

Sitting volleyball and inclusion: An emotional and relational analysis in a lower secondary school

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ABSTRACT

This study explores the effectiveness of sitting volleyball as a pedagogical tool for promoting school inclusion and emotional well-being among students with and without physical disabilities in a lower secondary school. Involving 40 students, divided into an experimental and a control group (both with an equal representation of students with motor disabilities), the research adopts a mixed methodological approach, combining quantitative tools (EQ-i:YV and SADI scale) and qualitative tools (semi-structured interviews). The educational intervention consisted of a 12-week programme based on sitting volleyball, designed with cooperative and inclusive goals. The results show a significant increase in emotional self-awareness, sense of belonging and quality of interpersonal relationships in the experimental group compared to the control group, confirming the transformative impact of adapted sport in school settings. The study highlights the need to rethink school physical education practices in an inclusive way and proposes sitting volleyball as a virtuous model of relational and participatory education.

Keywords: Physical education, Sitting volleyball, Inclusion, Physical disability, EQ-i YV, SADI, Secondary school, Classroom climate, Emotionality.

Cite this article as:

Tafuri, M. G., Scala, G., Di Palma, D., Gravino, G., & Romano, G. (2025). Sitting volleyball and inclusion: An emotional and relational analysis in a lower secondary school. *Journal of Human Sport and Exercise*, 20(4), 1355-1366. <https://doi.org/10.55860/k2rxvz06>



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Submitted for publication April 24, 2025.

Accepted for publication August 02, 2025.

Published August 23, 2025.

[Journal of Human Sport and Exercise](#). ISSN 1988-5202.

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doi: <https://doi.org/10.55860/k2rxvz06>

INTRODUCTION

Adapted physical activity is now one of the most effective tools for promoting school inclusion and supporting the psychological well-being of students with disabilities. One of the most inclusive school sports is sitting volleyball. It is a variation of traditional volleyball played by athletes sitting on the ground, with a lower net and a smaller playing field. This discipline, which originated in the Paralympic movement, allows people with and without disabilities to actively participate and promotes a cooperative and accessible approach that values diversity as a resource (World ParaVolley, 2021). Due to its structure, sitting volleyball eliminates many of the physical barriers typical of traditional motor activities, creating an environment where individual ability is not the only criterion for participation, but rather collaboration and mutual respect (Bertagna, 2012). In a school context, sitting volleyball is a powerful educational tool that can combine physical activity, relationships and personal development. It allows students with disabilities to feel an active part of the group, improving their self-perception and increasing their self-efficacy, while promoting the development of empathy, solidarity and a sense of responsibility in their peers without disabilities (Block & Obrušnikova, 2007). These dynamics contribute to building a more inclusive and harmonious classroom environment, where the group perceives itself as a cohesive community.

According to UNESCO (2017), truly inclusive education is education in which all students, regardless of their personal or social circumstances, participate fully and equitably in school life. In this perspective, psychological well-being plays a central role, understood as a balance between the emotional, relational and motivational dimensions of the student. Several studies have shown that participation in adapted sports, especially cooperative activities such as sitting volleyball, has a positive impact on various aspects of psychological well-being: it increases self-esteem, reduces social anxiety, promotes positive emotions and improves interpersonal relationships (Sherrill, 2004; Groff et al., 2009; Valentini & Rudisill, 2004). Play, understood as a relational and symbolic space, allows individuals to explore and consolidate their emotions in a protected and motivating environment, especially when it is oriented towards inclusion and collaboration (Goodwin, 2001). Sitting volleyball, with its participatory and non-selective structure, thus becomes a catalyst for well-being and belonging for all students, helping to reduce the distance between those who are 'different' and those who are considered 'able-bodied'. In light of this evidence, the present study aims to analyse the impact of sitting volleyball on the emotional well-being and perceptions of inclusion of students with physical disabilities, comparing the results with those of a control group. The aim is to understand whether and how the structured practice of this discipline can promote fair and generative educational processes, strengthen class cohesion and promote a more humane, motivating and sustainable school environment.

Aim of the research

This study aims at analysing its impact on emotional well-being and perceptions of inclusion of pupils with physical disabilities in secondary education. The main objective of this research is to analyse the impact of sitting volleyball on emotional well-being and perceptions of inclusion in school among students with physical disabilities attending a lower secondary school. In particular, the study aims to test whether an adapted physical activity intervention, based on principles of cooperation and active participation, can positively influence dimensions such as emotional self-perception, the quality of peer relationships and the sense of belonging to the class group. A comparison with a control group engaged in traditional physical activities will also allow us to assess the extent to which sitting volleyball can be a more effective alternative for promoting truly inclusive environments and supporting the socio-emotional development of students with and without disabilities.

METHODS

Sample selection

The study involved a total of 40 students enrolled in a lower secondary school, divided equally into two groups:

- Sample group: 20 students, including 5 with lower limb disabilities, participating in a structured seated volleyball programme;
- Control group: 20 students, including 5 with lower limb disabilities, participated in traditional physical activities during physical education classes.

The inclusion criteria were defined in a similar way to those used in the scientific literature on physical activity in schools and adapted accordingly. In particular, following the study by Tafari et al. (2023) on the effects of Pilates on adolescent athletes, strict criteria were also adopted for this project:

- Age group between 11 and 13 years, corresponding to the first and second years of lower secondary school;
- Presence of physical disability in the lower limbs (e.g. paraplegia, paresis, amputations or other motor limitations not associated with cognitive disability), not associated with cognitive disability;
- Ability to understand and follow simple instructions,
- Absence of clinical conditions that could compromise participation or alter the results.

Participation in the study required the completion of an informed consent form by parents or legal guardians, in accordance with the Declaration of Helsinki and its subsequent revisions, with guarantees of data confidentiality and the right to withdraw at any time. In the preliminary phase, an information session was also organised for families and teachers to explain the aims, methods and expected benefits of the study. Participants were recruited in collaboration with the school and the PE teaching team, ensuring a heterogeneous sample in terms of gender, academic performance and socio-cultural background, and an equal distribution of variables between the two groups. This procedure ensured the comparability and validity of the data, allowing for an accurate analysis of the effectiveness of sitting volleyball compared to traditional physical activities in terms of inclusion and emotional well-being.

Research tools

The study adopted a mixed methods approach, combining quantitative and qualitative tools with the aim of gaining an integrated and in-depth understanding of the dimensions of emotional well-being and perceived school inclusion, in line with Creswell and Plano Clark's (2017) recommendations on the effectiveness of integrated research designs in education.

Among the quantitative tools, the EQ-i:YV (Emotional Quotient Inventory: Youth Version) questionnaire was used, which is a validated scale for measuring emotional intelligence in individuals between the ages of 8 and 18 (Bar-On & Parker, 2000). This tool allows the detection of dimensions that are fundamental to the well-being of adolescents, such as self-awareness, stress management, interpersonal skills and adaptability, all of which are crucial components in inclusive contexts (Zins et al., 2004). In particular, the present study focused on self-awareness, understood as the ability of individuals to recognise and understand their own emotions, thoughts and behaviours. This ability is a fundamental prerequisite for the development of effective interpersonal relationships and the strengthening of personal identity within the class group. The questionnaire was administered before and after the intervention to all students in both groups, with the aim of detecting any changes in self-perceived emotional intelligence following participation in the adapted physical activity programme.

Alongside this tool, the Scale for the Analysis of Inclusion (SADI) was used to explore students' subjective perceptions of inclusive processes in the school context. The scale takes into account aspects such as sense of belonging, peer relationships and level of active participation in educational activities, which are considered key indicators of an inclusive school environment (Booth & Ainscow, 2011).

On the qualitative side, data were collected through semi-structured interviews with students with and without disabilities and physical education teachers. Interviews with students focused on experiences and feelings related to sport, the quality of peer relationships and perceptions of being an integral part of the group. The interviews with teachers explored the observed impact of sitting volleyball on class cohesion, the inclusion of students with disabilities and the overall effectiveness of the inclusive intervention. In this sense, the narrative approach allowed for a deeper understanding of the participants' points of view, highlighting the subjective and experiential dimensions of inclusion (Goodley, 2013; Denzin & Lincoln, 2018). Qualitative data analysis was conducted using NVivo software, which allowed the content of the interviews to be coded, categorised and analysed thematically. The use of NVivo facilitated the emergence of interpretative patterns and shared meanings, contributing to the triangulation of data and cross-validation of findings (Bazeley & Jackson, 2013).

This enabled a deeper understanding of the inclusive processes and emotional dynamics triggered by sitting volleyball in a school setting. In summary, the combination of standardised quantitative tools and qualitative interviews allowed not only the measurable effects of the intervention to be explored, but also its perceived impact, providing a comprehensive and detailed overview of the educational and relational value of adapted sport in schools.

EDUCATIONAL PROGRAMME

The educational programme was developed over a 12-week period, with two weekly sessions of one hour each taking place during regular physical education classes. The intervention was based on a deliberate and differentiated curriculum for the sample and control groups to assess the impact of adapted sport compared to traditional physical activity. The sample group followed a structured sitting volleyball programme led by a physical education teacher with specific training in inclusive sport, supported by a specialised sports educator. The programme was divided into three progressive teaching phases, each with specific objectives and targeted activities:

Initial phase (week1-3)

Aims: To learn the basic rules of Sitting Volleyball, to become familiar with the sitting position and the basic movements.

Activities: Warmups on the floor, individual rolling and movement exercises on the floor, simple passing (dribbling and passing) between seated teammates, mini drills.

Tools: Lightweight foam balls, coloured ribbons to mark out the court, non-slip mats to make sitting easier and protect the joints.

This introductory phase focused on overcoming the initial physical and psychological barriers associated with the new way of moving and sitting. As Rizzuto (2012) points out, a gradual approach is essential to promote a sense of perceived competence in individuals approaching adapted disciplines.

Intermediate phase (week 4-8)

Aims: Development of group dynamics and cooperative play.

Activities: Paired exercises to improve passing accuracy, team games with common goals (e.g. keeping the ball in the air for a certain number of exchanges), role rotation (server, receiver, setter), symbolic games to develop empathy.

Tools: Regulation volleyball net (reduced height), soft volleyballs, cones for orientation exercises, visual aids to explain the rules.

In this central phase, the sense of belonging and identity of the class group was strengthened through cooperative learning practices, which, as demonstrated by Johnson and Johnson (2009), are a powerful tool for improving peer relationships and promoting inclusion. The adoption of variable roles and shared game objectives allowed students to enjoy equal and non-competitive experiences, developing cross-curricular skills such as effective communication, turn-taking and empathy (Zanobini & Usai, 2015).

Advanced phase (week 9-12)

Aims: Consolidating technical and emotional skills, reflecting on experiences, increasing self-efficacy.

Activities: Mini-tournaments with mixed teams, timed games, game simulations, closing circle time with feedback, narrative of emotions experienced.

Tools: Scoreboard, emotional self-assessment sheets, personal sports diary for written reflection, videos for self-observation of key moments.

The final phase aimed to integrate technical and motor skills with emotional and reflective skills, promoting metacognition and self-evaluation processes. Bandura (1997) highlights how perceived self-efficacy is enhanced through direct experience of success and the opportunity to reflect on one's progress.

The entire programme was guided by a strongly inclusive approach, where functional differences between students were not seen as barriers, but rather as valuable resources for mutual learning and group growth. In line with UNESCO guidelines (2017), which promote inclusive and participatory education, activities were designed to enhance the potential of each pupil by fostering a cooperative and supportive atmosphere. The adoption of cooperative learning based on heterogeneous groups and common goals encouraged shared responsibility and mutual support among peers (Johnson, D.W., & Johnson, R.T., 2009), making motor experience a privileged context for inclusion and socio-relational development. The teacher consistently used a teaching style based on emotional scaffolding, providing motivational support, constant encouragement and positive feedback, which also valued small successes and strengthened self-efficacy, particularly in pupils with disabilities. This approach was instrumental in creating a peaceful, motivating and safe environment where everyone could express themselves without fear of judgement. At certain points in the unit, structured circle time sessions were planned, during which pupils had the opportunity to talk about their experiences and share their feelings, difficulties and satisfactions related to sporting activities.

These moments of reflection strengthened group cohesion and fostered the development of empathy, emotional awareness and mutual listening skills, reducing discriminatory attitudes and promoting a culture of genuine inclusion. As Goleman (1995) points out, these socio-emotional skills are fundamental to individual well-being and to building meaningful relationships in the school context. Another key element of the

programme was the allocation of inclusive roles of responsibility: every student, regardless of their physical condition, was able to try their hand at active and meaningful tasks such as captain, timekeeper, observer, game organiser or group motivator. This promoted student leadership, strengthened their sense of belonging to the school community and encouraged autonomy and deliberate participation. This approach is consistent with the Universal Design for Learning perspective (CAST, 2018), which supports the need to provide multiple modes of engagement to ensure equal opportunities for success for all students.

The control group, on the other hand, participated in a traditional physical education programme in line with the ministerial guidelines for the age group (11-13 years). The focus was on developing conditional abilities (strength, endurance, speed) and coordination, with a predominantly performance-oriented approach and less emphasis on relational inclusion. The programme was divided into three thematic modules:

Module 1: General gymnastics, motor circuit training (week 1-4)

Activities: Warm-up, stretching, bodyweight exercises (abdominals, push-ups, squats), obstacle courses with jumps, slalom and relays.

Tools: hoops, obstacles, mats, gymnastic sticks, stopwatches.

In this initial phase, the focus was on the development of basic conditioned skills, particularly strength, joint mobility and general endurance. Bodyweight and functional exercises are an important resource for consolidating motor control and preventing injury in pre-adolescents, as highlighted by Bompa and Haff (2009).

Module 2: Sports Games (week 5-9)

Activities: Simplified football and basketball games, relay races, team games (poisoned ball, dodge ball), dribbling exercises and shooting at goal/basket.

Tools: Football and basketball balls, coloured bibs, cones, mobile goals and adjustable basketball nets.

This second phase promoted the introduction of basic sports skills and active participation in team dynamics. Sport is a preferred method of physical education as it combines technical learning, social development and respect for shared rules (Côté & Fraser-Thomas, 2007). However, in this module there was a greater emphasis on the competitive rather than the inclusive component, with activities organised mainly around performance and results, as is often the case in more traditional models of physical education (Bailey et al., 2009).

Module 3: Resistance and coordination activities (week10-12)

Activities: Time trials (400m), multi-stage endurance circuits, balance and reaction games, rope skipping.

Tools: stopwatches, cones, skipping ropes, ropes.

In the final module, the focus shifted to the development of aerobic endurance and general coordination skills. These skills are particularly important in the pre-adolescent age group as they contribute to the consolidation of the neuromuscular system and the development of an active lifestyle (Malina, Bouchard & Bar-Or, 2004).

Although the lessons were minimally adapted to allow students with motor disabilities to participate (e.g. elimination of the most complex obstacles, simplification of roles in team games), no explicit inclusive strategies or moments of reflection on emotional and relational experiences were integrated.

RESULTS

Quantitative data analysis

The analysis of the quantitative data obtained from the pre- and post-intervention administration of the EQ-i:YV (Emotional Quotient Inventory: Youth Version) questionnaire and the SADI (Self-Determination and Inclusion Scale) revealed statistically significant differences between the sample group (exposed to the sitting volleyball programme) and the control group (involved in traditional physical activities). These tools were chosen for their scientific validity in assessing emotional intelligence and sense of inclusion in school among adolescents, respectively. The data were analysed using repeated measures analysis of variance (ANOVA), which makes it possible to detect changes within subjects over time and between different groups. This statistical approach, already used effectively by Tafari et al. (2022) in their study Effects of Pilates training on the physical, physiological and psychological performance of young and adolescent volleyball players, proved particularly useful in highlighting the interaction between the variables time (pre/post) and group (experimental/control), increasing the sensitivity of the analysis to changes induced by the educational intervention. The results obtained showed a significant effect of time ($p < .01$) and, in particular, of the time x group interaction ($p < .01$) for the self-awareness variable measured by the EQ-i:YV. In particular, the sample group showed an average increase in post-intervention scores of 18.5%, compared to a more modest increase in the control group of only 5.3%. These data highlight the effectiveness of the proposed integrative programme in stimulating students' awareness of their emotions, thoughts and behaviours, a core skill for the development of empathy, self-regulation and the ability to build meaningful relationships.

The ANOVA analysis also showed a significant effect of treatment on the SADI scale, which assesses aspects related to school participation, self-determination and sense of belonging. The sample group showed an average improvement of 21.7%, with particularly marked progress in the sub-dimensions of sense of belonging and active participation, two key indicators of school involvement and psychosocial well-being. In contrast, the control group showed an overall increase limited to 6.9%, with virtually unchanged scores for the perception of the quality of peer relationships and only slight improvements in participation.

These results clearly show that adapted sports activities, when well-structured and supported by a solid pedagogical framework, can play a crucial role in promoting a more inclusive, collaborative and motivating school environment. In contrast, the more traditional programme followed by the control group, which focused on individual motor performance, had less impact on socio-relational and emotional aspects, confirming the need to rethink physical education in schools, moving beyond a technical performance approach to a more educational and inclusive vision of sport.

The results obtained, supported by rigorous statistical analysis, are in line with recent scientific literature on the impact of adapted sport on the personal and social development of adolescents. In particular, sitting volleyball, due to its cooperative nature and the removal of physical and symbolic barriers, is a powerful tool for integration, promoting the reduction of inequalities, the empowerment of students and the promotion of diversity.

Qualitative data analysis

The qualitative analysis, conducted through semi-structured interviews, provided an in-depth and detailed insight into the experiences of the students and teachers and revealed significant differences between the sample group involved in sitting volleyball and the control group involved in traditional physical activities. The data, processed using NVivo software, highlighted the emergence of interpretative patterns consistent with the themes of inclusion, self-efficacy, sense of belonging and quality of interpersonal relationships. In the

sample group, students - both with and without disabilities - described the sitting volleyball context as an emotionally safe space where everyone felt welcome and valued. The words of a student with a motor disability sum up this perception: *"For the first time I really felt part of the team. I didn't have to chase after the others, we were all sitting together, all equal"*. This statement reflects the idea of fairness and equal access that is at the heart of inclusive processes. Another able-bodied pupil also highlighted a significant change in his perception of disability: *'Playing together made me realise that we are not so different. In fact, I have learnt a lot from those who have more difficulties than me'*. This kind of reflection is clear evidence of the activation of empathic dynamics and the construction of deeper and more conscious interpersonal relationships.

On the teachers' side, the teacher in the sample group emphasised the transformative effect of the collaborative approach adopted: *"With sitting volleyball, I saw skills emerge that normally remain hidden: the shyest students spoke up, and students with disabilities became points of reference for others"*. This observation highlights how the relational dimension and the inclusive protagonism had concrete effects on the classroom climate and on the students' self-perception.

In contrast, in the control group, the students' narratives focused mainly on motor performance and competition. The emotions expressed were often related to frustration with sporting results or difficulties in keeping up with the exercises. A student with a partial disability said *"Sometimes I felt like a burden. The others were running, I had to do things my way, but no one was waiting for me"*. Similarly, one of his classmates said: *"I felt sorry for him, but during the races it was difficult to get him really involved"*. These testimonies indicate a lack of strategies to encourage active participation and shared responsibility, which are key elements of truly inclusive learning.

The control group teacher also acknowledged some critical issues: *'We have tried to adapt the activities, but without really inclusive planning it is difficult to involve everyone at the same level. The group dynamic often remains competitive'*.

In contrast to the sample group, there were no moments of structured reflection or spaces for sharing emotional experiences, so interpersonal relationships remained at a more superficial level.

In conclusion, the qualitative findings confirm the effectiveness of Sitting Volleyball in promoting an educational environment that values diversity, facilitates empathy and strengthens a sense of belonging. The authentic and meaningful voices collected are concrete evidence of the transformative power of inclusive sport, which not only improves emotional skills, but also has a tangible impact on the quality of school life and peer relationships.

DISCUSSION

The results of the study clearly and comprehensively confirm the effectiveness of educational interventions based on adapted sport, in this case sitting volleyball, as a preferred tool for promoting school inclusion and emotional well-being among students. The combination of quantitative and qualitative data made it possible to capture both objective changes in terms of emotional intelligence and sense of belonging, as well as the subjective nuances of the experience, highlighting the transformative impact of inclusive physical activity. The significant increase in levels of self-awareness and active participation in the sample group suggests that a collaborative, empathetic and relationship-centred approach can have a profound impact on the construction of personal and social identities of students, particularly those with disabilities. As Sherrill and

Hutzler (2006) state, adapted physical education not only promotes the development of motor and social skills, but also contributes to the creation of an inclusive climate in which each individual can feel valued. In line with Goodwin and Watkinson (2000), active participation in inclusive sporting contexts offers students with disabilities the opportunity to redefine themselves through successful experiences, thus helping to improve their self-esteem and their perception of their role in the group. The testimonies collected, rich in emotions and reflections, show that sitting volleyball was not only an alternative sporting context, but also a real space of mutual recognition, where everyone could try out active and meaningful roles, regardless of their physical condition. This approach, in line with the inclusive pedagogy proposed by Booth and Ainscow (2011), promotes the establishment of a cooperative dynamic in which diversity becomes a resource rather than a limitation. In stark contrast, the dynamics observed in the control group highlight the limitations of an educational approach focused on individual achievement, which tends to implicitly exclude those who do not meet standardised motor skill criteria. This confirms the critical issues identified by Morin (2000) and Sutherland (2004), who highlight how non-inclusive teaching practices can reinforce inequalities and undermine the sense of belonging of the most vulnerable pupils.

However, despite the encouraging results, some critical points should be noted. Firstly, the effectiveness of the intervention could be influenced by the intrinsic motivation of teachers and their training in inclusive education: not all PE teachers have specific skills in delivering adapted activities. As highlighted by Block and Obrusnikova (2007), the lack of specific training can be a significant barrier to the full implementation of inclusive practices. Furthermore, the long-term sustainability of such interventions requires the support of the whole school system, as well as adequate material resources and flexible teaching hours, which are often difficult to find within traditional school organisations. Finally, another limitation concerns the sample size and the relatively short duration of the intervention, which does not allow for an in-depth assessment of the long-term effects on the personal and social development of the pupils.

Future ideas could include:

- The systematic introduction of inclusive sport into school curricula through permanent, interdisciplinary modules;
- The promotion of specific training courses for teachers, in order to strengthen skills in adapted physical education;
- The adoption of broader assessment tools that are more sensitive to the socio-emotional dimensions of pupils;
- Testing similar practices in different school settings (e.g. primary schools, vocational centres) to test their effectiveness on a larger scale. In summary, these findings, in line with recent literature (Haegele & Sutherland, 2015; Lieberman & Houston-Wilson, 2018), suggest an urgent need for a pedagogical overhaul of physical education practices so that they become true laboratories of citizenship, relationships and personal growth, where diversity is no longer experienced as an obstacle, but as a value on which to build a truly inclusive school.

CONCLUSION

The survey conducted highlighted how the integration of sitting volleyball in schools represents a significant educational opportunity to promote inclusion, emotional well-being and peer relationships. Adapted sport, as an educational practice focused on fairness and active participation, is a valuable tool for promoting diversity and overcoming stereotypes and barriers (Benedetti, 2019). The mixed-methods approach adopted made it possible to clearly identify both the objective benefits in terms of self-awareness, self-esteem and self-

perception, and the subjective changes experienced by the students and teachers involved, confirming the importance of a holistic evaluation of the educational process (Creswell & Plano Clark, 2011).

The comparison between the sample group and the control group highlighted the effectiveness of a teaching approach based on cooperation, empathy and the value of differences, compared to traditional physical education, which still often focuses on performance and competition (Capranica & Guidotti, 2016). The methodology adopted activated inclusive relational dynamics, promoting a more cohesive, welcoming and motivating school climate, in line with the theories of cooperative learning (Johnson & Johnson, 2009) and inclusive education (Booth & Ainscow, 2008).

The data collected confirms that adapted sport, when included in a deliberate educational project and supported by reflective and inclusive practices, can become a powerful catalyst for personal and collective growth, contributing to the construction of a more equitable, participatory and humane school environment. As Galligani (2020) points out, sport in schools can be experienced as a space for cultural and social mediation, capable of generating a sense of belonging and active citizenship.

In the light of these results, we hope to see similar programmes implemented in lower secondary schools and, more generally, the adoption of educational models that recognise sport not only as an opportunity for physical exercise, but also as a vehicle for educational and social transformation. At a time when inclusion is an essential challenge for the education system, experiences such as the one described above demonstrate that it is possible to build school spaces where everyone, with their own characteristics and potential, can feel fully part of the community (Morin, 2001; Tramacere, 2020). It is only through teaching that is attentive to relationships, needs and differences that a school can truly be created that is capable of welcoming and valuing each pupil.

AUTHOR CONTRIBUTIONS

Introduction and conclusions: Tafari, M. G. Methods: Scala, G. Educational programme: Di Palma, D. Results: Gravino, G. Discussion: Romano, G.

SUPPORTING AGENCIES

No funding agencies were reported by the authors.

DISCLOSURE STATEMENT

No potential conflict of interest was reported by the authors.

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