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# Teachers' perceptions of a mixed intervention of physically active learning and active breaks: a qualitative study of the BALA project

# Percepciones del profesorado sobre una intervención mixta de aprendizaje físicamente activo y pausas activas: un estudio cualitativo del proyecto BALA

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**Abstract**

Movement-based pedagogy has been increasingly promoted as a means to enhance active teaching and learning; however, research exploring teachers' perceptions of its practical implementation remains limited. This study aimed to examine teachers' perceptions of the BALA project, with a focus on Physically Active Learning and Active Breaks. A qualitative research design was employed, using focus groups with six teachers (four classroom and two Physical Education teachers), organized by teaching specialty. Data were analyzed through a deductive thematic analysis to identify key perceptions about positive aspects, barriers and areas for improvement of the intervention.

The findings reveal that teachers hold positive attitudes toward movement-based strategies, recognizing their value in increasing student engagement and supporting the learning process. Nevertheless, several barriers to sustained implementation were identified, including insufficient training, limited resources, and increased workload. Despite these challenges, the overall positive perceptions indicate potential for broader adoption. The study underscores the need for targeted professional development, adequate resources, and institutional support to ensure the effective integration of movement-based pedagogy in schools.

**Keywords:** motivation; engagement; collaboration; physical activity; teachers.

**Resumen**

La pedagogía basada en el movimiento ha recibido un creciente impulso como una estrategia activa para mejorar la enseñanza y el aprendizaje; sin embargo, la investigación que explora las percepciones del profesorado sobre su implementación práctica sigue siendo limitada. Este estudio tuvo como objetivo examinar las percepciones de los docentes sobre el proyecto BALA, con un enfoque en el Aprendizaje Físicamente Activo y las Pausas Activas. Se empleó un diseño de investigación cualitativa, utilizando grupos focales con seis docentes (cuatro tutores y dos profesores de Educación Física), organizados según la especialidad docente. Los datos fueron analizados mediante un análisis temático deductivo para identificar las percepciones clave sobre los aspectos positivos, las barreras y las áreas de mejora de la intervención.

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Los hallazgos revelan que los y las docentes tienen actitudes positivas hacia las estrategias basadas en el movimiento, reconociendo su valor para aumentar la participación del alumnado y apoyar el proceso de aprendizaje. No obstante, se identificaron varias barreras para una implementación sostenida, incluyendo capacitación insuficiente, recursos limitados y mayor carga laboral. A pesar de estos desafíos, las percepciones globalmente positivas indican un potencial para una adopción más amplia. El estudio subraya la necesidad de desarrollo profesional específico, recursos adecuados y apoyo institucional para garantizar la integración efectiva de la pedagogía basada en el movimiento en las escuelas.

**Palabras clave:** motivación; participación; colaboración; actividad física; profesorado.

## Introduction

Currently, a substantial proportion of students lead predominantly sedentary lifestyles, which has detrimental implications for both their physical and psychological health, and given that educational settings are where students spend the majority of their waking hours, educational institutions are a crucial setting for promoting physical activity (PA) among children and adolescents (Daly-Smith et al., 2020).

Two widely used classroom-based methodological strategies to increase PA are Physically Active Learning (PAL) integrated within the curricular framework and active Breaks (AB) during academic lessons (Belenguer-Troya et al., 2025; Watson et al., 2017). Both strategies have been associated with health benefits and may also support academic performance (Burns et al., 2020), potentially by enhancing executive functions such as attention and working memory (Bartholomew et al., 2019). However, the effective implementation of these methodologies requires that teachers are aware of the need to promote PA within the school setting and are committed to its advancement (Baena et al., 2011).

Although classroom-based PA can help reduce sedentary behaviors and foster student´s social and emotional skills (Bigelow et al., 2023; Goh et al., 2017), teachers often report important barriers. These include curricular rigidity, lack of time, insufficient training, and pressure to meet academic objectives (Goh et al., 2017; Michael et al., 2019). Limited training may also reduce teacher´s confidence and reinforce the perception that

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additional resources are needed to plan and implement these activities (Dyrstad et al., 2018; Mandelid et al., 2023).

In Spain, although several interventions have been implemented focusing separately on PAL and AB (e.g., Mendoza-Muñoz et al., 2022; Romero-Martínez et al., 2025), few studies have systematically combined both approaches, highlighting a clear research gap. In this regard, the absence of hybrid projects combining PAL and AB underscores the importance of designing innovative programs that integrate both elements to maximize their impact on both student´s learning and health (Belenguer-Troya et al., 2025).

Furthermore, the existing literature underscores the essential role of teachers in the implementation of classroom-based PA programs, as well as the need for specific training and institutional collaboration to ensure their success (Guzauskas et al., 2021; Vazou et al., 2014; Webster et al., 2017). As central agents, it is important to understand their perceptions of this type of intervention in order to ensure their adoption and long-term success (Alcántara-Porcuna et al., 2022; Martins et al., 2024).

Therefore, this article aims to analyze teacher´s perceptions of their experience following the implementation of a hybrid classroom-based PA intervention combining PAL and AB, with direct primary school teacher's involvement in the intervention, in relation to the positive aspects, weakness and their perceived barriers. Thus, it might help establishing a framework for designing future hybrid programs aimed at enhancing and developing PA and physical literacy (PL) among young learners in both the short and long term (Giblin et al., 2014).

To this end, semi-structured interviews were conducted after a ten-month implementation period (academic year 2021–2022), to explore teacher´s opinions after delivering the intervention during the school day in core subjects. This approach enabled the examination of the evolution of teacher´s perceptions and the changes observed in pupil´s development, thereby providing and integrated view of immediate changes and potential sustained implications of this classroom-based PA model (Daly-Smith et al., 2020; Webster et al., 2017). The findings may contribute to the design and improvement of school-based programmes that promote a balance between academic objectives and

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the holistic well-being of students (Daly-Smith et al., 2021; Norris et al., 2020), thus providing a solid foundation for future educational interventions.

## Materials and method

### *Participants*

Six teachers participated in this study (four classroom and two Physical Education (PE) teachers), including four women and two men, aged 30- 58 years, with 6-34 years of teaching experience (see supplement table S1). The participants had limited previous experience and only basic prior training in movement-based pedagogy and their perceptions were therefore treated as a key element in evaluating the impact of the methodological strategies implemented in the experimental educational setting (Dorling et al., 2021; Skage et al., 2020).

### *Procedure*

The interviews were conducted at a subsidized educational center located in a municipality within the city of Valencia. Teachers were informed about the study aims, procedures, protocols and provided written informed consent prior to participation (Quarmby et al., 2024), guarantying participant confidentiality and anonymity (Chalkley et al., 2024; Li et al., 2023; Lomsdal et al., 2022). The study was approved by the Ethics Committee of the University of Valencia (Code 1564606).

### *Description of the intervention*

The BALA project intervention was structured around different formats of PA integrated into the school day: AB (10 min × 5 times/week), short-duration PAL activities (10 min × 2 times/week) and long-duration PAL sessions (≥30 min × 1 time/week).

AB consisted of joint mobility routines, body activation exercises and low-to-moderate intensity aerobic movements performed to music. These activities were designed to interrupt prolonged sedentary periods and re-energize students between academic tasks.

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Short-duration PAL activities involved fast-paced games incorporating locomotor movements, jumps, directional changes and rapid response tasks. These activities were directly linked to specific curricular content.

Long-duration PAL sessions were divided into dynamic and manipulative activities. Dynamic activities included active play, motor challenges and movement-based projects (e.g., motor circuits) aimed at integrating educational content with sustained PA, typically at moderate to vigorous intensity. Finally, manipulative activities combined curricular learning with the use of physical objects (e.g., hoops, balls, flashcards and disposable educational materials) to enhance hand–eye coordination, problem-solving and both fine and gross motor skills. These sessions were primarily of moderate intensity, with occasional peaks of higher intensity depending on the task. Prior to implementation (academic year 2020–2021), teachers received basic training on the methodology and activity formats.

***Data collection and analysis***

Following the implementation of the program, two focus groups interviews were conducted in June 2022 (classroom tutors vs. PE specialists) to gather teacher´s contributions and opinions on the intervention. A moderator supervised both focus groups and the interviews were recorded using the voice recorder of an iPhone 13 Pro.

The interview guide consisted of general open-ended questions, followed by probing questions related to the school methodology. In line with the study aim, teachers were asked to describe perceived positive aspects, weaknesses, areas for improvement and barriers related to implementing PAL and AB, with particular attention to the role of PA in academic performance (Alcántara-Porcuna et al., 2022; Daly-Smith et al., 2020).

The coding process was conducted by three researchers, who independently analyzed the data using a deductive-inductive approach based on predefined categories (i.e., positive aspects, barriers, and aspects to improve) which were selected based on previous studies. In parallel, an inductive process was applied to allow new codes and subcategories to emerge directly from the data when participants' responses could not be adequately captured by the initial framework. These inductively generated codes were

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iteratively discussed, refined and agreed upon through researcher consensus before being integrated into the final coding scheme. The coding involved assigning the identified codes to these established categories.

To ensure analytical rigor, credibility and trustworthiness of the analysis, agreement among coders was required, and discrepancies were discussed until consensus was reached. The selection of illustrative quotes followed clear criteria, prioritizing excerpts that were particularly clear, meaningful, and representative of each category. These quotes were used to accurately reflect participant´s perspectives and to support the interpretation of the findings. These strategies contributed to enhancing the transparency, methodological robustness and reproducibility of the study.

## Results and discussion

### *Positive aspects*

As shown in *Figure 1,* according to the interviewed teachers and their opinions about the positive aspects of intervention presented in supplement table S2, the increase in PA in core subjects (4 citations) leads to increased motivation and satisfaction in these subjects (6 citations). This increase in PA during school hours in primary education represents a methodological transformation that goes beyond simply extending PE time in the school schedule, as indicated "*students no longer just have two hours of PE per week, but now they also do mini exercises every day to move and thus, learning happens differently, in terms of metacognition, interest…it changes"* (Teacher 4). This practice has shown to enhance student engagement and foster *"much more meaningful learning"* (PE teacher 1).

These actions are framed within a cross-curricular approach that not only enhances student´s physical wellbeing but also enriches other areas of knowledge, which promotes the structured integration of PA throughout the educational environment to optimize both physical and cognitive development of students (Webster et al., 2020).

Similarly, the systematic inclusion of movement has been associated with improvements in classroom climate and student engagement *"they are more motivated, they come to school happier, they are more interested, they learn…"* (Teacher 3), which

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highlights the role of PA in enhancing intrinsic motivation, wellbeing and attitudes towards learning (Burns et al., 2020; Vasilopoulos et al., 2023).

Also, there has been an increase in active and dynamic participation (6 citations), leading to improved content acquisition (3 citations). That is, it was perceived an improvement in student participation, who were more active, consistent and autonomous, especially in sessions incorporating movement and dynamism: *"participation has increased… in sessions involving movement, change of space, classrooms, and so on"* (Teacher 2) and *"they participate more and complain less"* (Teacher 1), evidencing the positive effect of PA-based interventions on student behavior and learning attitudes (Watson et al., 2017). Likewise, it is important to mention that (for PAL), understood as those in which curricular content is taught through activities involving body movement: *"the positive thing is that there is much more manipulation… content is acquired through practice"* (Teacher 3) *and "the students know how to do things"* (Teacher 2). These observations are consistent with studies showing that integrating movement into academic sessions not only increases motivation and concentration, but also enhances academic performance and engagement (Norris et al., 2020; Watson et al., 2017).

In this way, the implementation of active methodologies such as PAL and AB have generated significant transformations in student´s social and emotional dynamics, notably improving interaction and cooperation among peers, as noted *"interaction has greatly improved"* (PE teacher 2), reflecting a more collaborative and cohesive learning environment than that fostered by traditional methods (Daly-Smith et al., 2020), which promote social skills and strengthens peer relationships (Mavilidi et al., 2020).

Additionally, the implementation of a movement-based pedagogy has led to significant changes in the teaching-learning process, highlighting notable improvements in student´s creativity and critical thinking (3 citations) and increased family involvement in the educational environment (2 citations). In this regard, teachers stated that *"more interaction is promoted, and also working at home with the family environment"* (Teacher 4) and *"we have noticed a change in the families, it seems there is acceptance and collaboration"* (Teacher 1), reflecting a strengthening of the family-school relationship an essential element for the pupils' holistic development.

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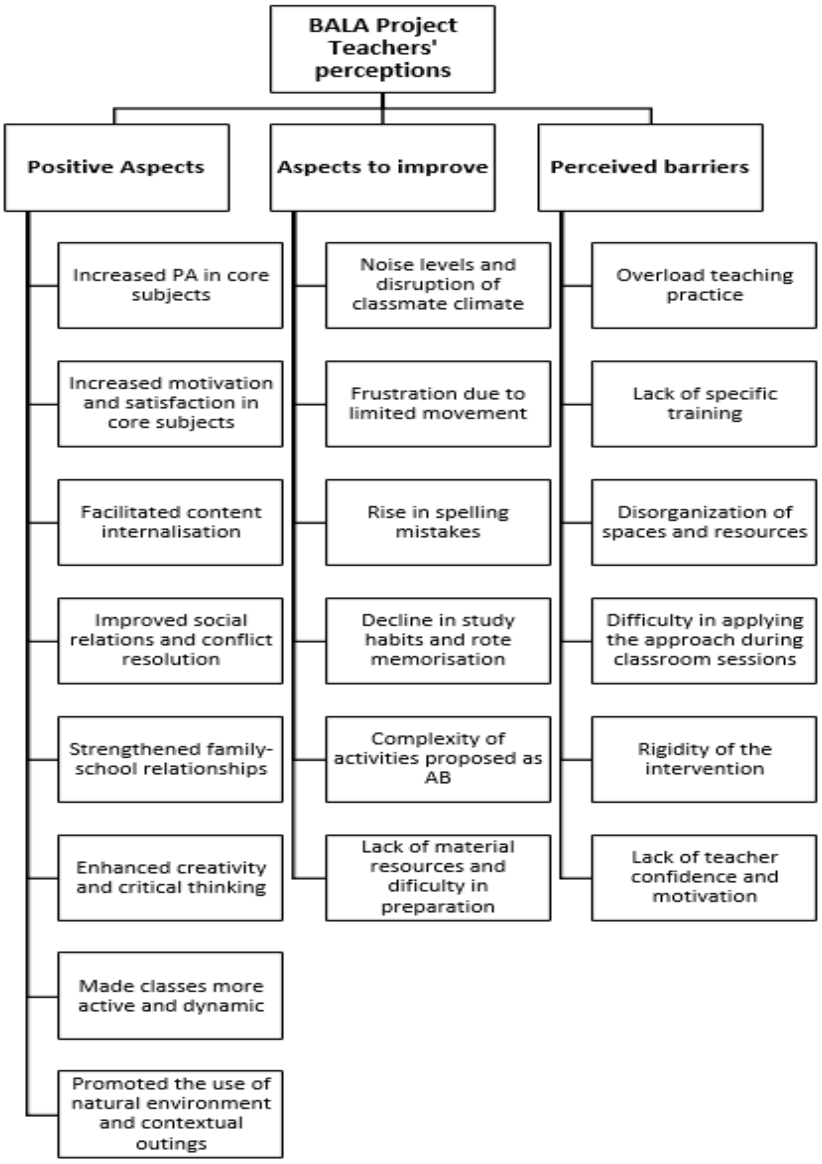
**Figure 1.** Codes pertaining to the dimensions of positive aspects, aspects to improve and perceived barriers.




Note. AB refers to active breaks. PA refers to physical activity.

Regarding the development of creativity and critical thinking, teachers noted that *"students are allowed to be and think for themselves"* (PE teacher 2) and *"outdoor time, activities in contexts they relate to guaranteed success and in various school spaces"* (T2), as well as *"getting to know their immediate surroundings, they are given many activities to explore it, to interact with the environment"* (Teacher 1), indicating that

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activities in natural environments to explore context (4 citations) foster students' autonomy and analytical ability. These findings demonstrate that learning in natural environments stimulates creativity and critical thinking by offering sensory experiences and real contexts for problem-solving (Khan et al., 2020), while also improving attention, working memory and student´s problem-solving skills (Li et al., 2023).

In this regard, the importance of hands-on activities in natural spaces is evident in observations such as *"going to the garden area we have and, for example, counting the trees there to do some arithmetic, moving between classrooms, or doing relay-based exercises in the pine grove"* (PE teacher 2). These allow students to apply knowledge in real contexts, promoting meaningful learning and the development of higher-order cognitive skills (Khan et al., 2020), supporting the notion that experiential learning in natural environments improves conceptual understanding and information retention among younger students (Beames et al., 2012).

In summary, it is worth highlighting that teacher´s assessments of the methodological implementation were positive, suggesting that implementing movement-based pedagogy (e.g., BALA project) in educational settings not only benefits students but also enriches teaching practices and strengthens the school community as a whole (Chalkley et al., 2024; Daly-Smith et al., 2020).

***Aspects to improve***

As shown in *Figure 1* and the opinions about aspects to improve the model, participants shared their perceptions regarding areas for improvement, identifying key aspects that require further development in the implementation of movement-based pedagogy focused on increasing PA within the analyzed educational context.

The analysis of teacher´s perceptions regarding the implementation of the pedagogical model revealed several areas requiring attention. One concern was the difficulty students experienced in regaining composure after engaging in AB (2 citations) *"after the wake-up activity (AB), students struggle to calm down"* (Teacher 1) as previously highlighted in the literature (Schmidt et al., 2022). In this sense, PAL/AB tasks

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must be carefully structured to ensure that the heightened arousal they generate does not extend beyond the intended timeframe (Bailey et al., 2013).

In addition, it was noted that more passive activities were not well received by students (1 citation), who preferred to remain physically active until the end of the session *"also, the more passive, calmer activities, perhaps the cool-down activities, were not so well accepted because they wanted to play and move until the last minute"* (PE teacher 2). This underscores the need to foster emotional self-regulation and encourage acceptance of varied activity types. As Howie et al. (2014) suggested, in-class PA programs should include components that promote emotional regulation and help students develop patience, while also highlighting the importance of designing appropriate spaces that support the transition back to a calm state.

Another issue raised by teachers was a decline in oral and written expression quality (3 citations), reflected in statements such as *"there are many more spelling mistakes than before"* (Teacher 3) and *"written expression is reduced to a minimum, and I believe this could affect writing, spelling and overall composition"* (Teacher 4). This concern is further exacerbated by the perception that students *"have had to study and memorize less"* (Teacher 1), pointing to a potential erosion of study habits and long-term knowledge retention (2 citations). This is consistent with Dunlosky et al. (2013), who stress the importance of balancing active learning with deep encoding strategies and highlight the role of sustained cognitive effort in achieving long-term transfer of learning.

Furthermore, teachers reported organizational difficulties when implementing AB (3 citations), stating that *"wake-up activities are very complex… especially the clapping games"* (Teacher 2). Such challenges may lead to frustration or disengagement among students, particularly when tasks are not sufficiently tailored to their abilities, for that reason it is recommended to design it with appropriate progression and accessibility in mind to prevent cognitive or motor overload (Vazou et al., 2021).

Finally, the most frequently cited concern among participants was the lack of adequate resources and the high workload involved in preparing materials (6 citations): *"sometimes we improvise as we go"* (PE teacher 1), *"the materials are not ready-made"* (Teacher 1) and *"teachers spend many hours outside of teaching time preparing lessons"*

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(PE teacher 2). These insights highlight the need for structured programs, readily available materials and specific training for teachers (Masini et al., 2022; Webster et al., 2015). Inadequate resources and limited training may result in inconsistent implementation and a perceived workload burden among teachers (McMullen et al., 2014; Stylianou et al., 2016). These factors can impact both the quality of instructional delivery and teacher wellbeing, reinforcing the need to provide access to purpose-designed materials and promote ongoing professional development that equips teachers with practical and context-appropriate strategies (Mavilidi et al., 2020; Norris et al., 2020).

***Perceived barriers***

As included in *Figure 1* teachers reported various limitations that hinder the effective application of this methodology, identifying specific areas in need of substantial improvement. The responses collected indicate that, although there is a favorable attitude toward methodological innovation, structural, organizational and training-related challenges remain that affect the sustainability and feasibility of these practices within school settings.

Teachers clearly expressed the increased time and effort required to carry out the intervention, stating that *"teachers dedicate many hours outside their teaching schedule to lesson preparation"* (Teacher 2), as well as that *"all the time spent creating resources represents an additional burden that makes us more fatigued than before"* (Teacher 1). These perceptions align with the findings of Fernández-Río et al. (2014), who indicated that the implementation of active methodologies demands considerable initial planning and adaptation time, which can lead to feelings of saturation when adequate institutional support is lacking. Moreover, the need to coordinate with other teachers and manage specific resources is identified as a factor that intensifies this burden, as illustrated *"we have had to coordinate with other teachers, and thus the investment in class preparation is even greater because it depends not only on you but also on your colleague, the materials and the spaces, which were not always available"* (Teacher 3). This aspect is strongly corroborated by studies emphasizing the importance of collaborative work for integrating innovative methodologies, while also warning that without an appropriate

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organizational framework, such collaboration may increase pressure on teachers (Webster et al., 2017).

On another note, the lack of specific training to implement the new methodology is perceived as a core limitation, as argued *"it is a novelty... for everyone"* (PE teacher 1), revealing insufficient access to continuous training and that teachers do not yet feel fully equipped to autonomously and effectively conduct these proposals. It is sustained that teacher training is a fundamental pillar for movement-based pedagogy to consolidate as sustainable, quality practices within educational settings (Bigelow & Fenesi, 2023).

The perception of teachers regarding the lack of ready-to-use material also appeared recurrently, affirming that *"the material is not prepared"* (Teacher 2), which forces teachers to create them, a task that consumes additional time and contributes to the sense of overload (McMullen et al., 2021).

In this regard, it is important to underscore the need to implement continuous training and professional accompaniment programs that not only equip teachers in the use of PAL and AB but also provide spaces for reflection and experience exchange, which are key elements to reduce initial resistance and improve perceptions of teacher self-efficacy (Watson et al., 2017; Webster et al., 2017).

According to previous studies (Dyrstad et al., 2018; Webster et al., 2017), an additional limitation of the integration of PAL/AB into school is the lack of adequate and available infrastructure (5 citations): *"sometimes it is hard to have a space available"* (Teacher 1) and *"now it is difficult to find a slot in the theatre"* (Teacher 2), which forces daily constant changes and can compromise the continuity of interventions as well as generate frustration and feelings of saturation (Michael et al., 2019; Stylianou et al., 2016).

Furthermore, the excessive rigidity of the methodological proposal (3 citations) is noteworthy, limiting adaptability: *"everything is provided, a lot of rigidity in the methodology"* (Teacher 4). This aspect also could influence teacher confidence and trust in the methodology (5 citations): *"there is much distrust in the process" (*Teacher 4*)*, *"an additional burden on teachers today is killing us"* (Teacher 3).

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As recommended by Watson et al. (2017), the most effective interventions are those that allow teachers for contextualized adjustments and foster teaching innovation. However, several factors may hinder the implementation and long-term sustainability of these practices. In this way, Mandelid et al. (2022) and Chalkley et al. (2024) highlights that perceived workload and lack of institutional support undermine teacher´s willingness to adopt innovative practices, revealing a deficit in inclusive planning. Specifically, the absence of adapted resources and specialized support limits student´s participation in integrated active methodologies, thereby reducing their learning experience (Saiz-González et al., 2025).

On the other hand, teacher confidence has also been identified as a key predictor of the sustainability of integrated active methodologies. McMullen et al. (2021) and Casey et al. (2024) noted that, without continuous training, support, and collaborative networks, teachers perceive these methodologies as isolated efforts that are difficult to maintain over time. Similarly, the solitary nature of their implementation and the lack of professional communities directly impact teacher commitment and self-efficacy (Watson et al., 2017).

For this reason, recent literature emphasizes that the effectiveness and sustainability of peer-assisted learning PAL and AB depend on specific teacher training, access to diversified resources, and methodological flexibility (Michael et al., 2019). The insufficient presence of these elements often generates resistance or implementation challenges, as reflected by the participants in this study. Additionally, both Watson et al. (2017) and McMullen et al. (2014) concurred that lack of organizational support and limited scheduled preparation time constitute recurrent barriers in educational settings.

### *Limitations of the study*

Firstly, the valuable contributions of the present study, it is necessary to acknowledge several limitations that should be considered when interpreting the results. First, although the sample size (n = 6) is consistent with the qualitative and exploratory nature of the design, it is rather small. Consequently, this limitation may reduce the diversity of perspectives captured and, in turn, constrain the generalizability of the findings.

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Secondly, the data were drawn from a single institutional context, specifically a subsidized educational centre located in the city of Valencia, which restricts the transferability of the results to other educational settings with different organizational or sociocultural characteristics.

Furthermore, the study relied exclusively on teacher´s self-reported perceptions, which may introduce potential biases associated with social desirability or subjective interpretations of the intervention. Although this type of information is valuable for understanding teacher´s experiences and implementation processes related to active methodologies, the absence of complementary data sources limits the depth and scope of the analysis.

In this regard, another relevant limitation is the lack of triangulation through systematic observational data or quantitative measures that would allow teacher´s perceptions to be contrasted with additional empirical evidence regarding the implementation of the interventions or their effects. Accordingly, the incorporation of mixed-methods approaches is proposed as a line for improvement in future research, as it may contribute to strengthening the robustness and solidity of the results.

Finally, as a consequence of the aforementioned aspects, the generalizability of the results is limited. Therefore, the present study should be understood as a contextualized approach to the implementation of PA based active methodologies, rather than as conclusions that can be extrapolated to all educational settings.

## Conclusion

In summary, this study highlights teacher´s perceptions of the BALA project, with PAL and AB views as valuable strategies to enrich the teaching-learning process. Nonetheless, lack of specific training, limited resources and perceived workload remain key barriers to their effective and sustained integration. Therefore, educational administrations should implement policies that provide preparation time within working hours, supply adapted didactic resources, and offer continuous professional development focused on the effective application of PAL and AB (Alcántara-Porcuna et al., 2022). In addition, logistical constraints, methodological rigidity, and a lack of diversity in teaching

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proposals may further limit the implementation of these methodologies in primary education.

These findings are consistent with the need to strengthen support structures that facilitate space management and the development of contextualized resources (McMullen et al., 2021; Webster et al., 2017). Consequently, educational policies should incorporate strategies that increase teacher autonomy, ensure structured preparation time within the school day and provide sustained professional development. These measures are essential for consolidating active methodologies as an integral and sustainable component of teaching practice (Alcántara-Porcuna et al., 2022; Martins et al., 2024).

Finally, future research should build on these findings by examining how teacher´s perceptions evolve different school contexts and identify the contextual and professional factors that facilitate the sustainable implementation of PAL and AB in primary education. Moreover, future studies should further strengthen the theoretical contribution of this line of research by clarifying the mechanisms through which teacher-related determinants (e.g., self-efficacy, workload and institutional support) influence implementation processes and long-term adoption of physically active methodologies.

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