

# ANALYSIS OF THE INVOLVEMENT OF PARTICIPANTS IN A SCHOOL-BASED PHYSICAL ACTIVITY PROMOTION PROGRAMME IN ADOLESCENCE

## ABSTRACT

The objective of this article is to evaluate “*Sigue la Huella*” (“*Follow the Footprint*”), a 2-year Spanish school-based physical activity promotion intervention, taking into account the viewpoints of the different agents involved. The evaluation entails a qualitative analysis of the strengths and weaknesses associated with the agents’ participation, providing recommendations to improve the future application of this and other interventions. We draw on participatory research data collected through six focus groups with **35 participants (11 students, 14 teachers and 10 parents)**, semi-structured interviews with the two intervention facilitators, and an analysis of the strengths and weaknesses by the community advisory group.

The results of this study identify some recommendations that focus on a new policy proposal within the school context, driven by the responsible institutions, for the programme to **improve the participation of the different stakeholders in future replication and institutionalisation efforts**. In the opinion of all the participants, including stakeholders, the need for an organisational and cultural change in the schools is considered; one that will support **Physical Education (PE)** teachers in order for them to head this type of interventions and ensure their sustainability. Reference is also made to the need for school education projects, and for the effective collaboration between teachers and students, as well as their empowerment. Furthermore, greater engagement of all agents involved in promoting school **physical activity (PA)**, especially among girls and older teenagers, parents and non-PE teachers, must be achieved.

**Keywords:** physical activity promotion, evaluation, adolescents, schools, sustainability

## INTRODUCTION

There is broad global consensus regarding the importance of physical activity (PA) for the positive development and well-being of young people (Beaulac, Olavarria and Kristjansson 2010), considering the school as a key strategic setting for its effective promotion (US Department of Health and Human Services, 2000). Socio-ecological models as well as global and participatory approaches are considered to be the most appropriate ways of achieving this (e.g., Van Sluijs, Griffin and Van Poppel, 2007), as they permit designing interventions aimed at empowering and engaging all agents and actors responsible for healthy and active lifestyles (Lounsbury and Mitchell, 2009).

With these principles in mind, the school physical activity promotion programme, *Sigue la Huella (“Follow the Footprint”)*, implemented in the city of Huesca (region of Aragon, Spain) has been developed over a 3-school-year period. The intervention adopted a participatory action research approach (Baum, MacDougall and Smith, 2006), developed through the application of successive action-research cycles, and the co-construction of knowledge about PA (barriers, opportunities, etc.), and the intervention strategies adopted. This approach, used in other studies (e.g., Holt et al., 2013; Vecchiarelli et al., 2013), tries to capacitate and empower the school community participants (students, administrators, teaching and non-teaching staff, families), who are the experts in adolescents’ health circumstances within their school contexts. A multisectoral group of stakeholders from the community, made up of the main PA promotion agents in the context, was also involved, as key actors who can facilitate and benefit from the intervention actions undertaken (Trembaly et al., 2018). The purpose was to create favourable environments for PA, and to empower students to actively participate and commit to the design and implementation of strategies and activities. The intervention strategies were divided into two channels (Murillo et al., 2018): a) Curricular, with

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3 tutorial action sessions led by the class tutors, and PE classes, aimed at fostering PA, enjoyment,  
4 and perceived competence in a participatory and supportive climate; and b) Extra-curricular,  
5 implemented through information dissemination activities aimed at the community, and with  
6 special community programmes and events. A facilitator, who was a member of the external  
7 research team, fostered collaboration among the working groups of students, teachers and  
8 families to design, implement and evaluate the intervention, trying, at the same time, to  
9 empower young people.

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19 “Sigue la Huella” has proven to be an effective tool to increase daily levels of moderate-  
20 to-vigorous PA, to reduce sedentary activity time, and to improve the results of motivational  
21 variables, and the predictors of moderate-to-vigorous PA and sedentary time among adolescents  
22 (Murillo et al., 2016). Moreover, since 2009, the “Sigue la Huella” project has been developed  
23 within the framework of the Health Promotion Project Network of Aragon, with adequate  
24 methodological development in its different phases (initial formative evaluation,  
25 implementation of participatory intervention strategies and actions, final evaluation,  
26 dissemination with translational evaluation). Consequently, the Directorate General for Public  
27 Health and Education (s.f.) considers this project to be extremely useful in establishing  
28 synergies and mechanisms to develop and evaluate public health PA promotion policies.

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42 Therefore, the objective of this article was to evaluate the intervention, focusing on  
43 identifying, from the viewpoint of the different agents involved in the programme, the strengths  
44 and weaknesses associated with their participation, and to suggest recommendations that could  
45 be important to improve the future application of this and other interventions.

## 46 47 48 49 50 51 52 **METHOD**

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60 Participants came from two Secondary Schools located in Huesca, a small-sized city  
(50,000 inhabitants) in the north of Spain. The schools (one public and one semi-private) were  
located in two different neighbourhoods, but with similar socioeconomic status (middle). Both

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3 schools were assigned as experimental groups of the intervention. Data collection for this  
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5 evaluation was conducted within the 2 months following the end of the intervention (March  
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7 2012), using a variety of research techniques and participants to generate and triangulate data  
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9 (Creswell, 2009).  
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12 *Students, teachers and parents* participated in focus groups organised separately for  
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14 each profile. Participants were selected by means of purposive and non-random sampling,  
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16 following a substantially diverse strategy to ensure maximum variation sampling, considering  
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18 a representation of both male and female participants in each profile. Six focus groups, lasting  
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20 for approximately 45 to 60 minutes, were conducted (two per profile), with four to seven  
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22 participants each. In total, 35 participants took part: 11 students aged 14-15 years (6 boys, 6  
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24 girls); 10 parents (3 men, 7 women), and 14 teachers (5 men, 6 women).  
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29 The semi-structured script was developed based on key literature and with feedback  
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31 provided by a qualitative researcher based on a first draft. It focused on: a) evaluating the  
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33 involvement of the agents participating in the intervention (students, teachers and families) and  
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35 the role of the facilitator; for example: 'How do you value the implications of families in the  
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37 programme?', and b) identifying recommendations to be taken into account for future  
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39 implementations and the sustainability of the programme. For example: 'What modifications  
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41 are necessary to improve students' participation? How do you recommend continuing with the  
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43 programme?'  
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47 The intervention facilitator of each school was interviewed individually for  
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49 approximately one hour, using a semi-structured script that focused on analysing his/her general  
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51 impression of the functioning of the programme, and the participation of the different agents,  
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53 studying his/her own specific role in greater depth, and how his/her involvement evolved  
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55 throughout the intervention.  
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59 The *advisory group* was comprised of 8 people with responsibilities at both provincial  
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3 and local levels in areas associated with the intervention programme (e.g., education, sports,  
4 health), and whose task in the programme was to advise and facilitate the development of  
5 different initiatives within their areas of competence. All of them participated in a **2-hour**  
6 **interactive workshop led by the first author. After receiving information about the intervention**  
7 **results, the advisory group identified and analysed** the strengths and weakness of the  
8 programme as well as ways for future improvements.  
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17 A previously trained 30-year-old women (first author) led all the data collection research  
18 sessions. These were presented to participants as part of the formative and participative efforts  
19 to promote PA in adolescents within a socio-ecological framework. All participants were  
20 volunteers, and in the case of the students, their parents' authorisation was also obtained.  
21 Participants remained anonymous and their details were considered as confidential. The study  
22 was reviewed and approved by the Ethics Committee for Clinical Research of Aragon (CEICA).  
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31 All the data collection sessions were audio-recorded and transcribed. A content analysis  
32 was performed with support from Atlasti 6.0 software, which followed a mixed deductive and  
33 inductive strategy procedure (Creswell, 2009). After multiple readings to become familiar with  
34 the data, a deductive logic was applied, based on selecting key information from the texts for  
35 the study purpose. Then, an inductive reasoning was used, similar to the constant comparative  
36 method of Glaser and Straus (1967), to analyse similarities and divergences of data, to identify  
37 the key issues within each main topic, and to organise them into a map of interrelated categories  
38 and subcategories meaningful to the study purpose (Table I).  
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## 51 RESULTS

### 52 Participation of students, parents and staff in the intervention programme.

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56 *Participation of students.* The focus groups of parents, teachers and the students  
57 themselves acknowledged that the participation of students in the intervention was rather  
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3 unequal (see Table II). First, it was acknowledged that involvement in the programme of  
4 students from higher classes (14 to 15-year-old students) was low. Possible reasons given were  
5 greater adolescent apathy, negative social influence of groups of friends, and lack of  
6 identification with the actual school. The low participation of girls in the programme, and in  
7 PA in general, is concerning, as pointed out by all participants in this study. As one teacher  
8 explained: *'I believe that girls are still a differentiating factor. You have to look at the*  
9 *playground, the girls walk around while the boys play. There's still a lot to be done in this*  
10 *regard (Teacher, School2).*

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12 As recommendations to improve the future involvement of students in the intervention  
13 (Table II), the students themselves and the teachers indicated the need to establish effective  
14 channels to empower students. Channelling the students' own initiatives and identifying  
15 student-leaders who can foster them, are mentioned as concrete measures to achieve this.  
16 Another proposal that emerged from the focus groups of teachers refers to the need to promote  
17 collaborative work proposals among teachers and students, with both groups participating  
18 together on an equal footing, breaking away from the traditional hierarchy that exists in the  
19 education system.

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21 Finally, the focus groups of students and the analysis conducted by the advisory group  
22 point to the need to make efforts to promote PA, specifically in girls, proposing activities that  
23 consider their interests and preferences.

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25 *Participation of families.* The collaboration of families in the development of the  
26 intervention was valued as very low. This has been attributed to a lack of communication  
27 between parents and students, and a possible lack of interest. As a recommendation to improve  
28 the involvement of this group (Table II), the parents themselves and the facilitators suggest the  
29 advisability of improving the communication channels with the family (e.g., over the school  
30 website or by e-mails), in addition to the collaboration of the Students' Parents Association

(Spanish acronym, AMPA) to foster the participation of families in the programme.

*Participation of staff.* All participants in the study consider the action of PE teachers and of the tutors of the class groups targeted by the programme to be highly positive. In contrast, teachers, students and facilitators coincide in highlighting the lack of involvement of teachers of other subjects. This is perceived as very negative insofar as it represents a harmful and contradictory influence with respect to the PA promotion-focused educational message that they hope to pass on to the students. *As one student stated: Yes, some of the school staff have promoted physical activity, with activities, fun breaktimes, trips. But there are also a considerable number of staff members who do not encourage doing sport or do sport, or who place you in context; so everything that some are doing well, is being undone by the others (Student, Sch 1).*

This lack of **staff** involvement is attributed to the parcelling of the curricular areas, to the lack of a collaborative culture at schools, which worsens in the case of temporary staff (*We are “watertight islands” and moreover “we adapt to our programme”*), and to the lack of awareness of the teaching staff as a whole in terms of promoting PA, as this task is considered to be exclusive of the PE area.

To improve the involvement of teachers in successive implementations and to try to achieve the sustainability of the programme, teachers and facilitators refer to the need to foster collaborative work among teachers, which would make it possible to materialise interdisciplinary work proposals in the different curricular areas (Table II). To this end, emphasis is placed on the need to consolidate a school education proposal that will help to integrate the educational actions into the teachers’ specific activities. Hence, as a strategy aimed at revitalising the previous activities, it is recommended for the intervention to be integrated within the School Education Project, as this would facilitate collaboration between the different areas, thus achieving the institutionalisation and appropriation of the programme by the

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3 participating school.  
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### 5 **Evaluation of the facilitator** 6

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8 All participants in this study acknowledge that the action of the intervention facilitator  
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10 in the different roles and activities developed was very positive, appreciating his/her degree of  
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12 involvement, interest and continuity. However, this figure is also questioned by participants, as  
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14 seen from the controversy surrounding two aspects: first, it is sustained that the programme has  
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16 been possible thanks to the facilitator having “led” the other participants, to engage them in the  
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18 programme. This aspect is considered as concerning, insofar as it generates a situation of  
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20 dependence on this external agent, questioning the empowerment intended with the  
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22 programme. *As one teacher said: [Teachers] have possibly got involved because there were*  
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24 *people who led the way for us, and that concerns me, it concerns me a lot. The project has been*  
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26 *carried out and it has had an impact on the school, but because there were always people who*  
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28 *have led the way for us (Teacher, Sch 2).* But, the teachers also sustain that this initiative would  
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30 not be possible without the continued involvement of this energising figure, due to the  
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32 additional workload they consider that this task would represent. Another controversial aspect  
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34 regarding the facilitator, and which is only mentioned by the actual facilitators, is associated  
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36 with the segmentation or separation that exists among teachers from different curricular areas,  
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38 which makes it difficult to get them involved in the programme.  
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45 As recommendations, the facilitators themselves and the teachers indicate that this must  
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47 be a person who is integrated as a professional in the actual school (Table II). The facilitators  
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49 point out that they should have the support of other profiles to facilitate the implementation of  
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51 the intervention, such as a physical-sports activity organiser and a training advisor (undertaken  
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53 by university personnel/researchers). Finally, they indicate the need for these different PA  
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55 promotion profiles, and especially the intervention facilitator (as a teacher on the school staff),  
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57 to be institutionalised figures, so they are acknowledged and supported by the education  
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3 agencies (e.g., specific hours), and consequently, for there to be professional commitment and  
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5 exigency to undertake this educational work.  
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## 10 **DISCUSSION**

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12 The efficacy of the “Sigue la Huella” programme in terms of PA variables (Murillo et  
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14 al., 2016), together with the results of this study, which focuses on the opinion of the main  
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16 programme participants, including the stakeholders, and the situational analysis of the  
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18 institutions involved, permit the generation of a new proposal. This new proposal will include  
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20 the creation of school and institutional policies that emerge from the results, by way of  
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22 recommendations based on this study. Some of those presented herein focus on analysing  
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24 school contexts, and others focus on the situational context, as institutional support will be  
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26 necessary to carry out many of the recommendations or policies proposed within the school  
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28 setting.  
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33 There is growing interest, today, in collaboration approaches to generate knowledge  
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35 among users of knowledge and investigators, which lead to “co-designed” knowledge  
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37 (VicHealth, 2018). This idea would be in line with some of the recommendations derived from  
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39 the study results, such as identifying facilitator teachers and students who can promote  
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41 initiatives. Achieving an effective co-design in health promotion has an enormous effect on  
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43 empowering the communities involved (VicHealth, 2018). In this case, the adolescents and the  
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45 entire educational community will want to engage in something they participate in, which they  
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47 are familiar with and in which they feel they play an important role.  
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51 This study points to the need to motivate and specifically involve teenage girls, so  
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53 intervention efforts that specifically address this group must be taken into account (e.g., Jago  
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55 et al., 2012; Dewar et al., 2014). **PA contexts frequently support gender stereotypes in ways  
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57 that reinforce masculinity (e.g., power, strength and aggressiveness), and disadvantage most  
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3 girls (Rauscher and Cooky, 2018). Moreover, conventional femininity continues to be linked  
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5 to a lack of forceful actions, skilfulness and athleticism, and is internalised by the girls  
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7 themselves. This stereotype could also act as an implicit barrier that limits girls' participation  
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9 in PA (Rauscher and Cooky, 2018). Therefore, PA promotion programmes should be gender-  
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11 sensitive (Camacho-Miñano et al., 2011), guaranteeing that all students participate in them  
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13 and enjoy them, and that they develop their physicality in a safe and non-threatening  
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15 environment (Allender, Cowburn and Foster, 2006).  
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19 Another recommendation that emerges from the study results is related to the  
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21 improvement in the communication of intervention actions or strategies. To this end, the  
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23 visibility of the programme actions in the media –both traditional and social networks- could  
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25 be intensified, using social marketing strategies (Berkowitz, Huhman and Nolin, 2008), taking  
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27 advantage of the adolescents' environment (Huhman et al., 2009). Strategic alliances with  
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29 parents' associations are also underscored as another key recommendation. Both actions should  
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31 be especially aimed at strengthening the involvement of families, whose participation in the  
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33 programme was very low. There is evidence that family support is consistently related to  
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35 physical activity levels in adolescence (Mendoça et al., 2014), thus it is usually included in  
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37 comprehensive school-based interventions (Carson et al., 2014). Although it is unclear how to  
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39 make their participation effective, the different profiles of families should be considered  
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41 (School State Council, 2014). The objective must be to seek realistic, flexible collaboration  
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43 methods that can be adapted in time to ensure the sustainability of implemented actions (School  
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45 State Council, 2014).  
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51 It is important to highlight that health-promotion and education strategies in a school  
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53 setting essentially seek to strengthen and facilitate the educator's task, for him/her to be able to  
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55 teach students the necessary life skills, to foster their basic competencies, and achieve adequate  
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57 all-round development, thus achieving a positive impact on the health of the entire education  
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3 community (Granizo and Gallego, 2007). Among school teachers, PE **teachers are** key figures  
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5 in PA interventions (Webster et al. 2016; Grenier, Otis and Harvey, 2010). But, to achieve this,  
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7 teachers must know how to tap into the existing social relations among young people, and to  
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9 promote positive staff-youth connections (McDavid and McDonough, 2018). The results of this  
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11 work indicate that these efforts must be carried out within an organisational and cultural change  
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13 at schools, which unanimously supports PE teachers, for them to get involved and head (as  
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15 facilitators) the development of PA promotion interventions, and to ensure their sustainability  
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17 (Carson et al., 2014; Cardon et al., 2012). Therefore, the facilitator-investigator should  
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19 progressively pass on the baton to another facilitator-teacher from the school; a person who is  
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21 truly integrated into the school structure, and, at the same time, connected **to researchers who**  
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23 evaluate the intervention (Langille and Rodgers, 2010; Van Acker et al., 2011).

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28 But the staff context is not simple. The challenge of overcoming a sedentary lifestyle  
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30 demands a global solution whose main premise is to generate synergies among all agents  
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32 participating in the solution (Murillo et al. 2015a). Based on this idea, permanent education  
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34 strategies, called “School Education Projects” in Spain, are proposed. This education must be  
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36 based on the specific interests and needs of each school reality, and it must stimulate the  
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38 reflection **and autonomy** of the teaching staff, **favouring peer education and collaborative work**  
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40 in order to generate solutions to the real problems of the school **throughout the formative**  
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42 **process** (Murillo et al. 2015). These education projects must also integrate external advice and  
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44 support from the permanent education structures of the Administration.

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49 The evidence presented in the article gives us the opportunity to introduce a translational  
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51 formative evaluation, critical in successfully upscaling PA and health programmes (Nutbeam  
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53 and Bauman, 2006). Thus, the new design of the “Sigue la Huella” programme will incorporate  
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55 the recommendations detected, as well as the political and organisational context in which the  
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57 successive implementations are going to be developed. For this reason, the community  
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3 stakeholders have been considered from the onset as key figures to achieve this (Owusu-Addo  
4 et al., 2015). The aim is to improve the process of going from efficacy to scaled-up  
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6 dissemination, reducing possible implementation problems, adding quality, scope and  
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8 adaptation of translation into population-wide practice (O'Hara et al., 2014).  
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## 14 CONCLUSION

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17 The results of the evaluation of this participatory research study suggest the need for an  
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19 organisational and cultural change in schools to support Physical Education (PE) teachers in  
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21 order for them to head this type of interventions and ensure their sustainability. School  
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23 education projects that foster effective collaboration between teachers and students, and their  
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25 empowerment, could be a key formative strategy, as well as improving the programme  
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27 communication channels. Special efforts should focus on achieving greater engagement of low  
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29 participation profiles, such as girls and older teenagers, parents and non-PE teachers. The  
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31 engagement of stakeholders from the community, made up of the main PA promotion agents  
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33 in the context, can facilitate and benefit from the intervention actions undertaken. This study  
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35 highlights participatory research to co-construct, through alliances, the knowledge that is  
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37 generated, to address issues related to improving the health of the education community, and to  
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39 produce knowledge for mutual objectives.  
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For Peer Review Only

Table I. *Themes, categories and source of data.*

Themes	Categories	Source of data				
		Students FG (n=2; 12 students)	Parents FG (n=2; 10 parents)	Teachers FG (n=2; 14 teachers)	Facilitator interview (n=2)	Advisory Group* (n=1; 8 participants)
Perceived participation of students	<b>Level of participation</b>					
	• Low participation of girls, older students	X	X	X	X	X
	• Acceptable participation of younger students and groups of friends	X		X		
	<b>Recommendations</b>					
	• Target girls	X				X
	• Student empowerment	X		X	X	
	• Collaborative work with teachers			X		
Perceived participation of family	<b>Level of participation</b>					
	• Very low participation	X	X	X	X	X
	<b>Recommendations</b>					
	• Improvement of communication channels		X		X	
	• Collaboration of AMPA (Parents' Association)		X			
Perceived participation of Teachers	<b>Level of participation</b>					
	• High participation of PE teachers and tutors	X	X	X	X	X
	• Low participation of others teachers	X		X	X	X
	<b>Recommendations</b>					
	• Collaborative work among teachers (Interdisciplinary approach)			X	X	
	• Teacher's training at the school.			X	X	
	• Integration of the programme into the PEC (School Curricular Project)			X	X	X
Evaluation of the facilitator role	<b>Level of satisfaction</b>					
	• Positive recognition	X		X	X	X
	• Questioning of the facilitator's role			X	X	X
	<b>Recommendations</b>					
	• Integration of the facilitator into the school			X	X	X
	• Support from other profiles			X	X	
	• Institutionalisation of profiles					

FG=Focus Groups; \*= SWOT Analysis (the strengths, weaknesses, opportunities, and threats analysis. An analysis of the internal and external environmental factors performed as part of developing the organizational strategy)

Table II. *Suggested recommendations to improve the participation of the different participant profiles*

Profiles	Recommendations	Examples of quotations
Students	Target girls	I believe that girls are still a differentiating factor. You just have to look at the playground, the girls walk around while the boys play. There's still a lot to be done in this regard (Teachers_Sch 2).
	Student empowerment	"[...] and in what way do we try to get students to manage themselves a bit more so that we do not have to be continuously encouraging them" (Teachers_Sch 1).
	Collaborative work with the teachers	"It is very important for both students and teachers to learn to work as a group. That is very difficult. But, in other cases, we should learn, all of us should know that the smallest cog in the wheel is important for the final product" (Teachers_Sch 1).
Parents	Improvement of communication channels	"It could be interesting, to be able to have a greater influence, to post everything about meetings on the website of the institute, apart from sending e-mails and messages when there are activities" (Facilitator_Sch 1).
	Collaboration of AMPA (Parents' Association)	"Talking about the parents, the AMPA could work to promote physical activity and propose some activities of that kind." (Parents_Sch 1).
Teachers	Collaborative work among teachers (interdisciplinary approach)	"[...] more departments should get involved, but not just physical activity (Teachers_Sch 1).
	Teacher's training at the school	"The transformation into a school project with the increase of the number of professionals involved in its development" (Advisory Group).
	Integration of the programme into the PEC (School Curricular Project)	"We are really concerned about this dimension of promoting physical activity from the schools and with the conviction that this has to be done globally as the task is typical of a school education project" (Facilitator_Sch 1).
Facilitators	Integration of the facilitator into the school	"I believe that a facilitator has to be a professional that is in the school..." (Facilitator_Sch 2)
	Support from other profiles	"Two years ago, the Ramón y Cajal secondary school had a person paid by the council (social-cultural animator) for this function. In that circumstance, with the students we have, it seems that this does represent change" (Teachers_Sch 1)
	Institutionalisation of the profiles	"...but it must be a professional that everyone knows and, therefore, a certain dedication is required" (Facilitator_Sch 1)