



*Citation for published version:*

Stathi, A & Sebire, SJ 2011, 'A process evaluation of an outreach physical activity program in an inner-city primary school', *Journal of Physical Activity & Health*, vol. 8, no. Supplement 2, pp. S239-S248.

*Publication date:*  
2011

*Document Version*  
Publisher's PDF, also known as Version of record

[Link to publication](#)

**University of Bath**

**Alternative formats**

If you require this document in an alternative format, please contact:  
[openaccess@bath.ac.uk](mailto:openaccess@bath.ac.uk)

**General rights**

Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

**Take down policy**

If you believe that this document breaches copyright please contact us providing details, and we will remove access to the work immediately and investigate your claim.

## A Process Evaluation of an Outreach Physical Activity Program in an Inner-City Primary School

Afroditi Stathi and Simon J. Sebire

**Background:** Inner-city schools experience substantial difficulties in providing sufficient physical activity opportunities for their pupils. This study evaluated the Y-Active, an outreach physical activity and well-being program delivered in an inner-city primary school in London, UK by a third-sector partner. **Methods:** A process evaluation focusing on perceived effectiveness and implementation issues was conducted using qualitative case-study methodology. Semistructured interviews and focus groups were conducted with Year 5 and Year 6 pupils (N = 17, age range = 9 to 11 years), Y-Active sports leaders (N = 4), the school head teacher, class teachers (N = 2), and the Y-Active administrator. Transcripts were thematically analyzed and multiple informant and analyst triangulation performed. **Results:** The Y-Active leaders created a positive learning environment supporting autonomy, balancing discipline and structure and providing self-referenced feedback, excellence in tuition and a strong focus on fun and praise. Pupils reported improvements in self-confidence and competence, self-discipline and interpersonal relationships. School staff and Y-Active leaders highlighted that their partnership was built on trust, top-down leadership support and open lines of communication between the provider and the school. **Conclusions:** Collaboration between third sector service providers and inner-city schools represents a promising means of increasing children's physical activity and well-being.

**Keywords:** effectiveness, children, implementation, qualitative research

Physical activity (PA) during childhood is associated with physical and mental health benefits,<sup>1-3</sup> however, only 31% of boys and 22% of girls aged 4 to 15 meet UK government recommendations for 60 minutes of moderate-to-vigorous PA per day.<sup>4</sup> Furthermore, PA in boys and girls declines with age with a pronounced decline in girls in the transition from childhood to adolescence.<sup>4</sup>

Many PA interventions for children have been delivered in the school context.<sup>5,6</sup> Such programs are promising as children spend much of their waking hours at school. Schools provide access to a broad range of children and existing school infrastructure can be used in intervention delivery. In a systematic review of school-based interventions, Dobbins et al<sup>7</sup> reported that such programs lead to increased PA within school but not in leisure time. However, evidence from controlled trials for the effectiveness of educational interventions or interventions that changed the school environment in increasing PA behavior among children is inconclusive.<sup>5</sup> Salmon et al<sup>6</sup> found that childhood PA interventions do have some success in positively influencing mediators of behavior change, such as knowledge/beliefs and self-efficacy. It has been suggested that further research is needed to

assess the impact of PA interventions tailored to the particular PA facilitators and barriers faced by children in urban locations.<sup>7</sup>

In addition to PA barriers common to all schools such as limited curriculum time, nonexpert staff and financial constraints, inner-city schools may face unique challenges in providing sufficient opportunities for PA. As health problems such as obesity are more prevalent in children living in urban than rural areas in the UK,<sup>8</sup> inner-city schools may face greater challenges in delivering effective PA interventions. Further, inner-city schools must often accommodate the needs of pupils from diverse ethnic backgrounds, may have restricted space in which to implement PA programs and limited scope to build new facilities in crowded urban areas. In terms of the school's surroundings, greater urbanity is negatively associated with amount of green space and therefore inner-city schools are likely to have less access to green space.<sup>9</sup> Further, urban home accommodation (eg, apartments or flats) may limit children's and families' opportunities to be active outside of school hours. As such, PA interventions delivered in these contexts must respond to these challenges.

Some PA promotion strategies may show promise for use in inner-city schools. The *Eat Well and Keep Moving* intervention<sup>10</sup> targeted the PA, TV viewing and eating behaviors of inner-city primary school children in the US. Cross-curricular lifestyle education about these 3 behaviors was delivered by trained class-room teachers,

---

Stathi is with the Dept of Health, University of Bath, Bath, United Kingdom. Sebire is with the School of Policy Studies, Centre for Exercise, Nutrition, and Health Sciences, Bristol University, Bristol, United Kingdom.

health campaigns, family engagement, and contests over 2 school years. The intervention led to favorable changes in diet however did not lead to changes in PA. It has also been reported that painting the playground with multicolored lines to encourage active play / games may increase PA in UK primary schools in areas with high deprivation.<sup>11</sup> A small-scale pilot evaluation of the *Be Active Stay Healthy* (BASH) program has been conducted in 2 deprived UK primary schools.<sup>12</sup> BASH comprises a 5-lesson intervention of health related education delivered in physical education time by a PA coordinator employed by the local Children Services Department. Preliminary evidence was found for an increase in pupil knowledge of health-related exercise. Such findings suggest that interventions that build on collaborations between schools and external service providers may be effective.

Given the limited success of school-based childhood PA interventions to date, it is important to continue developing and evaluating novel intervention strategies and delivery techniques which respond to the challenges faced by schools, the needs and the goals of pupils and staff, the available facilities and the surrounding environment.<sup>10,13</sup> For inner-city schools with low PA provision, opportunities and resources, long-term sustainable solutions are necessary.<sup>14</sup>

The aim of this paper was to evaluate the processes of one such intervention, the *Y-Active program*, a collaboration between an inner-city primary school and a third-sector (charity/voluntary) service provider in London, UK. Specifically we aimed to (a) describe the perceived impact of and satisfaction from the intervention by pupils, teachers, and intervention leaders, (b) explore the characteristics underpinning the novel partnership between a school and a third sector service provider, and (c) identify success factors and implementation challenges that could improve the translatability and feasibility of such initiatives.

## Methods

A process evaluation focusing on perceived effectiveness and implementation issues was conducted using qualitative case-study methodology. Case studies are warranted where the boundaries between context and content cannot be easily differentiated.<sup>15</sup> As the Y-Active program was gradually developed through the relationship between the third sector provider and the school, the boundaries between content and context are not clear.

### The Case Study School

The case study school is a mixed gender, primary school located in central London, UK. The school is situated 0.70 miles from the Central YMCA (the service provider). At the time of this study 144 pupils from 4 (foundation year) to 11 (Year 6) years old and representing diverse ethnic backgrounds were enrolled at the school. There

is 1 class in each year group containing approximately 20 pupils in each class. The school employs 21 staff (1 head teacher, 10 teaching staff, 8 learning mentors and 2 administrative staff). Space for PA is limited to a small school dining hall, a purpose built small sports hall and the playground. The playground is a small outdoor space at street level and is surrounded on 3 sides by high-rise buildings.

### The Y-Active Program

Y-Active is the umbrella term for the multicomponent children's program delivered by the Central YMCA in London, UK. A component of Y-Active is the outreach PA and well-being program which is delivered in 7 schools in the London area. The case-study school used in the present research represents the most developed partnership, the outcome of approximately 5 years of collaboration between the YMCA and the school.

**Intervention Content.** The Y-Active program consists of (a) breakfast club, (b) physical education, (c) Fit Kids lunchtime fitness classes, (d) after-school play club, and (e) after-school sports. Physical education and Fit Kids (both once per week per year group) are integrated in the school's provision for all pupils. Breakfast club, after-school play club and after-school sports (once per week per year group) are opt-in activities for which parents pay a small fee.

**Location/Environment.** Breakfast club, Fit Kids classes, and after-school sports are delivered at school in a variety of places, including a sports hall, a dining hall, and the playground. Due to restricted space within the school, physical education is delivered at the nearby YMCA sports center. Pupils walk approximately 10 minutes under supervision to and from this facility.

**Personnel.** All intervention components are organized, planned, and delivered by a team of trained YMCA sports coaches and play workers. A school administrator liaises between the school and the YMCA on logistic issues such as timetabling and collecting fees. The Y-Active manager at the YMCA oversees the broader Y-Active program.

### Participants

The recruitment of pupils and teachers was conducted in liaison with the School administrator. Pupils were purposively sampled for both interviews and focus groups to achieve equal numbers of boys and girls and to explore the experiences from participation in every Y-Active component delivered in the school. Four teachers (from years 3 to 6) were invited to attend a focus group and 2 volunteered to participate. The Y-Active staff identified by the Y-Active manager as significantly involved with the case study school at the time of data collection were also interviewed.

## Procedures

The school acted in loco parentis for its pupils. In addition, an information sheet was sent to parents of pupils in Years 5 and 6. Parents were given the option to opt their child out of the research. An age-appropriate information sheet was given to each pupil. Sixteen pupils (19% of all pupils in Years 3 to 6) were opted out by their parents/guardians. Adult participants provided written informed consent. All participants were reminded of issues pertaining to their voluntary participation, right to withdraw and confidentiality and were given the opportunity to ask questions before participation. Ethical approval for this study was granted from the School for Health Research Ethics Approval Committee at the University of Bath.

## Data Collection

Semistructured interviews and focus groups were conducted with Year 5 and Year 6 pupils (N = 17, age range = 9 to 11 years), Y-Active sports leaders (N = 4), the school head teacher, class teachers (N = 3), and the Y-Active administrator. Interview and focus group guides were developed for each participant group using the Reach-Effectiveness-Adoption-Implementation-Maintenance model [RE-AIM] ([www.re-aim.org](http://www.re-aim.org)). RE-AIM is a public health framework which helps improving the robustness, translatability and public health impact of community-participatory interventions.<sup>16</sup> The created themes targeted principally the Effectiveness and Implementation components of RE-AIM.

For pupils, questions focused on their involvement with Y-Active, their perceived impact of Y-Active activities, their opinions of the Y-Active play workers / coaches and their suggested improvements. For school staff, interviews focused on the impact they perceived Y-Active to have on their pupils, themselves and their role as a teacher, elements of success and challenges of Y-Active and organizational / managerial issues. Interviews with Y-Active staff focused on both impact and implementation of Y-Active including their perceptions about the impact of the program on the pupils, their role as a leader, their relationship with pupils and teachers, their delivery style and challenges in implementation.

## Data Analysis

Transcripts were thematically analyzed<sup>17</sup> using Atlas.ti (Version 5.6.3) to facilitate systematic coding, retrieval of information, and organization. Initial coding (SJS) involved reading transcripts line-by-line, highlighting meaningful text, and attaching an initial descriptive code to it. At the next step, initial codes were refined by reviewing the supporting data, grouping similar codes, and establishing connections, redundancy, and meaning. Refined codes were discussed (SS & AS) before creating higher order themes. Multiple informant and analyst triangulation was performed<sup>18</sup> and discrepancies, rival

explanations and exploration of negative cases were discussed and resolved by returning to the original data and agreeing on the interpretation.<sup>19</sup>

## Results

Four Year 5 pupils (2 females, mean age = 9.2) were interviewed and 5 participated in the focus group (2 females, mean age = 9.8). Four Year 6 pupils (2 female, mean age = 10.0) were interviewed and 4 participated in the focus group (2 female, mean age = 10.2). Focus group and interview participants represented separate participant groups. Among the participant group, all pupils participated in PE and Fit-Kids, 4 attended Breakfast Club, 10 participated in Play Club, 5 participated in after-school gymnastics, and 6 participated in after-school football. Two male (mean age = 29.0; mean time working in Y-Active = 2.5 years) and 2 female (mean age = 24.5; mean time working in Y-Active = 2.5 years) Y-Active leaders were interviewed. Two teachers (1 female, mean age = 28.5; Range of time employed in the case study school = 0.5 to 1.5 years) participated in a focus group. The Y-Active administrator was female and had been employed at the case study school for 3.5 years.

## Thematic Analysis

The refined codes (tertiary themes) were grouped into higher order themes (secondary themes) which formed the 2 primary themes, *Perceived impact and satisfaction* and *Implementation*. The theme hierarchy is presented in Table 1.

### Theme 1: Perceived Impact and Satisfaction

***Efficacy Perceptions and Self-Belief.*** The Y-Active program allowed pupils to demonstrate and develop specific sporting competencies and increase their perceived efficacy in exercise and sports which also appeared to bolster global self-perceptions:

I think I've learnt to believe in myself more. . . . Well I used to think I couldn't do a lot of the things. . . . I was always really scared of the vault. And then by the end of the gymnastics I was going on. . . . I felt comfortable on the vault. (*Year 5 girl*)

Taking a future-time perspective, a Year 6 boy perceived himself to be at an advantage in terms of his physical abilities before commencing secondary education:

It's gonna help you because, you've just done the basics then you move on and then when you're in Year 7, Year 8, and Year 9 you do the things that basically you've learnt at the YMCA but its just a bit harder. (*Year 6 boy*)

**Table 1 Perceived Impact and Implementation of Y-Active**

Primary theme	Secondary theme	Tertiary theme
Perceived impact & satisfaction	Efficacy perceptions & self-belief	Global Self-belief / pride
		Competence / confidence in specific physical activity ability
		Cross-activity impact on other sports and on general life
	Physical well-being	Perception of increased fitness
		Motivates PA / exercise behavior out of school
	Psychological well-being	Positive (fun, energetic, excited)
		Relaxed / refreshed
	Attitudes toward exercise, fitness & health	“It makes work fun”
		Positive attitude (self-motivated)
		Identification with health benefits
		Positive healthy role models
	Relationships with other pupils	Team work
		Responsibility
Implementation	Delivery style	Pupil and Y-active leader relationship
		The “YMCA way”
		Autonomy supportive vs. controlling styles
		Structure and discipline
		Self-referenced feedback
		Empathy/ Messages to pupils
	The service provider-school partnership	Open communication
		Supportive head teacher
		Trust
	Challenges	Developing rapport, being different to teachers
		Pupil behavior management
		Consistent messages from Y-Active and school

Similarly, efficacy experiences in Y-Active translated to global feelings of self-worth:

I've learnt to never give up, to be persistent and to try something. I was really scared when we were doing somersaults but [Leader name] told me it would be alright. All my friends were really unsupportive so I said, “I've got to go for it” no matter what the consequences were. So I just ran up and did it, so it has given me kind of courage I suppose. (*Year 6 girl*)

The pupils' experiences were corroborated by the school teaching staff who believed their pupils had gained greater level of competence in YMCA-taught activities:

I think the obvious ones are the children's sporting prowess I would say. We have started doing well in competitions, competitive sports as a school which is something that I don't think this school had ever been able to do before. (*Head teacher*)

**Physical Well-Being.** Many pupils believed that their fitness had increased as a result of their increased PA opportunities in Y-Active:

In play time you can't really run around in the playground. You're not allowed to because it's too small. And so with the YMCA Fit Kids and after-school football and gymnastics and at breakfast club you



can play football as well and you can run around a bit more because there's less people. So it's really good because you can stay fit and healthy. (*Year 5 boy*)

Another Year 5 pupil described how they perceived their fitness to have increased above and beyond the effect of maturation and the positive self-evaluations resulted from their fitness improvements. Further to this and consistent with other pupils, a Year 6 girl reported that the Y-Active activities motivated her to participate in free-choice fitness-based activities out of school:

Cause before we started it I wasn't as fit as I am now, I've got stronger obviously because I've got older but if I had just stayed like I was I'd just be like normal, but now I'm stronger than some people. (*Year 5 boy*)

They've taught me how I can keep fit whilst doing what I like. So that's made me want to do it even more so I've been doing more which means I'm now like kind of fitter. (*Year 6 girl*)

**Psychological Well-Being.** Y-Active brought about changes in pupils' psychological well-being through feelings of vitality and relaxation. These experiences were corroborated by the teachers who noted a resulting effect on their pupils' affective states before and after their Y-Active involvement.

I sort of feel a bit more relaxed because I've had a really busy bus journey then you just arrive and you can just eat your cereal and then you sort of calm down a bit and then you go into class and have your lessons. (*Year 5 boy*)

You feel like your heart is bursting and you feel quite strong and refreshed in a way. (*Year 5 boy*)

I have a few children who are quite kind of subdued in class and you know have a tendency to just want to be sleepy and it kind of just wakes them up. So you've got the manic ones coming down and the quiet ones are kind of going up a bit. (*Male teacher*)

**Attitudes Toward Exercise, Fitness, and Health.** The data demonstrated a positive effect of Y-Active on the pupils' attitudes toward PA. Pupils referred to the way that Y-Active, especially the Fit Kids program "made work fun."

A lot of the time we were playing games even when we're stretching so that, like on Tuesday we played a game where we had to run to the other bench and back and that's sort of like a game mixed in with getting fit. It makes work fun. (*Year 5 girl*)

It seems that these pupils perceive exercise as hard work and not intrinsically associated with fun unless presented in a stimulating way. The idea of putting a positive spin on exercise was seen by one YMCA leader as an aim of the Y-Active program:

Every child gets a little bit of exercise every day . . . and that's kind of what I would see it as, that's Y-Active's role. I mean they are supposed to have fun and play and enjoy themselves but that's sort of the positive spin on it. Y-Active is supposed to be fun it is not supposed to be torturous [laughs]. (*Female Y-Active leader*)

The pupils appeared to identify the value of being physically healthy and keeping fit beyond having fun and attributed this to increased knowledge and self-reflection encouraged by the Y-Active:

Because they make you know what you're doing more and it makes you realize what it is for you and if you don't do it then you're not very healthy. . . . It makes you realize more how important it is. (*Year 6 boy*)

The teachers identified the positive influence of the YMCA leaders on the pupils through the capacity as role models promoting active, healthy lifestyles. One of the YMCA staff echoed this point in recognizing the need to be a positive role model able to perform what they ask of the pupils:

A lot of the YMCA staff are male, a lot of young men who they [the pupils] don't normally come into contact with. I mean a lot of our kids come from single parent families, most of them single mothers, there's a lot of issues of lacking male role models around and amongst our kids and I think it's really important these really positive male role models who are doing fun sporty things but also setting boundaries. (*Female teacher*) I think as a coach you've got to be seen that you're doing things that you're saying. . . . You got to be able to deliver the 30 yard pass if you're teaching that, or if you've got to run you've got to be able to run for the 10, 15, 20 seconds at the same speed. (*Male Y-Active leader*)

**Relationships With Other Pupils.** Strong relationships developed between pupils within the Y-Active activities as shown in the narrative of one of the YMCA leaders:

The team work at [school] is something else, it really is something else. Some of them can't wait to get there 'cause they want to help each other, especially when we're out there in the park, we, say "you've got to look after one another," and this is coming along. (*Male Y-Active leader*)

The pupils liked being given the opportunity to work with pupils outside their immediate peer network and being asked to take responsibility for their fellow pupils:

And when [leader name] says, "Girls can you take them down to the toilets?" We're like, "Ok," because we like doing it because it gives us responsibility. Whereas if they say, "Oh you don't have to look after them, just go down and straight away come

back up,” which they don’t, I would feel like yeah we can’t handle anything. (*Year 6 girl*)

## Theme 2: Implementation

The perspectives of both the YMCA and school staff about the implementation of the Y-Active project are presented in the subthemes of *Delivery style*, *The service provider-school partnership*, and *Challenges*.

**Delivery Style.** Central to Y-Active implementation was the delivery style of the YMCA leaders who showed empathy and allowed pupils to choose their preferred activities.

We talk to the kids, we try and go down to their level and give them a one-to-one kind of personal “what would you like to do,” you know, and “do you think you’d be doing this, that” and try and get their opinion out there as well. (*Male Y-Active leader*)

Discipline was an integral part of the Y-Active delivery but this was balanced with positive encouragement and self-referenced feedback to the pupils:

I think sport needs to be disciplined, so if I’m focused and disciplined, I can’t have nobody chatting around because I’m gonna tell them straight up and say, “You know what? We got to do this.” A little smile goes a long way. . . . I really do believe that, I mean I know it sounds such a cliché but a little smile goes a long way and also you need to be doing it with them. It’s forever using the positive language I mean, “Come on you’re doing great that’s looking good that’s looking really good, you’re much quicker this week.” (*Male Y-Active leader*)

The YMCA staff found self-referenced and task-focused feedback to be particularly useful in motivating the children that were not as highly motivated toward football:

The kids don’t love football that much but I found that when they’re doing the steps [a timed run up and down steps in a local park] they remember the time for week 1, I write it down and I say, “this week you did this,” but those kids particularly those kids that don’t love the football that much they can’t wait to get to the steps. (*Male Y-Active leader*)

The messages that the YMCA leaders provided indirectly through their interactions with the pupils were focused on promotion of health and adaptive functioning, including messages pertaining to diet, PA and positive attitudes toward exercise and body image. Promotion of such messages appeared to be part of the YMCA way of operation rather than being part of a prescribed curriculum to be delivered to the pupils:

I just think it’s really important that they understand why it’s important to get fit and healthy. (*Female Y-Active leader*)

With what’s going on nowadays about advertising 5-a-day we always try and push that. We try and say “no” to things like fizzy drinks and sweets and everything like that and try and get them to eat fruits and everything. (*Male Y-Active leader*)

The general style embraced by the Y-Active leaders is described below:

Just to bring in that extra . . . I don’t know what you would call it but just a bit more you know oomph into the school, just a bit more livelier. . . . I want to say, it’s really weird, we call it “the YMCA way.” It is I think not being too relaxed but being quite calm yourself not getting too stressed out, being able to have a laugh. Especially the kids they’re gonna tell you how it is and sometimes you’ve got to have pretty thick skin. And just being quite cool and going with the flow and obviously being sporty as well kind of helps. (*Female Y-Active leader*)

The challenge of creating a balance between structure and discipline was also highlighted by the school teachers who recognized that this was achieved successfully by the YMCA staff:

I think its brilliant the way they balance the kind of play fun side of things with maintaining the discipline because in some senses it is easier in the classroom . . . because you just maintain the discipline, you don’t do the kind of fun play side of things in the same way and I think that’s such a hard balance to create. (*Female teacher*)

**The Service Provider-School Partnership.** The relationship that the YMCA leaders developed with the pupils and teachers was strong and built on open channels of communication between school management, staff and YMCA staff. Central to the positive relationship was the supportive head teacher who endorsed and encouraged the program and fostered a positive attitude toward the Y-Active program and leaders:

We work very closely with the Head Teacher. Her door is always open. . . . If a problem does arise we’re straight in there; it get sorted out, ironed out straight away. There’s a lot of communication in that school and the teachers are very on board with what we do and they support us in any way that they can which is always good. (*Female Y-Active leader*)

I think that if you don’t have the backing of your head teacher, or the backing of the staff I don’t think your extended school program would work at all. I think its one of these things that would either be very limited or completely fizzle out. (*School administrator*)

The logistics of having dedicated personnel to communicate between the school and the YMCA were also highlighted:

It is just ideal having somebody within a school who is specifically designated to do something like that,

or if it is within their role because a lot of schools you're going to go to, you'll find that it is somebody they'll tag on to their duties and then they don't either care enough or they haven't got the time to deal with it and I think that's when messages are lost or chaos ensues. (*School administrator*)

Trust was also identified as a key element of the successful partnership:

I have to recommend [YMCA staff] they're fantastic, I know that I could safely leave everything in their hands and they would deal with it. (*School administrator*)

**Challenges.** Developing rapport with the pupils was perceived as challenging as Y-Active leaders felt that they had to be different to the school teachers:

If you go there with a strict face and the tone of your voice, you aren't gonna be getting too much anywhere. 'Cause they might get that with their teachers, and whatever behavioral problems, when you step in you need to be someone different compared to the teacher. (*Male Y-Active leader*)

Pupil behavior management was another challenge especially regarding pupils who did not volitionally choose to attend Y-Active but who were enrolled by their parents:

Sometimes you have kids who don't particularly want to be there but their parents are putting them there. That makes my job difficult. (*Male Y-Active leader*)

Another challenge was to ensure that the interpersonal style of the Y-Active leaders that focused on child autonomy was supported by the academic teachers. An unexpected finding was that the school teachers reported using the threat of withdrawal of pupils' access to the Y-Active sessions as a contingent reward or disciplinary strategy:

It's a nice carrot to dangle at the end of the week you know "you'll miss football time" and they're most distraught about. Other stuff they don't care. (*Male teacher*)

There's a special year 5–6 football club which happens during our golden time on Friday afternoon. So a lot of my boys miss that if they've not been behaving. (*Female teacher*)

This is a potentially concerning and unintended use of Y-Active. The purpose of Y-Active is to increase children's PA and consequently their physical and mental health, therefore withdrawing access or threatening to do so may not only negatively affect time spent in PA but also create maladaptive motivation for good behavior in class (ie, not because it is the right thing to do, but because if they don't, Y-Active is withdrawn).

The YMCA leaders also faced logistical challenges to successful implementation. Space, scheduling and equipment were cited as creating particular difficulties and YMCA leaders reported having to improvise session content based on the immediate school and staffing conditions. Further challenges faced by the YMCA leaders included role clarity, remuneration and irregular working hours. Such challenges have implications for the program more broadly in terms of staff retention and thus consistent program implementation. From their perspective, future provision should carefully allow for sufficient time for setting up their lessons:

It has been really hard to keep up this job actually 'cause the hours are quite strange. . . . It is really hard like I mean like I don't work mornings, I don't work nights; I work mornings and I work nights, sometimes, some days of the week. It is just really random so it is really hard to fit in another job in there and it can be a full time job because the classes, if you're working with schools they are only at certain times. (*Female Y-Active leader*)

## Discussion

The positive impact of the Y-Active program on pupils' physical, psychological and social well-being was manifested at (a) the situational level in the pupils' perceptions of their abilities in Y-Active, (b) the cross-contextual level in their readiness for lessons in school and confidence to try new physical activities and (c) at the global level in terms of pupils' general self-perceptions such as increased self-belief.

By providing a range of physical activity opportunities before, during, and after school, the Y-Active program achieved a broad reach among pupils. In addition to standard school-based PA provision, pupils were provided with choices to supplement their school PA. Further, the Y-Active leaders were a consistent source of PA opportunities both on and off-site. Rather than relying on signposting to exit routes following a time-limited intervention, the YMCA leaders actively linked students with PA opportunities and facilities and sought pupil input in suggesting extracurricular activities such as sports tournaments or activity days.

A key successful element of Y-Active was the interpersonal style of delivery of the Y-Active leaders summed up by one of the leaders as "the YMCA way." This involved (a) focus on fun and enjoyment, (b) empathetic approach where pupils were listened to and their needs were accommodated, (c) provision of positive self-referenced and task-focused feedback, (d) mutual respect based on the sporting/coaching expertise of YMCA leaders and provision of role models, (e) strong focus on pupils' empowerment and (f) balancing structure, discipline and autonomy support within activities. Using this style allowed the Y-Active leaders to frame health-enhancing PA within fun activities which is consistent with recent recommendations for the encouragement of



play among children in ways that promote health.<sup>20</sup> This interpersonal delivery style is highly consistent with that advocated for the creation of autonomy-supportive versus controlling social environments within self-determination theory (SDT). According to this perspective, autonomy-supportive social contexts and interpersonal styles lead to the satisfaction of the need for autonomy (ie, being the origin of one's behavior), competence (ie, feeling effective in one's environment) and relatedness (ie, feeling a mutual sense of connectedness with others).<sup>21-23</sup> The identified autonomy-supportive style of the Y-Active leaders may have led to autonomous types of motivation (ie, where a pupil "wants to" be active because it is fun, enjoyable and of value) rather than controlled types of motivation (ie, where a pupil feels they "have to" be active because of pressure to comply, obligation, or guilt).

Recently, the need to study and formally test<sup>6</sup> the mediators of intervention effects more carefully has been highlighted.<sup>24,25</sup> The process evaluation of the Y-Active program identified potential theory-based mediators which might be used in future studies to predict and/or explain effects in this intervention or others. SDT concepts appear to reflect both the intrapersonal and interpersonal determinants of behavior which were central to the Y-Active<sup>23</sup> and could provide a theoretical basis for further developing the program in a systematic way. If we want to identify best practices (what works best, for which population, and under which circumstances) then it is important to map carefully any future intervention and examine in detail how and why certain Y-Active components may facilitate changes in PA and well-being. That could involve the use of systematic intervention development approaches (eg, Intervention Mapping<sup>26</sup>) which would allow for a refined understanding of the pathways through which Y-Active may or may not work in different schools and contexts.

The Y-Active program was developed iteratively through interaction between the 2 stakeholders, the school and the service provider. This is different to the traditional physical activity intervention model in which an intervention is developed by an outside agency and implemented in a school. The collaboration between the 2 stakeholders in initiating and further developing Y-Active over time was a key success factor. The program provides a good example of how sensitivity to context-specific characteristics and needs can lead to the design of suitable programs. Contributors to the successful partnership between the school and the service provider were the supportive and helpful head teacher, the open and regular communication with the school staff, the belief in the importance of the program for children's development and well-being, the understanding and mutual trust.

The partnership with the third sector service provider offered school the opportunity to be actively involved in the development and implementation of a range of effective programs, to access appropriate sport and exercise facilities and to work with exercise specialists with professional attitude, ethos, commitment and high level of expertise. As a result of this partnership, the school

adopted an active school ethos that involved changes in the curriculum, the school environment, the presence of PA within the school culture, and the development of a strong sense of ownership of Y-Active. These partnerships might be particularly helpful for addressing the needs of inner city schools and their specific challenges for implementing effective physical activity promotion programs.

While the case study methodology adopted in the current study allowed for an in-depth evaluation, our findings are limited to the single school studied and the intensity / nature of the intervention within that school. As this was a retrospective evaluation, the collection of pre- and postintervention data which could enable the analysis of changes in outcome variables of interest (eg, PA and well-being) was not possible. Further, data pertaining to recruitment and retention within the opt-in components of Y-Active was unavailable. Owing to these limitations, we recommend that the Y-Active program be prospectively evaluated on a larger scale to include comparisons with matched control schools, direct measurement of recruitment and retention and pre- and postintervention quantitative assessment of behavioral and psychosocial outcomes.

The RE-AIM model which was used in this study to inform the development of the interview guide and to structure the data analysis could provide a robust framework for the design of a prospective evaluation. Careful examination of issues related to the RE-AIM dimensions will provide an insight on the areas for improving the provision of Y-Active and its dissemination to different settings. Table 2 focuses on what the Y-Active program developers and the collaborative schools need to consider to support the successful implementation and expansion of the Y-Active program.

There are a number of limitations to the current study. Firstly the sample size is small, however due to the small size of the case study school we believe that our sample (ie, 42.5% of all Year 5 and 6 pupils) was representative of the broader participant pool. Secondly, we were unable to collect pre-post quantitative data to document change in constructs such as children's physical activity or well-being. Further it is possible that including school- and Y-Active staff in the study may have resulted in a bias toward positive results (ie, effects of presentation biases). However we are confident that these participants openly discussed both positive features and challenges within Y-Active and that our triangulation procedures and searching for negative cases represents a balanced view.

## Conclusion

Partnerships between third sector community-based service providers and inner-city schools represent a promising means of increasing children's PA and well-being. Inclusion of built-in program process and outcome measures over time is needed to evaluate the effectiveness of such programs and the suitability of their individual components.

**Table 2 Recommendations for Further Implementation of the Y-Active Program Based on the RE-AIM Framework**

Reach	<ul style="list-style-type: none"> <li>• Identification of the target groups before implementation of the program in different schools.</li> <li>• Decision on a whole school approach or focus on particular years or age groups.</li> <li>• Exploring the physical activity/fitness preferences of pupils to ensure engagement with the Y-Active components and attractiveness of Y-Active to a range of pupils.</li> <li>• Consideration of whether adaptations are needed for pupils from different ethnic groups with regard to physical activity and diet advice.</li> </ul>
Effectiveness	<ul style="list-style-type: none"> <li>• Use of common core set of outcome evaluation tools across different schools to allow comparison and monitoring of effectiveness. These could involve measures of recruitment and retention, physical activity levels, well-being dimensions and academic performance.</li> <li>• Inclusion of a standardized component regarding healthy eating alongside the promotion of physical activity.</li> <li>• Incorporation of well-defined behavior change techniques related to Self Determination Theory which was identified as relevant to the understanding of mediating variables in Y-Active. Techniques could include provision of self-referenced and task-focused feedback, monitoring of progress and balancing discipline and autonomy support.</li> <li>• Development of a comprehensive program plan which identifies the expected processes of changes, the specific health behavior change techniques and methods of delivery designed to enhance these processes. Such planning should be monitored using a common set of process evaluation tools across different schools.</li> <li>• Collection of cost effectiveness data to compare and contrast reported practices and ‘value for money’ between different schools / different circumstances.</li> </ul>
Adoption	<ul style="list-style-type: none"> <li>• Throughout of the program including numbers of schools/pupils participating and their level of engagement with Y-Active.</li> <li>• The characteristics of schools in terms of size and available facilities.</li> <li>• The school philosophy regarding promotion of physical activity. Have similar programs ever been implemented?</li> <li>• Evaluation of staff skills and identification of training/upgrading staff skills to match program requirements.</li> <li>• Funding issues and financial implications of implementing Y-Active.</li> </ul>
Implementation	<ul style="list-style-type: none"> <li>• Supportive leadership from Head Teachers who could act as program champions.</li> <li>• Mapping of existing initiatives to identify gaps in service provision not only in terms of types and numbers of activities but also in terms of pupils’ needs, diversity and preferences.</li> <li>• Engaging families rather than children alone may help to address barriers to adopt an active lifestyle which stem from internal family culture / peer pressures.</li> <li>• Engaging students as program developers would offer them a strong sense of ownership and empowerment.</li> </ul>
Maintenance	<ul style="list-style-type: none"> <li>• Open channel communication between school and the service provider.</li> <li>• Creation of opportunities for program planners, administrators and deliverers to share experiences and ideas.</li> <li>• Developing systems for sustaining resources and revenue.</li> <li>• Strategies to reduce high turnover of program deliverers could include ensuring long-term employment.</li> <li>• Ensuring good signposting of pupils to suitable opportunities for ongoing physical activity participation.</li> <li>• Promoting, skilling up for and implementing procedures to support longer-term maintenance of physical activity for people who do achieve initial increases.</li> <li>• Behavior change techniques to support maintenance could include self-monitoring of progress, ongoing provision of self-referenced feedback, reviewing of personal goals, engaging social support (e.g. parents, teachers, peers) and use of relapse management techniques.</li> </ul>

## Acknowledgments

We would like to thank Duncan Stephenson, Mark Harrod and Danny Potts from YMCA Central, the Head Teacher and the school staff who contributed to this study, the YMCA Leaders who agreed to be interviewed and all the pupils who participated. The evaluation of the Y-Active Programme was supported by a grant from the YMCA Central.

## References

1. Parfitt G, Eston RG. The relationship between children's habitual activity level and psychological well-being. *Acta Paediatr.* 2005;94(12):1791–1797.
2. Ekelund U, Anderssen SA, Froberg K, et al. Independent associations of physical activity and cardiorespiratory fitness with metabolic risk factors in children: The European Youth Heart Study. *Diabetologia.* 2007;50(9):1832–1840.
3. Hind K, Burrows M. Weight-bearing exercise and bone mineral accrual in children and adolescents: a review of controlled trials. *Bone.* 2007;40(1):14–27.
4. National Centre for Social Research and University College London. *Health survey for England.* Colchester, Essex: UK: Department of Epidemiology and Public Health; 2008.
5. Van Sluijs EM, McMinn AM, Griffin SJ. Effectiveness of interventions to promote physical activity in children and adolescents: systematic review of controlled trials. *BMJ.* 2007;335(7622):703–707.
6. Salmon J, Brown H, Hume C. Effects of strategies to promote children's physical activity on potential mediators. *Int J Obes (Lond).* 2009;33(Suppl 1):S66–S73.
7. Dobbins M, De Corby K, Robeson P, Husson H, Tirilis D. School-based physical activity programs for promoting physical activity and fitness in children and adolescents aged 6–18. *Cochrane Database Syst Rev.* 2009;(1):CD007651.
8. The NHS Information Centre. *National child measurement programme: England, 2009/10 school year.* The Information Centre for Health and Social Care; 2010.
9. Maas J, Verheij RA, Grownewegen PP, de Vries S, Spreuwenberg P. Green space, urbanity, and health: how strong is the relation? *J Epidemiol Community Health.* 2006;60:587–592.
10. Gortmaker SL, Cheung LWY, Peterson KE, et al. Impact of a school-based interdisciplinary intervention on diet and physical activity among urban primary school children—eat well and keep moving. *Arch Pediatr Adolesc Med.* 1999;153(9):975–983.
11. Stratton G, Mullan E. The effect of multicolor playground markings on children's physical activity level during recess. *Prev Med.* 2005;41(5-6):828–833.
12. Fairclough SJ, Stratton G, Butcher ZH. Promoting health-enhancing physical activity in the primary school: a pilot evaluation of the BASH health-related exercise initiative. *Health Educ Res.* 2008;23(3):576–581.
13. Stathi A, Gillison FB, Riddoch CJ. Opportunities and challenges in physical activity research in young people. *J Sci Med Sport.* 2009;12(5):515–517.
14. Warren JM, Henry CJ, Lightowler HJ, Bradshaw SM, Perwaiz S. Evaluation of a pilot school programme aimed at the prevention of obesity in children. *Health Promot Int.* 2003;18(4):287–296.
15. Yin RK. *Case study research design and methods* (3rd ed.) ed. Thousand Oaks, CA: Sage Publications.; 2003.
16. Glasgow RE, Vogt TM, Boles SM. Evaluating the public health impact of health promotion interventions: the RE-AIM framework. *Am J Public Health.* 1999;89(9):1322–1327.
17. Braun V, Clarke V. Using thematic analysis in psychology. *Qual Res Psychol.* 2006;3:77–101.
18. Elliott R, Fischer CT, Rennie DL. Evolving guidelines for publication of qualitative research studies in psychology and related fields. *Br J Clin Psychol.* 1999;38:215–229.
19. Patton MQ. Enhancing the quality and credibility of qualitative analysis. *Health Serv Res.* 1999;34:1189–1208.
20. Department of Health, Physical Activity, Health Improvement and Protection. *Start active, stay active: a report on physical activity from the four home countries' Chief Medical Officers.* London: Department of Health, Physical Activity, Health Improvement and Protection; 2011.
21. Ryan RM, Patrick H, Deci EL, Williams GC. Facilitating health behavior change and its maintenance: interventions based on Self-Determination Theory. *The European Health Psychologist.* 2008;10:2–5.
22. Reeve J, Jang H, Carrell D, Jeon S, Barch J. Enhancing students' engagement by increasing teachers' autonomy support. *Motiv Emot.* 2004;28:147–169.
23. Deci EL, Ryan RM. The “what” and “why” of goal pursuits: human needs and the self-determination of behavior. *Psychol Inq.* 2000;11:227–268.
24. Greaves CJ, Sheppard KE, Abraham C, et al. Systematic review of reviews of intervention components associated with increased effectiveness in dietary and physical activity interventions. *BMC Public Health.* 2011;11:119.
25. Masse LC, Nigg CR, Basen-Engquist K, Atienza AA. Understanding the mechanism of physical activity behavior change: challenges and a call for action Introduction. *Psychol Sport Exerc.* 2011;12(1):1–6.
26. Bartholomew LK, Parcel GS, Kok G, Gottlieb NH. *Planning health promotion programs: an intervention mapping approach.* CA: Jossey-Bass; 2006.