

Tackling school dropout through active learning: methodologies and interventions

Il contrasto alla dispersione scolastica attraverso forme di apprendimento attivo: metodologie e interventi

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#### **Abstract**

School dropout is a complex phenomenon involving numerous individual and institutional factors. In Italy, the dropout rate, despite its improvements, is still higher than the European average, with significant regional disparities and clear gender differences. In this context, preventive policies, the quality of the education system, and the adoption of inclusive teaching methodologies all play a crucial role. In particular, the EAS method, segmented teaching, and Active Breaks can be effective in enhancing student engagement and reducing the risk of dropout, thanks to the possibility of creating personalized, gradual learning pathways and increasing students' intrinsic motivation. To tackle school dropout and ensure a quality education for everyone, ongoing teacher training and the strengthening of the teacher-student educational relationship are both necessary.

Keywords: school dropout; active breaks; active learning.

### Sintesi

La dispersione scolastica è un fenomeno complesso che coinvolge numerosi fattori, individuali e istituzionali. In Italia, il tasso di abbandono scolastico, seppur in miglioramento, è ancora superiore alla media europea, con disparità significative tra regioni e con nette differenze di genere. In questo scenario, le politiche preventive, la qualità del sistema educativo, e l'adozione di metodologie didattiche inclusive hanno un ruolo cruciale. In particolare, il metodo EAS, la Didattica segmentata e le pause attive (Active Breaks) possono risultare efficaci per migliorare il coinvolgimento degli studenti e ridurre il rischio di dispersione, attraverso la possibilità di generare percorsi di apprendimento personalizzati e graduali e aumentare i livelli di motivazione intrinseca degli studenti. Per contrastare la dispersione scolastica e garantire un'istruzione di qualità per tutti, risulta necessaria una formazione continua del corpo docente e il rafforzamento della relazione educativa insegnante-studenti.

<u>Parole chiave</u>: abbandono scolastico; pause attive; apprendimento attivo.



### 1. Introduction

The phenomenon of early school leaving is characterized by a premature withdrawal from the educational pathway, hindering the attainment of the qualification provided by a high school diploma (European Commission [EC], 2020). Institutional efforts to tackle school dropout remain significant, and this issue continues to be among the primary objectives of the European Strategy, which has dedicated attention to it for many years. Indeed, one of the goals set by the European Council in February 2021 (2021/C 66/01) aims to reduce the dropout rate to 9% by 2030.

According to the most recent Istat report on quality education and the Sustainable Development Goals (2023), in Italy the early school leaving rate stands at 10.5%. Although this marks an improvement compared to 12.7% in 2021, it is still higher than the EU average, which is below 9%. This trend is even more pronounced in the southern regions (Vegliante et al., 2024), where the early school leaving rate reaches 15.1%, exceeding the 9.9% recorded in the North and the 8.2% in central Italy. It is a complex and multidimensional phenomenon, influenced by socioeconomic, cultural, and psychological variables that not only compromise students' educational future but also have significant socio-cultural repercussions, sometimes negatively affecting employment opportunities and general social well-being (Istat, 2022). The variables associated with school dropout reveal a marked gender disparity, with a 13.6% rate among males compared to 9.1% among females. Likewise, cultural context and the family's socioeconomic conditions guide young people's choices, shaping their educational opportunities. Nearly a quarter (24%) of youths whose parents have a low educational level leave their studies prematurely (Odoardi et al., 2020). Moreover, numerous changes, characteristic of adolescence (physical, cognitive, emotional, and social), frequently lead to instability and trigger dysfunctional or risky behaviors. Disruptive conduct significantly undermines social relationships and hampers positive interaction with teachers and peers, substantially interfering with educational processes and learning (Villavicencio Aguilar et al., 2020).

Socio-emotional skills and self-regulation thus play a fundamental role in reducing the risk of dropout (Mella et al., 2021), as they equip students with the necessary tools to face the challenges of the school environment, fostering self-awareness and the ability to establish positive relationships. Furthermore, psychological issues such as anxiety and depression often arise, creating conditions of social exclusion and potentially compromising students' emotional well-being, thus further increasing the risk of dropout (Batini & Bartolucci, 2016). Considering the numerous factors underlying early withdrawal from the educational track, another determinant lies in the quality of the school system itself, which demands specific attention to teaching methodologies, teacher training, the adequacy of resources, and inclusive policies in order to ensure a more stimulating learning environment focused on guaranteeing adolescents' well-being and their educational success.

This contribution takes the form of a theoretical-conceptual analysis with practical implications, aimed at exploring the role of active teaching methodologies in addressing early school leaving, with particular attention to the integration of movement-based practices such as Active Breaks. The study adopts a pedagogical perspective inspired by the principles of Embodied Cognition and Self-Determination Theory (Deci & Ryan, 2000), which posit that learning is more effective when rooted in meaningful, multisensory experiences and driven by intrinsic needs. The objective is to highlight the pedagogical, training, and organizational conditions that either facilitate or hinder the implementation of such practices in school settings, proposing a coherent interpretative framework to inform teaching practices and teacher training.



# 2. Teacher training and the centrality of the student

Teacher training has held a central position in the field of educational research for many years, highlighting the importance of adopting evidence-based models and practices for teaching and learning. Shifting toward such practices ensures the quality of education, bridges the gap between theory and practice, promotes innovation, and helps address the diverse needs and requirements typical of the educational context (Norwegian Ministry of Education and Research, 2018).

The teaching methodologies employed by teachers play a key role in preventing school dropout. To enhance the learning environment and place the student at the center of the educational experience, teachers must be able to implement strategies that foster active participation (Odoardi et al., 2020). In this regard, there is a need to rethink teaching by designing interventions capable of improving student engagement, inclusion, and motivation through activities that are more meaningful for learning (Black & Wiliam, 2018). Indeed, in the educational process, it is crucial to maintain high student motivation and educational expectations, often key elements in tackling school dropout.

Negative school experiences and episodes of burnout reduce motivation and perceived competence, which can sometimes undermine student well-being and increase the likelihood that students will drop out (Perrotta et al., 2024). Conversely, students with strong intrinsic motivation – defined as the pleasure and interest one feels in carrying out an activity for its own inherent value (Eccles, 1983) – and who firmly believe in their abilities are less likely to drop out, especially during upper secondary education (Fan & Wolters, 2014).

Nevertheless, many teachers with a traditional habitus resist educational reforms and continuous training, maintaining individualistic practices characterized by a cold transmission of knowledge and keeping their distance from new teaching models and innovative approaches to teaching professionalism. This poses a significant challenge, considering that teachers not only act as mediators in the learning process but also have a pivotal role in supporting students' individual planning, which affects their development and autonomy. Therefore, to counter dropout, teachers and principals must adopt appropriate strategies, viewing compulsory education not as an opportunity to select but rather to recover, enhance, and develop every student's competences (Moro, 2013).

There is thus a need to provide systematic teacher training, along with periodic evaluation of teachers' work, in order to encourage and solidify the use of innovative practices (Nairz-Wirth & Feldmann, 2019) by structuring instruction through active and inclusive teaching methods. In this sense, improving the quality of teacher-student communication and interaction is another crucial factor in reducing the risk of early school leaving.

Among the strategies beneficial in preventing school dropout, one viable approach is the adoption of active teaching. This educational approach, characterized by the direct and participatory engagement of students, fosters greater motivation, strengthens the sense of self-efficacy, and increases students' confidence in their own abilities.

By employing methodologies that stimulate experiential learning, active teaching can support the development of knowledge, metacognition, skills, and study strategies aimed at the competencies required for academic success. Research indicates that this educational model not only improves academic achievement but also significantly reduces the risk of early withdrawal from the educational pathway (Scierri et al., 2018).

Active teaching and problem-based learning, thanks to their challenging nature, can be



highly effective in making the educational experience more engaging and meaningful (Batini & Bartolucci, 2016). Among the active teaching methods generated by students' own motivations (Deci & Ryan, 2000), EAS (Episodes of Situated Learning) constitutes a powerful approach, based on the idea that learning is more effective when rooted in concrete, contextualized, and meaningful experiences for students. By adopting methodologies such as EAS, teachers can effectively integrate digital technologies into teaching, leveraging media as a "connective fabric" (Rivoltella, 2018, p. 159) capable of mediating learning. The model is structured into three phases:

- 1. preparatory phase (Anticipation)
  - the teacher introduces the topic, drawing on students' prior knowledge and experiences;
  - stimulus materials (videos, images, guiding questions) are used to generate interest and invoke memories of past experiences;
- 2. operative phase (Comparison and Knowledge Construction)
  - students engage in practical, collaborative activities;
  - they can use digital tools (blogs, videos, podcasts, interactive presentations);
  - the teacher assumes the role of guide and facilitator;
- 3. restructuring phase (Reflection and Consolidation)
  - students share the outcomes of their activities;
  - critical reflection is encouraged, and new knowledge is formally established.

These situated learning episodes enrich the learning experience and increase student engagement, enabling personalized learning paths and the adaptation of activities to different levels of individual competence.

Another effective teaching approach to stimulate students' attention and increase engagement is segmented teaching. By breaking down content and activities into smaller, more manageable units, it is possible to promote more meaningful, facilitated, and progressive learning (Gagné, 1985). The strength of this model lies in segmenting content into multiple distinct "chunks," which enhances comprehension. The ability to gradually introduce instructional content allows students to absorb concepts step by step and consolidate each prior phase before moving on. As a result, the learning process evolves as a sequence encompassing knowledge acquisition, its elaboration, and a consolidation phase carried out through clear steps that make the cognitive load more manageable. Indeed, by structuring each teaching segment within defined time frames, teachers can reduce the risk of cognitive overload, thereby improving students' comprehension of meaning (Sweller, 1988). Moreover, the opportunity to personalize learning allows each student to progress at his or her own pace and according to individual abilities, reducing frustration and positively influencing intrinsic motivation levels (Bandura, 1997).

Hence, the path forward should be one that promotes students' sense of competence, thus guiding the educational process toward safeguarding students' overall well-being, which is often compromised, particularly during the delicate phase of adolescence (Saxer et al., 2024).

### 3. The applicability of Active Breaks

Highlighting body-motor experiences in the curriculum, from the perspective of Embodied Cognition (Gomez Paloma et al., 2017), underscores the fundamental role of the body in



constructing knowledge. This theoretical lens promotes the design of learning environments that consider the motor dimension as a "gateway" to both disciplinary and cross-curricular skills (Torregiani, 2017), fostering a holistic development of the learner. In the field of neurodidactics, various studies have emphasized the centrality of movement in mediating curricular learning. By linking academic content to in-class body-motor activities, these studies have shown that meaningful and long-lasting learning can be facilitated (Reilly et al., 2012). To foster a positive motivational climate aimed at student well-being and dropout prevention, expanding pedagogical strategies - such as the inclusion of Active Breaks – has emerged as an effective practice. Defined as short bouts of physical activity lasting 5-10 minutes integrated into the school day (Masini et al., 2023), Active Breaks should not be regarded as interruptions to instruction, but as pedagogical tools that rebalance cognitive-motor load and support student attention, engagement, and emotional regulation. Several pilot experiences in Italy highlight the feasibility and impact of Active Breaks. A project carried out in a lower secondary school in Parma introduced two daily breaks of approximately seven minutes, led by the classroom teacher and involving light exercises such as stretching, symbolic games, and classroom walking, often accompanied by background music. While improvements were observed in student attention and classroom climate, teachers reported challenges related to limited space and classroom management - issues that point to the need for structural adaptations and targeted training (Masini et al., 2024). Similarly, within the "Scuola in Movimento"" initiative, a project conducted in a primary school in Tuscany implemented five-minute Active Breaks between lessons. These were managed by classroom teachers and adapted to the school's logistical constraints. Participating educators expressed high levels of satisfaction but also emphasized the importance of adequate preparation and continuous professional development to implement these practices effectively (Masini et al., 2023). The Brave study (Masini et al., 2024), conducted through focus groups in secondary schools, further confirms the perceived usefulness of Active Breaks among teachers and students. However, it also reveals concerns about maintaining classroom authority and managing group dynamics – issues often tied to the lack of formal training in physical education. Notably, students in the study advocated for more dynamic and engaging motor activities, suggesting that effective implementation requires pedagogical innovation as well as teacher empowerment. At the European level, Active Breaks are recognized among eleven key forms of physical activity suitable for school integration (Porter et al., 2024). In line with this, Italian evidence supports the importance of designing flexible, scalable, and curriculum-embedded Active Breaks, backed by structured teacher training. These programs should equip teachers with skills to select developmentally appropriate activities and manage spatial, temporal, and behavioural challenges in class settings. Moreover, linking Active Breaks to curricular content has been shown to improve attention, memory, and motivation (González-Pérez et al., 2024; Ruiz-Ariza et al., 2022), as well as selfperception and satisfaction (Maiztegi-Kortabarria et al., 2024). Their interactive and experiential nature enhances learning, inclusion, and student participation (Javier Ninahuaman et al., 2024). However, these outcomes depend heavily on teacher competence, classroom layout, and resource availability. Common barriers include limited space, rigid furniture arrangements, and lack of support structures, which reinforce the urgency of professional development pathways for educators. Ultimately, the integration of movement into classroom practice provides an opportunity to restore corporeality at the center of the educational process, recognizing the body as an active agent in learning and development. Although traditionally undervalued in pedagogy, extensive evidence (Gallese, 2007) demonstrates that we learn primarily through bodily interaction before conceptual abstraction. Reintroducing corporeality into teaching through well-designed



motor experiences contributes to emotional well-being and students' self-efficacy, thereby enhancing school climate and reducing dropout risk.

# 4. Methodological framework

The effectiveness of school-based interventions largely depends on the quality of instructional planning and the teacher's ability to manage motor activities in an intentional and context-sensitive manner. In this regard, teacher training plays a crucial role, as it enables educators to analyze both the constraints and the opportunities present in real school settings. Effective instructional planning requires a methodological framework that includes specific training modules dedicated to the in-depth analysis of motor tasks – understood as the process of breaking down the proposed content into cognitive and motor objectives, motor prerequisites, execution modes, execution variants, targeted capacities, adaptation possibilities, interdisciplinary elements, and environmental and social constraints. Teachers must be able to assess not only the alignment of a motor task with the intended learning objectives but also its accessibility for all students, adjusting complexity and intensity based on their motor competence, motivation levels, and group dynamics.

Accordingly, teacher training programs should include modules on:

- analysis of environmental and social constraints;
- identification of motor prerequisites;
- definition of cognitive and motor learning objectives;
- motor task analysis and design;
- adaptability and differentiation of motor tasks;
- teaching styles and instructional planning;
- preparation and use of resources and materials.

It is essential that teachers acquire mastery of the criteria used to classify motor tasks according to their goals, degree of variability, and the type of control required. This enables the delivery of meaningful, safe, and inclusive motor experiences, organized through various modes (individual, paired, or group work). Training should also address the ability to design both curriculum-anchored and non-curricular activities, using strategies to adapt tasks to diverse student skill levels. Moreover, teachers should be equipped with concrete techniques for classroom management during movement-based activities, the integration of technology to support physical activity, and the intentional inclusion of challenging and engaging elements that promote student engagement and self-efficacy. Within the structure of a comprehensive teacher training program, it is beneficial to refer to a robust methodological framework that emphasizes the pedagogical flexibility afforded by varying teaching styles — particularly along the continuum from reproduction to production (Mosston & Ashworth, 2008). In this way, active breaks are not simply viewed as interruptions in teaching, but rather as meaningful opportunities for cross-curricular learning and the promotion of students' psychophysical well-being.

#### 5. Conclusions

School dropout remains one of the most urgent challenges for researchers, educators, and policy makers in the field of education. Addressing it requires an integrated, multidimensional approach in which educational innovation and continuous teacher training play a central role. Research in educational neuroscience has highlighted how



reintroducing the body into the educational experience, along with the adoption of active and inclusive teaching methodologies, can significantly enhance students' motivation and self-efficacy – two key factors in the prevention of early school leaving. In this light, the adoption of pedagogical strategies such as active teaching, the EAS model, and the integration of active breaks into the curriculum represents a promising direction. These approaches foster connections between abstract knowledge and concrete experience by placing the body at the center of the learning process, thus promoting student well-being and meaningful, long-term learning. However, for such innovative methodologies to fully realize their transformative potential, it is essential to consider the contextual conditions that enable their effective implementation. Practices such as segmented teaching, EAS, and active breaks require a favourable school environment – not only in terms of logistics (e.g., adequate space, flexible scheduling), but also in terms of cultural and organizational readiness. Introducing alternatives to transmissive teaching models often entails a significant paradigm shift that can face resistance rooted in entrenched habits, lack of specific training, or the absence of a shared pedagogical framework. Moreover, the success of active methodologies largely depends on the quality of the educational relationship and the teacher's ability to adapt tools and strategies to students' individual characteristics. For these reasons, it is crucial to avoid a prescriptive or one-size-fits-all interpretation of socalled "best practices". Instead, a reflective, flexible, and context-sensitive approach should be encouraged – one that recognizes the teacher as a thoughtful professional engaged in continuous development. Only through structured investment in ongoing teacher training, accompanied by careful evaluation of the teaching practices employed, will it be possible to genuinely place students at the center of the educational experience, promote academic success, and contribute meaningfully to reducing school dropout rates.

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