student data to develop personalised educational plans and monitor progress. Activities take place within schools, supported by dedicated educational facilitators.

Why is it considered a good practice?

- **Multilevel intervention** involving students, teachers, families, and communities
- Focuses on **student motivation** and **emotional wellbeing**
- Provides **tailored learning pathways** to address individual educational needs
- Contributes to **reducing chronic absenteeism** and school dropout rates
- **Demonstrates measurable impact**: thousands of students supported annually across Italy



Country 4: Romania

Case Study 1: Discover Steam

Location: National College of Art „Octav Băncilă” Iași, Romania in partnership with "Alexandru Ioan Cuza" University Iași

Website: <https://cnaob.ro/wp/>

Short Description: Discover Steam is a STEM program held conducted in the classroom, engaging primary school students in hands-on science experiments and environmental projects. The program integrates STEM concepts into the school curriculum through interactive activities, where students explore physics, chemistry, and biology in a fun and educational way.

Why is it considered a good practice?

Students actively participate in experiments, reinforcing theoretical knowledge with practical application.

- **Encouragement of Collaboration:** Activities involve teamwork, promoting communication and cooperative problem-solving.
- **Development of Critical Skills:** Students analyze data, make hypotheses, and draw conclusions, strengthening their scientific reasoning.
- **Fostering a Growth Mindset:** Challenges and trial-and-error learning encourage perseverance and adaptability.



Case Study 2: Digital Skills. Digital Stories

Location: "Ion Simionescu" High School, Iasi

Website:

<https://www.facebook.com/i.simionescu/posts/pfbid08GdCc174tgVYZnqzFKJosCPajrKPMFsJ22jKk1grwctmsPqfy9WMAiGXXkgczGCNI>

Short Description:

The *Digital Skills. Digital Stories* project runs from October 1, 2024, to December 8, 2024, over a period of 10 weeks. It involves the establishment of the *SIMScratch Programming Club*, the acquisition of educational tablets and robots, and represents a major step towards digital transformation for *școala Simionescu*. The initiative provides 20 children aged 10-14 with free weekly programming sessions in *Scratch*, under the guidance of passionate educators *Maria Rediu* and *Alexandru Andronic*. At the end of the two-month training, the first edition of the *Junior Scratch Coders* competition will take place, open to other school clubs. The competition will reward the top three teams with special prizes. At least six robotics clubs from Iași County will participate.

The project extends beyond the competition, as the four teams formed within the *SIMScratch Club* will continue to engage in digital activities and participate in other specialized events throughout the 2024-2025 school year. *Junior Scratch Coders* is expected to become a traditional annual competition organized by *școala Simionescu*.



Why is it considered a good practice?

- **Encouraging Digital Transformation:** The project integrates technology into education, equipping students with digital skills crucial for their future careers.
- **Promoting Computational Thinking & Creativity:** By learning to program in Scratch, students develop problem-solving abilities, teamwork skills, and creativity.
- **Inclusive & Engaging Learning Environment:** Free access to the club ensures that children from different backgrounds can participate, reducing educational disparities.
- **Sustainability & Long-term Impact:** The project extends beyond the competition, offering continuous engagement in digital activities and other technology-focused events.
- **Collaboration & Knowledge Sharing:** The competition connects multiple robotics clubs, fostering a collaborative learning environment and knowledge exchange among young learners.
- **Preventing Early Leaving from Education & Training:** By making learning interactive and engaging, the initiative helps students stay motivated and interested in STEM subjects.

Case Study 3: Scientix STEM Discovery Campaign 2025

Location: National College of Art „Octav Băncilă” Iași, Romania

Website: <https://www.scientix.eu/campaigns/sdc/my-activities/activity?id=7856>

Short Description: Scientix STEM Discovery Campaign is an in-school initiative promoting STEM through interactive lessons, guest lectures, and project-based learning. Students explore various scientific and technological fields while engaging in classroom experiments and creative problem-solving tasks.

Why is it considered a good practice?

- **Hands-On Learning Experience:** Provides practical STEM exposure beyond traditional lectures.
- **Encouragement of Collaboration:** Connects students with industry professionals and peers to foster knowledge exchange.
- **Development of Critical Skills:** Enhances logical reasoning, problem-solving, and creativity.
- **Fostering a Growth Mindset:** Encourages curiosity and continuous learning.



Case Study 4: Ozobot Robotics Lab

Location: National College of Art „Octav Băncilă” Iași, Romania, in collaboration with American Corner Iași

Website: <https://bjiasi.ro/stiri-si-evenimente/american-corner-events-140/>

Short Description: The Ozobot Robotics Lab is an interactive classroom initiative where students learn the fundamentals of coding and robotics through hands-on activities with Ozobots. This program, in partnership with American Corner Iași, introduces students to programming logic, problem-solving, and creativity through engaging challenges and projects.

Why is it considered a good practice?

- **Hands-On Learning Experience:** Students program Ozobots using visual coding and color-coded commands, making learning accessible and fun.
- **Encouragement of Collaboration:** Group activities encourage teamwork, communication, and shared problem-solving.
- **Development of Critical Skills:** Enhances computational thinking, logical reasoning, and adaptability.
- **Fostering a Growth Mindset:** Encourages persistence and iterative learning as students refine their coding solutions.
- **Integration of Advanced Technologies:** Provides an early introduction to robotics and programming, preparing students for future technological fields



Country 5: Portugal

Case Study 1: UAARE - School High Performance Support Unit

Location: Dr José Afonso Secondary School [Government Portugal - Ministry of Education and Science]

Website: <https://uaare.dge.min-educ.pt/pt> & https://www.esjoseafonso.com/wp/?page_id=7996

Short Description: The High Performance Support Units at School (UAARE) pursue the noble goal of successfully reconciling school activity with the sporting practice of primary and secondary school student-athletes who are part of the high performance regime and national teams, as well as student-athletes with potential sporting talent. This success depends on effective coordination between schools, parents, federations and their sports agents, municipalities and many others involved.

UAARE works in three essential areas: school management, sports management and health and well-being, working as a network with local authorities and parents to ensure the right conditions for the success of our student-athletes.

Why is it considered a good practice?

School management: Centralised in the accompanying teacher, in close collaboration with the National Project Manager and other agents involved: Headmaster, who ensures the pedagogical commitment of the school and the regulatory bodies; Study Room Learn + (SEAM), which ensures differentiated pedagogy and mobilises individual pedagogical plans, using collaborative and reflective work with curriculum teachers and the respective class council (this takes the form of personalised support, distance support and distance learning); School psychologist, who provides psychological and psycho-pedagogical support.

Sports management: With sports federations and coaches, aware of the conflicting needs of student-athletes at the different stages of their dual career development, assuming: Articulation, cooperation and flexibility with the school; Reconciling training, competition and internships with school learning.

Health and wellbeing: We focus on intervention in two areas:

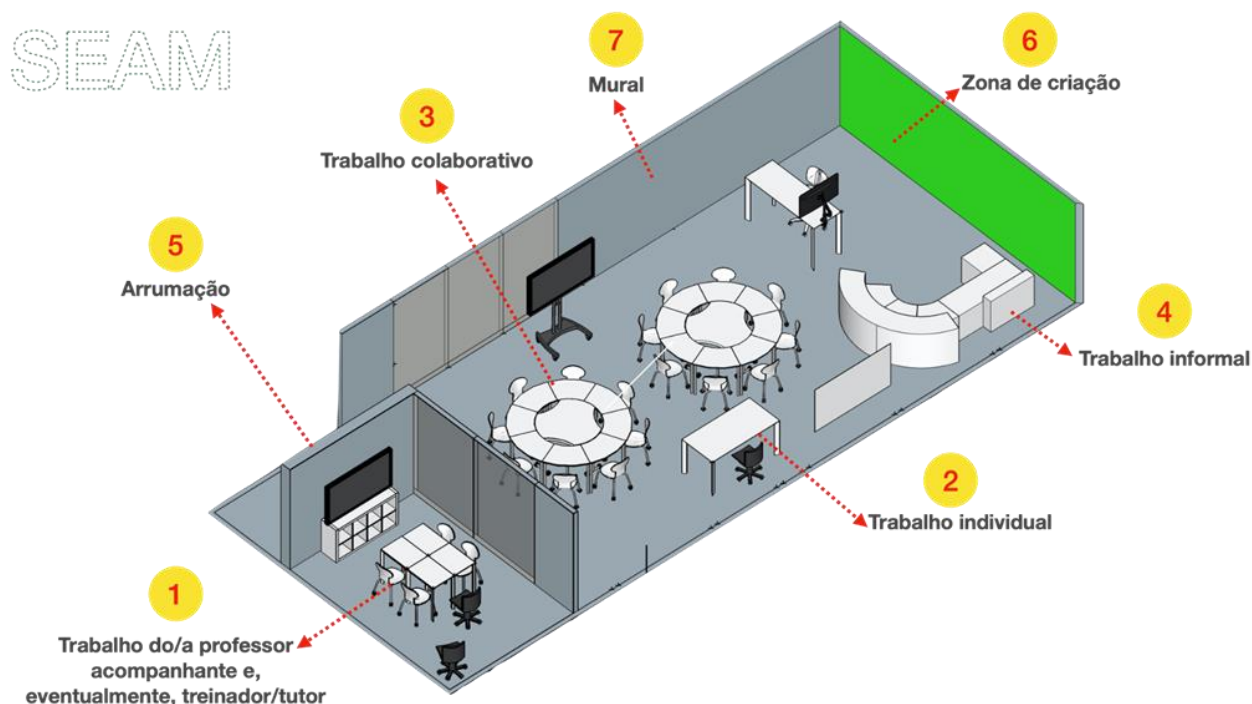
Psychological support - Student-athletes are always being systematically assessed (marks, times, rankings, grades), which gives rise to a varied emotional reaction, present at the moment of overcoming (anxiety, fear, depression) that conditions performance before, during and after the competition. Emotional balance and management are therefore fundamental, as the school psychologist intervenes with the network of all UAARE players. Intervention in terms of prevention essentially takes place in three areas:

psychological and psycho-pedagogical support; career guidance; support for the development of the educational community's relationship systems.

Health and well-being - With the intervention of the Sports Medicine Centres network, especially in regulating early sports practice, in terms of regular monitoring (nutrition, injury prevention, overtraining and burnout).

Digital learning environment: A web platform for communication, collaboration and distance support between teaching teams, students, coaches, class council teachers, sports medicine centres and other stakeholders in the UAARE model. Through group chats, private chats, collaborative folders and documents, digital diary notebooks, videoconferencing and other tools, UAARE school teams share practices, school and sporting successes, support their students synchronously and asynchronously, etc.

Study Room Learn + (SEAM): Innovative learning environments in UAARE schools, informed by literature and the Future Classroom Lab project, with furniture, space organisation and IT equipment to support teaching teams and students.



UAARE has a learning environment centered on the student-athlete, with a digital environment integrated with the “physical” learning spaces. It is composed of a pedagogical team dedicated to the development of individual teaching plans, adapted to the needs of students, such as school absences and red spots (distance teaching and support in advance);

SEAM is a space that privileges the different areas of the student's profile, through the personalization of integrated learning with the specific competences of the student-athlete. It is an environment where peer learning, collaboration, communication and self-regulation are promoted, centered on an evidence-based methodology and pedagogical continuity between schools in the UAARE network.

The work at SEAM is articulated with the Class Council, in a logic of passing cases between colleagues, where the diagnosis of the learning needs of the student-athlete is clearly described, the concrete intervention at SEAM, the evidence of the activity carried out by the student, student and further reflection by the pedagogical pair (CT teacher and SEAM teacher).

The personalization of the activity is achieved through the knowledge of the historical record (individual pedagogical plan) of the support provided at SEAM, with the progressive development of essential learning and skills of the student's profile in concrete situations of the student-athlete's life, namely sports, with impact on the student's formative assessment.

Smart Calendar: Using a digital calendar, accessible via the web and offline on any device, it is possible to conveniently coordinate and communicate UAARE student schedules. Class directors keep this calendar updated with school hours, assessment tests and other relevant school events. The trainer keeps training, study, internships, tests and other relevant sporting events up to date, and this calendar is shared with the school tutor, students and parents.

STEM Kits: Set of low-cost equipment that students in distance education receive by mail to carry out practical, laboratory and experimental activities, built in accordance with essential learning, carrying them out in the place where they are, producing a formal or other report product that includes images of the activities, which are then evaluated by the teachers. In the end, they are returned by post to the school.



Case Study 2: National School Success Programme - Portuguese Directorate-General for Education

Location: Portuguese Directorate-General for Education

Website: <https://www.dge.mec.pt/programa-nacional-de-promocao-do-sucesso-escolar> & <https://pnpse.min-educ.pt/>

Short Description: The programme is based on the principle that it is the educational communities that know their contexts, difficulties and potential best, and are therefore best equipped to devise strategic action plans, designed at the level of each school, with the aim of improving student learning.

Although school success is conditioned by internal and external factors, the role of the school is crucial, and the collaboration and responsibility of the community at local and regional level are essential to building school success and commitment to teaching and valuing learning.

In pursuit of the mission of public schools, which is to ensure that all children and young people have access to the learning that will enable them to complete their schooling with the knowledge, skills, attitudes and behaviours necessary for life in society, the role of schools and teachers is crucial, in the context of their action in year/class councils, since improving educational practices is intrinsic to promoting school success for all students.

Why is it considered a good practice?

Thus, some of the general guidelines of the PNPSE (RCM no. 23/2016) suggest an inspirational framework for educational development to be promoted in each territory based on the following aspects:

- i) the creation of local dynamics for diagnosis and intervention, based on the knowledge produced by schools, and their capacity to intervene in local contexts and the specific needs of their school populations. school populations;
- ii) promoting practices that enable school failure to be anticipated and prevented, through a commitment to early intervention, rather than focussing on remedial strategies;
- iii) stimulating ongoing teacher training, which enables schools to reflecting on local practices and develop innovative, change-inducing strategies. inducing change;
- iv) monitoring and supervising local strategies to promote school success.
- v) the production of scientific knowledge on school success, its conditioning factors, predictors, prevention strategies, strategies for remedial strategies, teaching practices, monitoring of strategies and measures to evaluate success in education evaluating success in education;
- vi) periodic evaluation of the Programme, in its many dimensions, with the main focus on evaluating the impact of locally defined strategies identified as relevant to promoting school success.



Case Study 3: IPCA project and the Permanent Observatory on School Dropout and Success | OPAS

Location: Polytechnic of Cávado and Ave [Politécnico do Cávado e do Ave]

Website: <https://ipca.pt/noticia/projeto-do-ipca-na-area-da-inteligencia-artificial-vai-ajudar-a-prevenir-o-abandono-escolar/> and <https://ipca.pt/promocao-do-sucesso-academico/opas/>

Short Description: OPAS - IPCA's Permanent Observatory on School Dropout and Success consists of the creation of a predictive model to combat dropout based on artificial intelligence and data science that is based on a multidimensional vision - personal, academic, socio-demographic and social.

The Permanent Observatory on Early School Leaving and Success (OPAS) involves the work of a multidisciplinary team led by the IPCA's Applied Artificial Intelligence Laboratory (2Ai), which also includes researchers from the fields of data science and business intelligence, as well as members of the institutional structure.

OPAS great innovation is the ability it will have to provide predictive information on the likelihood of a particular student dropping out of school, allowing the institution to take preventive measures to reverse the situation. It's about empowering organisational and institutional structures to deal with this problem, which will tend to worsen in the period of economic and social recovery following the pandemic.'

Within the framework of OPAS, a number of variables have been identified which, analysed using a mathematical model, will make it possible to classify risk profiles and identify the students most likely to abandon their studies.



Why is it considered a good practice?

OPAS is a project developed at the Laboratory of Applied Artificial Intelligence (2Ai), under Call No.01/SAMA2020/2019 - support system for the digital transformation of public administration: artificial intelligence and data science.

Its objectives are:

1. Analysing, identifying and implementing actions that contribute to defining the internal policy for combating school dropout/promoting success;
2. Developing and implementing a predictive data analysis model capable of generating knowledge with a view to identifying indicators of school dropout/promotion;
3. Identify and classify situations and students at risk of dropping out and implement measures to reduce the risk of dropping out and dropouts;

4. Improve the quality of the service provided to students, average response times and the reduction of context costs.



OPAS
OBSERVATÓRIO PERMANENTE DO
ABANDONO E SUCESSO ESCOLAR

Cofinanciado por:



Case Study 4: *LEDs - Rui*

Location: Portuguese Ministry of Education

Website: <https://led.dge.medu.pt/>

led

Laboratórios de Educação Digital

Short Description: As part of Portugal's Recovery and Resilience Plan (PRR), the Digital Education Laboratories (LED) initiative targets students in lower and upper secondary education. Its main goal is to support schools in integrating digital technologies into teaching and learning. These labs provide spaces where students and teachers can use technological tools to carry out practical activities, experiments, and projects, enhancing learning and skill development. To support this, learning scenarios and other

The LED equipment, intended exclusively for teaching and learning purposes, complies with technical specifications established by SGEC, even though different suppliers provided varying brands and models. The use of the LED is governed by a lending agreement between SGEC and the school, where the SGEC retains ownership of the equipment while granting schools indefinite, free usage rights. All equipment must be accepted through the Digital School Platform, where it is tracked by serial and inventory numbers, and is covered by a three-year warranty from the date of final acceptance.

A total of 1300 Digital Education Laboratories (LED) was installed across 803 school groups. Each school was responsible for selecting the type of LED preferred and for ensuring all necessary physical and human resources to support its installation and operation. The LED rooms must be clearly identified on the school layout and display visible signage indicating PRR funding. In cases where a school received more than one LED, it was allowed to install them in different rooms, provided each was properly marked and recorded.

Why is it considered a good practice?

To manage the LED implementation, each school must appoint a Coordinator in charge of receiving, checking, and overseeing the use of the equipment, as well as handling warranty-related matters. Additionally, schools are required to form a team including representatives from different departments to support the curricular integration of the LED. All equipment must be installed in the designated room, registered in the official monitoring platform (SIO), and any relocation must be approved in advance by SGEC.

It is considered good practice because the presence of a dedicated Coordinator and support team ensures the effective integration of high-quality technological equipment into teaching and learning. This structure promotes consistent use, proper maintenance, and maximized educational value. The LED equipment, being modern and well-selected, enhances classroom experiences and provides students with hands-on opportunities to explore, experiment, and innovate. It fosters digital literacy, collaboration, and problem-solving skills. By offering access to advanced tools, students become more engaged and motivated. The structured setup guarantees long-term sustainability and alignment with curricular goals. Centralized tracking and clear procedures help maintain accountability and efficiency.

Country 6: Cyprus

Case Study 1 - Technology Enhanced Learning Centre

Location: University of Nicosia

Website: <https://www.engageli.com/>

Short Description: The University of Nicosia's School of Business has implemented the [Engageli platform](https://www.engageli.com/), a purpose-built digital learning tool designed for active and collaborative learning. The platform, introduced by Prof. Angelika Kokkinaki (Dean of the Business School) and Dr. Chris Alexander (Head of the Technology Enhanced Learning Centre), is being used in the MBA and MSc in Blockchain and Digital Currency programs to enhance student engagement and interaction. By leveraging this tool, the university aims to address challenges common to traditional online learning, such as lack of engagement and isolation, by fostering a human-centred and interactive learning environment. Engageli allows for seamless transitions between full-class and group interactions and provides real-time analytics that help instructors track participation and student progress, encouraging more dynamic and responsive teaching.

Why is it considered a good practice?:

Enhanced Engagement and Interactivity: Engageli's design promotes active student participation through tools like embedded polls, which achieve high participation rates (90-100%) and stimulate more student interaction.

Data-Driven Decision Making: The platform provides detailed analytics on learner behaviour, speaking times, and engagement trends, allowing instructors to make informed decisions to tailor their teaching strategies.

Human-Centred and Inclusive Design: The focus on building meaningful peer-to-peer connections, even for students in remote locations, helps combat feelings of isolation and demotivation often associated with online learning.

Scalable Implementation: The rapid adoption of Engageli at the University of Nicosia, from 90 to 850 students within the first year, demonstrates its effectiveness and scalability across various programs, making it a robust solution for expanding online learning initiatives.

Revolutionize the way you teach and learn online

Engageli is an online learning platform that creates a simple, easy-to-use environment for any type of virtual learning, focusing on outcomes.

Unlike rigid video conferencing tools, it empowers instructors to seamlessly deliver content in a highly engaging, effective way, while putting the learners at the center of the experience.

[TAKE A TOUR →](#)


Tap into a high-quality online learning experience

We combined the best of in-person and online learning into a single platform to create an experience that is even better than in-person.



Empower meaningful discussions with a seamless switch between large group and small group layout



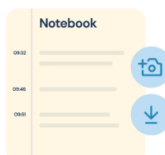
Instead of guessing which learners are engaged, use Engageli's powerful analytics to identify learners who need more attention



No more add-ons and juggling tabs with Engageli's built-in collaborative toolkit



Turn any existing content into interactive, active learning opportunities with Engageli's Action Tags



No more misplaced session notes with Engageli's built in, time-stamped notebook



Make asynchronous learning collaborative with Engageli's interactive playback rooms

*Images taken from the platform <https://www.engageli.com/>

Case Study 2 - ENGINITE

Location: Cyprus University of Technology

Website: <https://www.facebook.com/EnginiteErasmus/>

Short Description: ENGINITE aims to design and promote a postgraduate Vocational Education and Training (VET) programme based on a Problem-Based Learning (PBL) pedagogy and will combine advanced applied academic topics with hands-on aspects, in order to endorse the knowledge and skills of graduate engineers, preparing them for the industry of the 21st century. Via a PBL approach to training, ENGINITE postgraduate vocational training programme will captivate the career and employability skills of the new engineers – among others: innovation, entrepreneurial skills, efficient quality, health and safety management, problem-solving, communication and presentation skills – while it will also enhance technical knowledge in critical fields of engineering. Upon the completion of the postgraduate VET programme, participants will be able to enter the labour market, lead multidisciplinary teams, and provide added value and substantial contributions to their organisation.

Why is it considered a good practice?

ENGINITE is considered a good practice for several reasons, particularly in addressing the skills gap faced by engineering graduates in the context of Industry 4.0:

Focus on Problem-Based Learning (PBL): ENGINITE adopts a PBL pedagogy, which has been shown to effectively enhance critical problem-solving skills among students. This approach promotes active learning, where students engage with real-world problems, leading to better retention of knowledge and skills. Research supports the effectiveness of PBL in developing engineering competencies, indicating that it can significantly improve students' ability to apply theoretical knowledge to practical situations.

Interdisciplinary Skill Development: The program emphasizes a combination of technical and soft skills, including innovation, entrepreneurship, communication, and team management. This holistic approach prepares graduates for the dynamic and interdisciplinary nature of modern engineering roles, aligning their training with the evolving needs of the labour market ([Frontiers](#)).

Industry-Relevant Curriculum: By integrating advanced applied academic topics with hands-on training, ENGINITE ensures that graduates are equipped with current industry knowledge and practices. This relevance is crucial for engineering education, as it helps bridge the gap between theoretical learning and real-world application.

Enhancement of Employability: The program is designed to boost the employability of graduates by equipping them with skills that are in high demand by employers. By focusing on both technical competencies and career skills, ENGINITE prepares participants to lead multidisciplinary teams and contribute effectively to their organizations.

Adaptability to Market Needs: ENGINITE's emphasis on continuous skills development through a vocational training framework allows it to adapt to the rapidly changing technological landscape and workplace demands, ensuring that engineers remain relevant and competitive in their fields.



Video link: <https://www.youtube.com/watch?v=xr1IFGnysjM>



Case Study 3 - Collaborative Knowledge Construction and Metacognition via Educational Robotics

Location: Cyprus University of Technology

Website: <https://ktisis.cut.ac.cy/> &
https://ktisis.cut.ac.cy/bitstream/20.500.14279/26661/1/Socratous_Dissertation_%20%283%29.pdf

Short Description: The study aimed to investigate the role of Educational Robotics (ER) in enhancing students' metacognitive thinking, a crucial component for collaborative knowledge construction in Computer-Supported Collaborative Learning (CSCL) environments. Utilizing a Design-Based Research methodology, the research focused on developing metacognitive skills while also documenting effective design principles for successful implementation. The results offer valuable insights into how ER can be effectively integrated into classroom settings to facilitate metacognitive processes. By analyzing various curriculum structures, the study demonstrates that ER serves as a beneficial metacognitive tool, with its learning advantages maximized through a carefully structured curriculum that includes pre-designed tasks and guided experimentation at the start of each session.

Why is it considered a good practice?:

Promotion of Metacognitive Skills: By focusing on Educational Robotics (ER) as a means to develop metacognitive thinking, the study aligns with educational research that emphasizes the importance of metacognition in learning. Metacognitive skills—such as planning, monitoring, and evaluating one's understanding—are crucial for effective problem-solving and collaboration in learning environments. Studies have shown that fostering these skills enhances student autonomy and engagement, leading to improved learning outcomes (Schraw & Dennison, 1994).

Design-Based Research Methodology: The use of a Design-Based Research (DBR) methodology is a strength of this study, as it allows for iterative cycles of design, implementation, and evaluation. This approach supports the development of practical design principles that can be applied in real educational contexts, making the findings more applicable and actionable (Design-Based Research Collective, 2003).

Integration of Robotics in Education: The integration of ER into classroom settings is a notable innovation that has been recognized for its potential to engage students and enhance learning experiences. Robotics has been found to promote collaborative learning and critical thinking skills, as students work together to solve problems and complete tasks (Bers, 2008; Kelleher & Pausch, 2005). By documenting how ER can facilitate metacognitive thinking, the study contributes to the body of evidence supporting the use of robotics in education.

Structured Curriculum Design: The findings suggest that the effectiveness of ER as a metacognitive tool is maximized through a structured curriculum that includes pre-designed tasks and guided experimentation. This structured approach ensures that students are not only engaged with the technology but also supported in developing



their metacognitive skills systematically. Research indicates that well-structured learning environments can enhance student learning by providing clarity and direction (Hattie & Timperley, 2007).

Real Classroom Applications: By focusing on real classroom settings, the study demonstrates the practical application of ER in education. This focus on applicability is vital for ensuring that research findings can be translated into effective teaching practices, benefiting both educators and students (Bryk et al., 2015).



Link to video: <https://www.youtube.com/watch?v=lxkcRibbcXQ>

Case Study 4 - Alnstein

Location: PASCAL Private Schools

Website: <https://www.pascal.ac.cy/> &
<https://www.pascal.ac.cy/news/news/view/~board/group/post/pascal-international-education-unveils-ainstein-junior-revolutionising-education-through-ai-innovation#:~:text=After%20the%20remarkable%20success%20of,education%2C%20known%20as%20Alnstein%20Junior.>

Short Description: PASCAL Schools in Cyprus, part of Globeducate, recently developed **Alnstein**, an AI-powered robot capable of understanding commands, interacting with humans, and performing everyday tasks using advanced artificial intelligence technology. This project emerged from students' enthusiasm to utilize AI in creating a robot that communicates naturally. Named after Albert Einstein, Alnstein features state-of-the-art natural language processing developed by OpenAI, allowing it to perform tasks such as playing music, setting alarms, and answering questions. The project involved collaboration among students from different PASCAL schools in Larnaka, Lemesos, and Lefkosia, fostering creativity, critical thinking, communication, and teamwork.

Why is it considered a good practice?

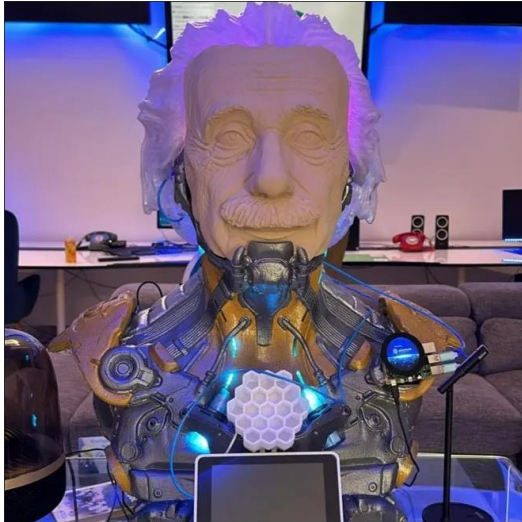
Hands-On Learning Experience: The development of Alnstein provides students with a practical, hands-on experience in robotics and artificial intelligence, bridging the gap between theoretical knowledge and real-world application. Engaging in such projects enhances understanding and retention of complex concepts.

Encouragement of Collaboration: The project promotes teamwork by involving students from various schools, helping them learn to collaborate effectively towards a common goal. Collaborative learning has been shown to enhance student engagement and learning outcomes.

Development of Critical Skills: Working on Alnstein allowed students to enhance their creativity, critical thinking, and problem-solving skills. Research indicates that engaging in STEM projects develops essential skills that are highly valued in the workforce.

Fostering a Growth Mindset: The project encourages students to challenge themselves and embrace a mindset of continuous growth and self-improvement, essential traits in an ever-evolving technological landscape.

Integration of Advanced Technologies: By utilizing cutting-edge technology such as OpenAI's natural language processing, the project prepares students for future careers in tech, enhancing their employability in a rapidly changing job market.



Link to video: <https://www.youtube.com/watch?v=3sA3mV-UFYM>

Best practices

Best practice 1: NýMennt

NýMennt is a collaborative initiative led by the University of Iceland's School of Education, aimed at advancing educational innovation, professional development, and systemic transformation. It supports child well-being and educational equity through partnerships with schools, local authorities, government agencies, and civil society. NýMennt's work is grounded in four strategic pillars: child well-being, school-community collaboration, continuous professional development, and education for the future.

The fourth pillar, *Menntun til framtíðar* ("Education for the Future"), plays a central role in preparing both students and educators for societal and labor market changes. It supports innovative teaching practices through an educational innovation lab that encourages creativity and experimentation in pedagogy. One standout initiative, *Stækkaðu framtíðina*, connects students with professionals from various sectors, helping them see the relevance of their education and inspiring future aspirations. Additionally, the *SamSTEM* collaboration strengthens STEM education by promoting hands-on, interdisciplinary learning approaches. This future-focused pillar is particularly relevant for preventing early leaving from education and training (ELET). It addresses disengagement by making learning more relevant and connected to real-life opportunities, while also catering to diverse learning needs through project-based and experiential education. As such, it serves as a compelling example of how to build more inclusive, motivating educational environments.

Best practice 2: The centre for pupil guidance - in Dutch, Centrum voor leerlingenbegeleiding (CLB)

The centre for pupil guidance - in Dutch, Centrum voor leerlingenbegeleiding (CLB) - helps pupils, parents, and schools in primary and secondary education free of charge, independently, and confidently with learning problems, study choices, psychological and social problems, such as bullying, problems at home, and fear of failure. It also monitors the health of the pupils.

This center is aimed at students, parents, guardians, directors and boarding schools, teachers, care coordinators, student counselors, and learning support staff. The student always comes first.

CLB helps with questions about:

- Learning and studying: problems with reading, writing, arithmetic, concentration, and attention problems and study methods
- School career: study choice, directions, certificates and diplomas, talents and interests, truancy, the transition from primary to secondary education, further study or work, and learning and working

- Health: health problems, vaccinations, growth disorders, eating disorders and obesity, infectious diseases, puberty, hearing and vision, addiction, relationships and sexuality
- Psychological and social functioning: problems at home, bullying, divorce, stress, depressive feelings, not feeling good about yourself, fear of failure, and how to behave around friends

There 135 centers in Flanders:

<https://data-onderwijs.vlaanderen.be/onderwijsaanbod/lijt?s=clb>

<https://www.vlaanderen.be/onderwijs-en-vorming/ondersteuning-en-begeleiding-voor-leerlingen-cursisten-en-studenten/basis-en-secundair-onderwijs/centrum-voor-leerlingenbegeleiding>

CLBs are considered a best practice in Belgium for preventing early school leaving because they offer a comprehensive, free, and accessible support system that addresses the multifaceted challenges students face throughout their educational journey. By focusing on learning difficulties, school career choices, psychological and social issues, and health concerns, CLBs ensure early identification and tailored support for at-risk youth. Their student-centered approach, involving collaboration with parents, schools, and external services, enables proactive and sustained interventions. Moreover, CLBs play a mandatory role in cases of absenteeism and school exclusion, making them a critical safeguard against unqualified outflow. Their close coordination with schools, regular monitoring, and referral mechanisms to external partners ensure that no student is left without guidance, making CLBs a cornerstone of Belgium's strategy to reduce school dropout rates.

Best practice 3: FouriClasse

The "Fuoriclasse" project in Italy by Save the Children is considered a best practice in tackling school dropout in Italy due to its proven impact and holistic approach. An independent evaluation showed it significantly reduced absenteeism and improved academic performance. The project actively involved students, teachers, and families through motivational labs, study support, and inclusive activities, creating a strong educational community. Its low cost (about €350 per student annually), scalability, and the creation of a national school network ("Fuoriclasse in Movimento") further highlight its effectiveness and sustainability.

Best practice 4: ScuolAttiva Cooperativa Sociale Onlus

ScuolAttiva Cooperativa Sociale Onlus stands out in Italy for its innovative approach to education, focusing on experiential learning that bridges the gap between academic knowledge and real-world applications. By collaborating with schools, universities, and third-sector organisations, ScuolAttiva develops educational projects that address



contemporary social issues, promote civic engagement, and foster critical thinking among students. A distinctive aspect of their work is their commitment to operating in disadvantaged and socio-economically challenged areas, ensuring that education becomes a powerful tool for inclusion and opportunity. Their initiatives, such as *School Cleaning Day* and *Rispettiamo la Creatività*, not only enhance awareness of environmental and cultural topics but also encourage active participation in community improvement. Through these programs, ScuolAttiva effectively cultivates a sense of responsibility and empowerment in young individuals, preparing them to be proactive citizens in a rapidly changing world.

Best practice 5: STEAM Education

STEAM education is one of the best practices to prevent early school dropout in Romania because it engages students through hands-on, creative, and interdisciplinary learning. By combining science, technology, engineering, arts, and mathematics, STEAM helps students see the real-world relevance of school subjects, boosting motivation and curiosity. It encourages teamwork, problem-solving, and critical thinking—skills that are essential for future careers and personal development. In disadvantaged areas, where dropout rates are higher, STEAM projects can make learning more accessible and exciting, giving every child a reason to stay in school and follow a successful educational path.

Best practice 6: LED (Digital Education Laboratories)

This is considered one of the best practices in Portugal because it ensures that schools are equipped with top-quality, state-of-the-art digital tools that support innovation in education. The LED (Digital Education Laboratories) provides a structured and well-supported environment for introducing new, dynamic teaching and learning methods. With cutting-edge equipment—including robotics kits, 3D printers, programming tools, and interactive devices—students experience hands-on, engaging activities that make learning more meaningful, interactive, and relevant to the digital age. These tools promote creativity, critical thinking, and collaboration across disciplines, preparing students for future challenges and careers. The presence of a dedicated Coordinator and a multidisciplinary team guarantees proper management, integration, and pedagogical impact. The spaces are carefully designed to be inclusive, flexible, and adaptable to various curricular needs. Students become more motivated, curious, and confident as they take active roles in their own learning. This approach transforms the classroom into a vibrant, student-centred environment, turning schools into innovation hubs and making education more attractive, future-oriented, and effective.

Best practice 7: ENGINITE

ENGINITE at Cyprus University of Technology is recognised as a best practice in engineering education for several compelling reasons. First, it emphasises comprehensive

skill development by combining technical knowledge with essential soft skills, thereby addressing the holistic needs of modern engineers and ensuring graduates are well-rounded. Second, its focus on real-world applications and current industry practices effectively prepares students for the dynamic job market, enhancing their employability. Additionally, ENGINITE employs Problem-Based Learning (PBL), which fosters critical thinking and problem-solving skills crucial in engineering fields, a method supported by research highlighting its effectiveness in improving student learning outcomes (Hmelo-Silver, 2004). Furthermore, ENGINITE's vocational training framework is scalable and adaptable, allowing for continuous alignment with market demands and ensuring relevance in a rapidly evolving technological landscape. Overall, ENGINITE exemplifies a robust approach to modern engineering education by integrating practical skills with a focus on employability, distinguishing it as a leading practice in educational innovation.

Conclusion

The case studies and best practices explored in this report offer valuable insights into how education systems across Europe are responding to the complex challenges of student engagement, innovation, and early school leaving. Despite differences in national contexts, several common elements emerge that point to effective and transferable strategies.

Each initiative—whether in Iceland, Belgium, Italy, Romania, Portugal, or Cyprus—demonstrates a strong commitment to creating more inclusive, relevant, and forward-looking learning environments. From the integration of technology and STEAM approaches to targeted support systems for at-risk students, these practices reflect a shared understanding that meaningful educational reform requires both innovation and a deep awareness of learners' needs.

What unites these best practices is not only their use of new tools or methods, but their focus on collaboration, equity, and sustainability. Projects such as NýMennt, FouriClasse, ENGINE, and the various digital education laboratories show how partnerships between educators, communities, and policymakers can lead to impactful, long-lasting change.

Ultimately, the experiences shared here underline the importance of investing in flexible, student-centred approaches that can adapt to evolving educational demands. By learning from one another and building on proven successes, education systems can become more resilient, more responsive, and better equipped to support all learners in achieving their full potential.