

Empowering Youth Through Research: Adolescents' Perceptions of Physical Activity Interventions in Appalachian Communities

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Abstract

Active participation in evaluation and research projects can empower youth and effect community change. Adolescents along with supervising teachers participating in after-school Health Sciences and Technology Academy clubs conducted research projects to increase physical activity in Appalachian communities. The sample involved 50 adolescents who participated across one of six focus groups. Two primary themes emerged from the focus groups, indicating the impact of the research experiences on students, teachers, and their communities. First, students reported increased public health and research competence as well as feelings of self-worth. Second, the participants reported developing a stronger sense of the barriers to and facilitators of physically active lifestyles relevant in their local communities. This research substantiates the "youth as asset" paradigm and suggests that involving adolescents in community health research benefits both them and their communities.

Key words: partnerships; rural; youth participation; health promotion; pedometers

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1.0 Introduction

Almost two decades ago, Kurth-Schai (1988) argued that “contemporary expectations concerning the nature of childhood discourage young people from contributing to society” (p. 127) and advocated that educators “take steps to involve young people in the processes of social design and civic action ... in real life social settings” (p. 128). In this seminal work, she also encouraged educators to develop curricular opportunities for students so they could feel involved in the creation of change. The participation of youth in community evaluation and action research, and research on outcomes of their involvement, represents an emerging field (Camino, 2005; Checkoway & Richards-Schuster, 2003; Morgan et al., 2004; O'Donoghue, Kirshner, & McLaughlin, 2002). The 2002 Wingspread Symposium on Youth Involvement in Evaluation and Research documents seven principles that speak to the empowerment of youth. These principles stress the inclusion of “voices” from underrepresented groups, specifically focusing on adolescents from a variety of racial and ethnic backgrounds (Checkoway, Dobbie, & Richards-Schuster, 2003). Youth can make important contributions toward the prevention and mitigation of problems in their home communities by participating in the planning, implementation, and evaluation of related projects, especially when such endeavors target problems that closely affect their own lives (Checkoway & Richards-Schuster, 2003, 2004; Horsch, Little, Smith, Goodyear, & Harris, 2002; Zimmerman & London, 2003). When youth are engaged in the development of knowledge that benefits the community, outcomes can include youth and leadership development in a real-world context. These experiences also have the potential to redefine youth as an asset (Checkoway et al., 2003; London, Zimmerman, & Erbstein, 2003; Sabo, 2003a) while building the competence and self-esteem of those involved.

Participatory research is increasingly thought to be an advantageous approach because of its potential dual benefits to youth and community (Brown et al., 2001; Horsch et al., 2002; Krasny & Doyle, 2002; Tolman & Pittman, 2001). Horsch et al. (2002) suggest that efforts to involve older youth in research and evaluation in areas that affect their own lives may make after-school programs more attractive and fun. In discussing her involvement in the research and design of youth–adult partnerships, Camino (2005) concludes that firm partnerships “are formed as relationships between youth and adults as they work toward a goal larger than themselves, often for the common good of a given community” (p. 76).

Two growing problems that are highly relevant to youth today are the physical inactivity and obesity epidemics (Chenoweth & Leutzinger, 2006). As evidence of this relevance, the obesity epidemic was recently cited as the largest menace to the health of children in North America (Murray, Frankowski, & Taras, 2005). Additionally, these problems were the special focus of a recent issue of *Children, Youth, and Environments* on increasing the freedom children have to move about in their environment (Karsten & van Vliet, 2006). Patterns in adolescent activity have worsened in many U.S. states, in part because current educational legislation has nearly eliminated daily physical education from the schedule of most secondary schools (Centers for Disease Control and Prevention [CDC], 1999).

One potentially effective approach to addressing this problem is to create and evaluate programs at multiple levels of influence, ranging from individual perceptions and behaviors to communitywide reactions. This ecological approach

attempts to understand the impact of interventions directed at individuals within social (e.g., peer or family) and environmental contexts (e.g., built environment and state and local policies) (Stokols, 1996). For example, creating or improving access to places for physical activity or enhancing social support combined with informational outreach activities are effective strategies in promoting physical activity (Brownson et al., 2005; Kahn et al., 2002; Sallis, Bauman, & Pratt, 1998).

When designing multilevel interventions for adolescents, researchers need to consider critical social and environmental factors. For example, using schools as resources for program delivery and engaging parents, peers, and teachers may enhance effectiveness (CDC, 1997). In particular, the ecological approach illustrates the importance of schools as community assets when they are allowed to function outside of school hours as gathering places for community-based activities. This strategy is even more important in rural settings that have less-walkable communities and fewer physical activity facilities, and it addresses the call for schools to be used as a community resource to mitigate obesity (Koplan, Liverman, & Kraak, 2005; U.S. Department of Health and Human Services, 2001).

From public health and prevention perspectives, endeavors to involve tomorrow's adults in addressing this problem are critically important. Additionally, the problem of physical inactivity is multifaceted, thus providing opportunities to engage youth in endeavors that provide local solutions for public health problems associated with the built environment (Hill, Wyatt, Reed, & Peters, 2003; Jackson, 2003). The purpose of this paper is to describe the perspectives of students who helped to carry out community research projects along with the related views of their teachers, which collectively provide insight into the impact of engaging youth as researchers in community-based health promotion. Broadly, the research projects sought to make a difference in the obesity epidemic at the local level and provided the students with science education enrichment about energy balance, including the utilization of pedometer technology (Tudor-Locke, 2002; Tudor-Locke & Bassett, 2004).

2.0 Methods

2.1 Project Background

West Virginia is regularly listed among states with the highest prevalence of adult obesity and ranks well below average on all Behavioral Risk Factor Surveillance System (BRFSS) measures of adult physical activity (BRFSS, 2003, 2004; Halverson, Ma, Harner, Hanham, & Braham, 2004). In September 2002, the Centers for Disease Control and Prevention (CDC) funded several projects through the West Virginia University Prevention Research Center to address the state's obesity epidemic. One of these projects involved high school students at several locations in West Virginia who were participating in a university-community partnership known as the Health Sciences and Technology Academy (HSTA, www.wv-hsta.org). A substantial proportion of HSTA students are African-American or financially disadvantaged, and the majority of them are female (Rye & Chester, 1999). Each year, through after-school clubs, these students are required to do an extracurricular science project related to their community. A full description of the development and implementation of these projects has been published elsewhere (O'Hara-Tompkins, Rye, Zizzi, & Vitullo, 2005).

2.2 Procedures

The overarching project was titled “HSTA Education and Outreach on Healthy Weight and Physical Activity.” HSTA teachers attended a workshop to learn about the opportunity for their club to become involved by submitting a grant proposal for a research project that attempted to increase physical activity opportunities in their community. University faculty provided guidance in proposal development and ethics protocols (i.e., institutional review board criteria) necessary to conduct research on human subjects. Six projects (see Table 1) resulted—most in rural communities—that targeted a variety of audiences, employed educational sessions and other tools and strategies, and examined various outcome measures (e.g., perceived barriers to physical activity, steps taken per day, and weight loss). All of the projects used local schools as a physical resource for the delivery of their interventions. University faculty provided professional development to participating HSTA teachers regarding participatory approaches for the promotion of physical activity so they could encourage and enable their students to (a) think about viewing the design, implementation, and evaluation of their projects from an ecological perspective and (b) be actively involved in the research process.

Table 1. *Descriptive Titles and Various Components of Projects Composing HSTA Education and Outreach on Healthy Weight and Physical Activity*

Descriptive Title	Target Population	Intervention Strategies ^a	Outcome Measures
Games That Move Your Feet	Adults and high school–age youth	<ul style="list-style-type: none"> • Health fair • Indoor/outdoor walking routes • Educational sessions 	<ul style="list-style-type: none"> • Barriers • Self-efficacy • Outcome expectations • BMI
Motivating Our School Staff for Health	High school faculty and staff	<ul style="list-style-type: none"> • Indoor/outdoor routes • Educational sessions 	<ul style="list-style-type: none"> • Barriers • Self-efficacy • Outcome expectations • BMI & % body fat
School Garden for Health	High school students	<ul style="list-style-type: none"> • Garden/nutrition unit • Organic garden 	<ul style="list-style-type: none"> • Weekly physical activity • Stages of change • Eating habits
Fitness for Busy Women	Women over the age of 20 years	<ul style="list-style-type: none"> • Indoor routes • Support groups 	<ul style="list-style-type: none"> • Barriers • Stages of change • Physical activity history
Buddies That Move Each Other	Adults and high school students	<ul style="list-style-type: none"> • Educational sessions • Walking trail • Goal-based incentives • Buddy system 	<ul style="list-style-type: none"> • Barriers • Weekly physical activity • Self-efficacy • Thoughts before exercise
Increasing Fitness	High school faculty and students	<ul style="list-style-type: none"> • Indoor/outdoor routes • Buddy system • Educational sessions 	<ul style="list-style-type: none"> • Barriers • BMI • % body fat (adults)

^aAll projects included pedometers.

2.3 *Sampling and Data Collection*

The primary data for this paper were obtained through focus groups conducted with the HSTA student-researchers who carried out the projects. A separate focus group was conducted with these students from each of the six projects during the 6-week period that followed implementation of their projects. The purpose of the focus groups was to ascertain students' perceptions about local barriers to physical activity, perceptions of the community-based projects that they carried out (including their impact), and ideas for expanding those projects (see Table 2 for a list of the open-ended questions posed to the focus-group participants).

Student participation in the focus groups was voluntary and conditional on obtaining parental consent and student assent. Participating students ($n = 50$, 41 female and 9 male, approximately one-fourth racial or ethnic minority [using state classifications]) composed the majority of all HSTA students who carried out the six physical activity projects. All focus groups were moderated by the same university investigator. Focus-group size ranged from 3 to 11 students. Each focus group was conducted and audiotaped at the school where the research project was carried out and subsequently was transcribed. Two university investigators (one of whom conducted the focus groups) applied inductive analysis to each transcript, which involved unitizing, coding, and categorizing the transcript data in order to ascertain emergent themes that cut across the questions and projects. Here, the investigators triangulated data (Patton, 1990) by completing the analysis separately and then examining each other's themes to ascertain which could be supported by both.

A secondary source of data were the final project reports requested from the 12 middle and secondary teacher-researchers (2 for each of the six projects) who worked with the student-researchers. Teachers were asked to "reflect and comment" on various project aspects, including the students' capability and motivation to conduct the project and the value to the students and community. Reports were received from 9 (8 female and 1 male, certified in science, health, and other disciplines) of these teachers; at least 1 teacher from each of the six projects submitted a report. A theme-based inductive analysis of the teachers' responses was completed by one of the university investigators to identify those responses that might provide further meaning to the students' experiences.

Table 2. *Focus-Group Questions*

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1. What are reasons that people in your community do not get enough physical activity?
 2. Tell us about the HSTA club project you did this year to increase physical activity in your community.
Probe a: What did you hope to accomplish?
Probe b: What were some of the highlights or "best things" about your project?
Probe c: If you had the opportunity to do your project again, what, if anything, would you change in your project?
 3. What impact do you think your project had on the participants?
 4. What impact do you think your project will have a few years from now?
 5. What might be done to expand your project to other people and other communities?
 6. Is there anything else you'd like to tell us about physical activity in your community, your project, and so on?
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3.0 Findings and Discussion

Two broad themes are highlighted below, which are grounded in the emergent categories from the students' responses across the focus-group questions. Each theme is supported by quotations from students across the six projects.

3.1 Theme One

Students had fun interacting with project participants, and their experiences as researchers enhanced their competence in health promotion and program management as well as their confidence and self-worth. “And it was fun ‘cause the students got to teach the teachers,” a student participant in one of the projects said. The students enjoyed interacting with the participants, which increased their own awareness about the value of various physical activities. “We had a lot of fun with them.... And we really exercised more that night than any night before. You don’t realize how much exercise you actually get from dancing,” another student from that project said. A student from another project commented: “I thought it was a great project—that we had volleyball set up at certain times; we just had a great time.” In their research on youth–adult partnerships that engaged youth as co-researchers, Wilkins and Bryans (1993) found that “fun” was the most frequently cited reason by youth for being involved. Adults wanting to sustain youth engagement in research should not trivialize the need for enjoyment, given competing interests and other commitments required of youth (Horsch et al., 2002).

The students also gained knowledge and experiences associated with the use of an innovation—the pedometer—in health promotion programming, and they were personally affected by this innovation. Students gained insight and skills for data collection and management, including conducting focus groups and, according to one student, “working as a team. ‘Cause even though we had separate projects, we got this completed and we did pretty good, I have to say.”

The previous excerpt suggests the impact that projects may have had on students' confidence and sense of self-worth. For example, one student said, “Yeah, they [the teacher participants] told a couple of us that we would make good teachers someday”; another said, “What I’m saying is the teachers actually see that we ... want to make something of our life.” The latter suggests that this project may have contributed to the adult perception of youth as an asset. Self-worth and the concern that students have about how adults view them were sometimes implicit in students' voices: “That we weren’t just a group that met after school. We actually did something.” This comment indicates that the student recognized what Checkoway and colleagues (2003) suggest as “the dominant view of youth” (p. 298)—one of being deficient or disengaged—but that youth have the potential to be “competent citizens capable of meaningful participation” (p. 298). Checkoway et al. (2003) convey that proponents of the latter paradigm want to enable youth “to make a difference in ways that provide them with tangible benefits and develop healthier communities” (p. 300). This perspective relates to a student’s comment from a project that targeted teachers in their school, who “wanted to see if the teachers actually cared about the students [and were] willing to give up some of their time to help us out in what we’re trying to do.”

One of the teacher-researchers for this project added validity to the impact this project may have had on the students: “It was so empowering for them to have the opportunity to create ideas and show their leadership talents.... Students are

instilled with an extra sense of pride in accomplishing a project that was able to reach so many in our community.” Another student expressed optimism and an impact on the researchers: “Well, now that we’ve done it once, we can be more organized with it.... We’ve learned ... what mistakes we made.”

One student reported gaining people skills and insight into program management: “Being able just to talk to them comfortably [was helpful]. The responsibility that comes with being in charge of a project like this was something that we’re not used to.” In their final reports, some of the teacher-researchers made comments that suggested the students rose to the challenge of this responsibility. Examples of such comments include “They were in charge, they researched, they presented, they ordered materials, they measured results” and “The students were ... committed to the project so much that they themselves were our best advertisement. They understood the problem and the solution and what we needed to do.”

It is important to note that focus-group dialogue revealed that not all students were enthusiastic about their physical activity projects, with two students being explicit about not wanting to do it. However, one of these students conveyed that, in retrospect, it was fun and personally enriching:

I was very skeptical when, even enraged, when I found out this is what we were doing. But now at the end, I’m glad we did it and I did have fun doing it and ... I did actually learn stuff, including like learning to do a focus group. I learned how to do that. And I mean I think that I can see myself ... using that skill and the other skills I learned later on in the future.

This student, whose contribution included conducting a focus group with adult project participants, speaks to the development of assets, such as competence and confidence, that are necessary for youth to succeed academically and in life (Mitra, 2004). Sabo (2003a, 2003b) articulates that youth participation in evaluation expands performance beyond current levels of development by facilitating a different type of learning. Conducting focus-group research is one example of this for youth and, according to Horsch et al. (2002), is a developmental step for learning advanced methodologies: “Once youth become skilled in these methods, they can begin to handle more complex research methodologies” (p. 3).

Most of the teacher-researchers’ final reports corroborated the positive impact of the project on the students. One report conveyed that this impact extended to the teacher:

I feel that I have grown as a person and an educational leader by facilitating this project.... This endeavor allowed me to gain a tremendous amount of knowledge related to the obesity epidemic. I have become to many of my colleagues and students somewhat of an expert in areas of nutrition and physical activity. I would not consider myself by any means an expert, but it is nice that individuals are beginning to ask questions and seek answers related to health.

The following excerpt from a teacher-researcher’s final report demonstrates multiple impacts of the project on the students, in part, related to the target audience:

Our students had fun with this project and I feel that they took the project very professionally. Because they were working with the teachers [as participants] they were able to see them in a different light.... They discovered that the teachers were late turning in papers just like them.

A focus-group excerpt from one of the students who carried out the above project confirms this teacher's view: "We changed our perception of the teachers [participants], too, 'cause it made us realize that they have the same worries and stuff about their weight and it ... reinforced the fact that they were humans just like us." When combined, the aforementioned teacher and student perspectives provide support for the idea that youth–adult participatory teams are empowering to both groups (Sabo, 2003a) and that the research process may also contribute to building social capital within the school community.

3.2 Theme Two

Students developed a stronger sense of the barriers to and facilitators of physically active lifestyles in their communities, which has increased their own health awareness and competence.

When discussing the problems of sedentary living and obesity in their communities, students highlighted economic barriers (e.g., the cost of joining a gym), social support (e.g., having a partner), and availability and proximity of facilities (e.g., need for a local YMCA or safe places to walk). As an example, one student commented: "I think that the people in the city get more activity than people do in the country. We have to drive everywhere to go to places, and people in the city walk." These students' concerns relate to the broader national issue of the built environment and associated automobile dependence that has made walking for transportation less feasible and more dangerous, particularly in rural communities (Jackson, 2003; Pollard, 2003). These concerns echo Morrow's (2001) qualitative research that found youth perceived a lack of physical activity in their own neighborhood and parks. Issues surrounding self-concept also were seen as barriers ("They're [adults in the community] embarrassed, too"), as was apathy ("lazy," "don't care") and making the time to exercise. Students' perceptions reinforced the importance of social support in community settings and the creation or enhancement of places to be physically active, both of which are interventions that are "strongly recommended" to increase physical activity by the President's Council on Physical Fitness and Sports (Heath, 2003).

Regarding the barrier of apathy, one of the students addressed the role of education in healthy lifestyles: "I also think that they're [adults] not as educated as we are right now. So they might not think that exercise would help that much, but it really does." This student's perception about the power of education is especially noteworthy because West Virginia ranks very low nationally on the "educational attainment" parameter of the percentage of adults greater than 25 years old with at least a baccalaureate degree.

The importance of physical-environment changes also surfaced in the focus-group discussions. One student stated that participants came early to their project sessions to use their in-school walking routes, and another addressed the future potential of their planned route: "I know a lot of our teachers walk now during their lunch period or their prep period ... so I figure we'll have a lot more of our faculty ...

walking as soon as the walking trail gets under way.” Students were encouraged by the potential for lasting public health impact out of their projects.

Student voices in our focus groups illustrated that youth do care about the health of members of their community, have insight into the problem, and are motivated to find solutions (e.g., “I would have liked to start an exercise group in the community”). Students in the focus groups conveyed the desire to reach more people with their projects. They recognized that the involvement of other schools could play an important part in extending their projects. Additionally, they had hope for the future (e.g., “Maybe they’ll keep up with it and then teach their children that physical activity is better than playing video games”).

Because several of the projects measured physical activity via pedometers, the value of pedometers in facilitating physical activity was apparent in many students’ perceptions. For example: “And they looked at the pedometers and [saw] the calories.... getting all ‘yeah buddy’ ‘cause I’m losing weight.” Another student related pedometers to a sustained impact: “I think as long as the pedometers keep working, then the people will still remember the project and they’ll stay fit because a lot of them use them, you know, quite often.” One student spoke directly to the motivational value of pedometers: “I think the pedometers motivated a lot of teachers [project participants].” The student researchers enjoyed “experimenting” on themselves because the pedometer gave them immediate feedback on their activity levels, distance traveled, and calories burned. These simple devices contributed to the enjoyment and science enrichment of the project.

Finally, the perception that exercise was fun impacted participants as well as the student researchers: “Just to see ... people like when we’re out here exercising ... they’re always smilin’, laughin’, having a great time.... They acted like they really wanted to be there and do it.” “The glow on people’s faces when they exercised ... you can’t help but smile. Like they’re happy when they exercise, people have energy boosts.”

It appears that affording youth with such unique experiences may have contributed to their understandings about failure (e.g., “I just think the paperwork probably overwhelmed some”) and success strategies (e.g., “I think that they realized it [pedometers] ... could actually work”), as well as competence (e.g., “I can see myself ... using that skill and the other skills I learned”) in effecting behavioral change and doing community-based research (Checkoway & Richards-Schuster, 2004). By using the increased knowledge and skills built through the project, it is possible that these adolescents will feel empowered to overcome barriers to healthy lifestyles in their communities and to feel able to help others do the same. It appears both students and teachers who participated developed a level of public health “expertise” that they may be likely to share with their peers and family members. Overall, the educational value of the experience shined through for the students and may end up encouraging some of the students to pursue higher education, which is one of the overarching missions of programs like the Health Sciences and Technology Academy.

4.0 Conclusions and Implications

This research paper sought to ascertain the views of adolescents and their teachers who were engaged in participatory research focused on increasing physical activity

opportunities in their home communities. Inductive analysis of focus-group data revealed several key conclusions, which are outlined below.

First, these youth–adult partnerships to effect community change are a useful departure from or complement to “developing youth” via typical classroom settings (London et al., 2003). The focus-group data support the idea that the teachers and students developed new skills and knowledge related to the research process and healthy lifestyles. These real-world experiences can be used to supplement classroom learning, and they have the potential to be meaningful and memorable for all involved. However, when designing youth engagement in research, educators should emphasize student choice, involvement, fun (Horsch et al., 2002), and innovation. The pedometers increased the enjoyment of student researchers in this project, so future partnerships may want to consider adopting another form of new media or technology to pique student interest.

Second, the youth–adult partnerships may create more helpful perceptions in both directions for adolescent students and their teachers. For the students, they gained a more realistic picture of some of their teachers as they saw them struggle with the barriers of adopting a healthy lifestyle. The teachers reported gaining an increased appreciation for the fact that some students do care about their work and the health of their communities, thus reinforcing the “youth as asset” paradigm (Kurth-Schai, 1988).

Third, the public health problems of sedentary living and obesity appear to be excellent contexts in which to stage youth participatory research projects. The potential for developing meaningful projects across several curricular areas is strong because these problems involve multiple causes and multiple levels of possible intervention (Stokols, 1996). However, one caution is that the built environment in many rural communities—which places work, school, and retail outlets at a distance from the home—is not pedestrian friendly, and thus walking can be unsafe and not viable (Jackson, 2003). Policy changes are urgently needed to make our built environment safer and more conducive to transport-related physical activity (Badland & Schofield, 2005). Youth as competent citizens can be involved in effecting such policies (Checkoway et al., 2003; Pollard, 2003). The “Safe Routes to School” legislation enacted in the United States is an example of such policy that directly impacts youth but also relates to concerns of and opportunities for adults (Hubsmith, 2006).

Finally, these projects appear to have contributed to rural community development by building social capital within the school system. Both students and teachers reported new knowledge and skills in research, behavior change, exercise programming, and weight management at the conclusion of their projects. The development of public health expertise in rural areas is much needed, because these new experts can disseminate their knowledge easily to peers and family members. In smaller communities, each school represents a critical community resource on both social and physical levels (Koplan, Liverman, & Kraak, 2005). Staging youth participatory research projects within the structure of after-school programs appears to offer a viable option for developing the strength of rural communities.

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