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"We actually care and we want to make the parks better": A qualitative study of youth experiences and perceptions after conducting park audits



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ABSTRACT

This study explored youths' experiences and perceptions about community engagement as a result of participating in a community-based data collection project using paper and mobile technology park environmental audit tools. In July 2014, youth (ages 11-18, n=50) were recruited to participate in nine focus groups after auditing two parks each using paper, electronic, or both versions of the Community Park Audit Tool in Greenville County, SC. The focus groups explored the youths' experiences participating in the project, changes as a result of participation, suggested uses of park audit data collected, and who should use the tools.

Four themes emerged related to youths' project participation experiences: two positive (fun and new experiences) and two negative (uncomfortable/unsafe and travel issues). Changes described as a result of participating in the project fell into four themes: increased awareness, motivation for further action, physical activity benefits, and no change. Additionally, youth had numerous suggestions for utilizing the data collected that were coded into six themes: maintenance & aesthetics, feature/amenity addition, online park information, park rating/review system, fundraising, and organizing community projects. Finally, six themes emerged regarding who the youth felt could use the tools: frequent park visitors, community groups/organizations, parks and recreation professionals, adults, youth, and everyone.

This study revealed a wealth of information about youth experiences conducting park audits for community health promotion. Understanding youth attitudes and preferences can help advance youth empowerment and civic engagement efforts to promote individual and community health.

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1. Introduction

Physical inactivity is a significant public health issue, caused in part by neighborhood and community environments that foster youth inactivity and sedentary behavior (Richard et al., 2011; Ogden et al., 2014; Knuth and Hallal, 2009; Ferraro et al., 2003; Sallis et al., 2006). Parks are promising venues for facilitating youth physical activity and numerous other individual and community benefits (e.g., stress reduction, psychological health, increased social capital, economic benefits, environmental preservation, obesity prevention), in part due to their widespread availability and low cost to maintain and use (Bedimo-Rung et al., 2005). A wide range of studies have documented that

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the features (e.g., trails, playgrounds, restrooms, lighting) and quality (e.g., cleanliness, maintenance, incivilities) of community parks can significantly impact the extent to which they are safe and inviting spaces for facilitating healthy behaviors among youth and adults (Kaczynski et al., 2008; Bai et al., 2013; Besenyi, Kaczynski, et al., 2016). Unfortunately, much research has also reported that the facilities (e.g., playgrounds, trails), amenities (e.g., lights, restrooms), and quality (e.g., maintenance, aesthetic features) of parks can vary dramatically within and across communities, including by factors such as neighborhood income and racial/ethnic composition (Kamel et al., 2014; Vaughan et al., 2013). Several studies have reported that measuring the detailed attributes of park environments through the use of observational audit tools can facilitate effective engagement through meaningful involvement in the evaluation, advocacy for, and promotion of park planning and improvements among both professionals and citizens alike (Kaczynski et al., 2012).

Within efforts to design healthy communities, including better parks, youth can be especially valuable resources for their innovative ideas and energy and the impact their voices can have on decision makers

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(Checkoway et al., 2005; Ribisl et al., 2004). Moreover, encouraging youth engagement in civic actions can lead to the development of important life skills and can promote interest in and capacity for future public health leadership (Checkoway et al., 2005; Ribisl et al., 2004; Rodríguez and Conchas, 2009). In spite of their potential contributions, youth and adolescents are often overlooked or under-represented within efforts to promote public health (Valaitis, 2002; Millstein and Sallis, 2011). Investigating such issues can aid in understanding youth attitudes and preferences in order to advance youth empowerment and engagement efforts to promote individual and community health.

Efforts to engage youth in health promotion are often grounded in theoretical frameworks and models related to youth empowerment and action. For example, the model of Critical Youth Empowerment highlights six dimensions (i.e., safe, supportive environment; meaningful participation; shared power; individual- and community-oriented; socio-political change goals; critical reflection) as a way to achieve individual (i.e., self-efficacy, self-awareness, social bonding) and community (i.e., collective efficacy, political efficacy, sociopolitical change) benefits (Jennings et al., 2006). Likewise, Millstein and Sallis (2011) referred to youth advocacy as the next wave of social change for health and provided a model describing overlapping influences (i.e., individual advocate, social environment, built environment, policy) as well as inputs, processes, and outcomes specifically related to youth engagement and advocacy for obesity prevention. Building upon these models, this study incorporated elements of critical youth empowerment (e.g., meaningful participation through interactive technology, critical reflection through community-oriented participatory data collection) as well as individual and social inputs from Millstein and Sallis' model (e.g. knowledge, attitudes, enjoyment, training opportunities) deemed important for cultivating youth empowerment and engagement in community change processes.

Overall, these models provide frameworks for engaging youth in research and participatory action activities that can enhance healthy community design efforts, while encouraging greater equity among youth and adult stakeholders with mutual interests in ensuring healthy community environments.

The purpose of this study was to explore youths' experiences and perceptions about community engagement as a result of participating in a community-based data collection project using paper and mobile technology park environmental audit tools. The original paper-andpencil Community Park Audit Tool (CPAT) was developed as a comprehensive yet user-friendly means of evaluating parks for their potential to promote youth physical activity (Kaczynski et al., 2012). It includes six pages and four sections (park information, access and surrounding neighborhood, park facilities, park quality and safety) which capture the presence, condition, and usability of important elements within a park and its surrounding neighborhood. A total of 34 diverse stakeholders in the Kansas City area participated in the development and testing of the original CPAT tool, although only two of these individuals were youth (high school students) (Kaczynski et al., 2012). More recently, an electronic tablet app version of the CPAT (eCPAT) was developed as a means to increase the accessibility and appeal of the CPAT among youth and the general public (Besenyi et al., 2016a). Few park audit tools have been developed or used extensively with youth (Kaczynski et al., 2012), nor has research employed qualitative focus groups or interviews to explore in depth the perspectives of youth engaged in such projects. Therefore, this study describes the experiences and perceptions of a large number of youth using the paper (CPAT), electronic (eCPAT), or both versions (CPAT and eCPAT).

2. Methodology

2.1. Study setting and participants

This study was part of a broader project to engage youth in becoming advocates for healthy community design through innovative technology

in Greenville County, SC (Besenvi et al., 2016b). As part of the larger eCPAT project, 136 youth ages 11–18 were recruited through schools in Greenville County, after school groups, and parks and recreation programs, through flyers, emails, as well as a recruitment booth at a local summer park event. Over the course of the study, 17 youth were lost to attrition leaving 119 youth who completed park audits based upon one of three randomly assigned audit tool formats (paper CPAT = 43, eCPAT = 45, Both = 31) to investigate similarities and differences in their responses and perceptions. Youth completed corresponding 3-hour training workshops consisting of a brief overview of the project, training for their assigned audit tool, onsite park practice, and a brief questionnaire including demographic information. The youth in each group then completed two park audits using their assigned audit format (both formats for youth in the Both group) in a group setting where project staff were always present for data collection and safety/liability purposes. Youth participants were asked to provide their own transportation to the audit sites. Upon completion of the pre and post surveys, training workshops, and two park audits, youth received a \$50 gift card for their participation. Youth participating in follow-up focus groups (as described below) were provided an additional \$20 gift card. Combined, the youth audited a total of 47 diverse parks within a 30-mile radius of Greenville, SC in June of 2014. Further analyses of the youth audit testing are reported elsewhere (Besenyi et al., 2016b).

At the completion of the larger eCPAT project, a subsample of youth were recruited by follow-up emails to all youth inquiring about their willingness to participate in retrospective focus groups. Fifty out of 124 youth completing the larger eCPAT project agreed to participate (n=14 paper CPAT, n=16 eCPAT, n=20 Both). Table 1 provides characteristics of the focus group participants. Focus group participants were fairly representative of the larger eCPAT project with respect to mean age (13.4 years vs 13.6 years), gender (34.0% male vs 37.9% male), race (56.0% white vs 62.1% white; 24.0% black vs 25.0% black) and free or reduced lunch (22.0% vs 18.5%). As well, youth participating in both the larger eCPAT project and post focus groups were fairly representative of the Greenville County, SC population with respect to gender, race/ethnicity, and socioeconomic indicators (United States Census Bureau, 2015).

2.2. Data generation

Focus groups were held one week after conclusion of the larger project at a local park community center. Nine focus groups were conducted (three per audit group) ranging in size from 3 to 8 youth and lasted 30–50 min. Two trained moderators, experienced in working with adolescent youth, used semi-structured focus group guides consistent with previously established methodology (Krueger and Casey, 2002) consisting of open-ended questions and probes to elicit youth thoughts surrounding four content areas: experience participating in the project, intrapersonal changes as a result of participation, suggested use of

Table 1 Youth focus group participant characteristics.

Participant	Study group					
Characteristic	Total	Both	Paper	eCPAT		
Total (n, %) Age (Mean, SD)	50 (100) (13.4, 1.49)	20 (40.0) (13.8, 1.68)	14 (28.0) (12.9, 1.23)	16 (32.0) (13.3, 1.40)		
Gender (n, %)	()	(,)	(,,	(,		
Male	17 (34.0)	6 (30.0)	8 (57.1)	3 (18.8)		
Female	33 (66.0)	14 (70.0)	6 (42.9)	13 (81.3)		
Race (n, %)						
White	28 (56.0)	10 (50.0)	5 (35.7)	13 (81.3)		
Black	12 (24.0)	5 (25.0)	5 (35.7)	2 (12.5)		
Indian/Alaska Native	2 (4.0)	1 (5.0)	1 (7.1)	0 (0.0)		
Two or more races	8 (16.0)	4 (20.0)	3 (21.4)	1 (6.3)		
Qualify for free lunch (n, %)	11 (22.0)	4 (20.0)	4 (28.6)	3 (18.8)		

Data were collected in June 2014; Greenville County, SC USA.

information collected from the park audit tool, and users of the tool. For example, youth were asked "Overall, tell us what you thought about this project." As a follow up probe, youth were asked "What did you like or not like about being part of this project?" The focus groups were audio recorded, with written informed consent obtained from parents/guardians and informed assent obtained from the youth. The University of South Carolina's Office of Research Compliance provided Institutional Review Board approval.

2.3. Data analysis

The focus groups were transcribed verbatim, coded, and analyzed in NVivo10 through a qualitative content analysis with an inductive approach (Cho and Lee, 2014). Specifically, the analysis process consisted of a primary coder who initially reviewed and performed a microanalysis (Corbin and Strauss, 1990) of the transcripts. Then, three coders independently reviewed all transcripts, verifying or adding to the primary codes. Using the constant comparative method (Patton, 2002), the coders developed and refined the codes through an iterative process of reviewing the transcripts and emerging themes in a process of reorganizing, collapsing, reconciling, and expanding, until saturation and team consensus was reached. Theme saturation and cross-verification of the three independent coders provided assurance of validity and reliability of the themes (Corbin and Strauss, 1990). Finally, the emergence of each theme across the three audit group types was also quantified.

3. Results

Within the four content areas posed to youth – experience participating in the project, changes as a result of participation, use of information collected from the tool, and users of the tool – numerous specific themes emerged. Table 2 summarizes the emerging themes in each category, noting which focus groups (paper CPAT, eCPAT, or Both) the theme was discussed in.

3.1. Experience participating in the project

Four themes emerged related to youths' project participation experiences: two positive (*Fun* and *New Experiences*) and two negative (*Uncomfortable/Unsafe*, and *Travel Issues*). The theme of *Fun* was characterized by the responses referencing an overall enjoyable experience and affinity towards the project. Almost all youth had sentiments

under this theme, with one respondent mentioning "if there were more projects like this, I definitely want to do them because they're really easy and actually fun...." Furthermore, some noted being apprehensive to the project at first, but enjoyed it in the end: "I didn't think it'd be that fun, but now that I already know about it, I'd do it again." Similarly, the subtheme of being a *New Experience* was defined by participants noting how they have never participated in a project of this nature or were able to visit a park they had never seen before. One participant responded, "I thought it was very unique. I've never done anything like that before." Many youth also mentioned they liked seeing different parks that they had not been to, but would want to visit in the future.

However, some youth also talked about *Travel Issues* related to difficulty in locating the assigned park auditing site as well as not having the time to travel to the site. For example, youth said some parks were "really hard to find." Youth also mentioned sometimes feeling *Uncomfortable/Unsafe*, reflecting their perception of the assigned park's environment as being threatening or producing an insecure feeling, often due to vandalism, litter, or other persons present at the park. One youth stated that "the surrounding area wasn't very kid friendly. So, I didn't feel very comfortable in that park." Similarly, another response referenced other people within the park as being frightening: "I didn't feel very safe at the second park I went to because there was this guy walking around with this shopping cart ... I was really nervous."

3.2. Changes as a result of participation

Youth responses about personal changes as a result of participating in the project fell into four themes: Increased Awareness, Motivation for Further Action, Physical Activity Benefits, and No Change. As was discussed in almost all focus groups, Increased Awareness captured learning about a specific park, where they are located, as well as greater awareness of the park's quality and disparities. Specifically, many participants commented on how they "didn't realize there were so many parks" and that there were parks that they didn't even know were there. Youth also expressed increased attention to detail within the parks, commenting on how many aspects that they had previously been unaware of were actually present, missing, or in need of repair. One youth stated, "It definitely changed the way I look at a park... the app made me look a little bit deeper into the park, and see some of the things that were actually wrong with it." This also led to an elevated consciousness about disparities in park quality in their community. One youth stated "things look good in some parks... but there's also really bad ones."

Table 2 Frequency of themes in focus groups by category.

Experience participating the project	in	Change as a result of participation	on	Use of information collected f rom the tool		Users of the tool	
Fun	3P	Increased Awareness	3P	Maintenance/Aesthetics	2P	Frequent Park Visitors	1P
	3E		3E		2E		0E
	2B		2B		3B		OB
New Experience 1P 3E 1B	1P	Motivation for Further Action	1P	Feature/Amenity Addition	2P	Community Groups & Organizations	2P
	3E		3E		2E		2E
	1B		3B		3B		2B
Uncomfortable/Unsafe	1P	Physical Activity Benefits	0P	Online Park Information	2P	Parks & Recreation Professionals	0P
1E 1B	1E		0E		3E		1E
	1B		1B		3B		OB
Travel Issues	1P	No Change	1P	Park Rating-review System	0P	Adults	3P
	2E		0E		3E		0E
	OB		OB		3B		2B
				Community Fundraising	0P	Youth	1P
					2E		2E
					2B		2B
				Community Maintenance	3P	Everyone	1P
					3E		2E
					2B		1B

Within most focus groups, youth described *Motivation for Further Action*, which captured responses that pertain to an expressed interest to become involved in community changes. For example, "when you look at the bad things in parks, it makes you want to change it and make it into something better," and "we actually care and we want to make the parks better." One focus group also mentioned *Physical Activity Benefits* during project participation: "I felt like it was a very good way to get exercise... because you have to walk all around the park to see everything, you can't just look at the map." Nonetheless, in one focus group, some youth indicated that they perceived *No Change* due to participation, stating "No" or "Not really" when asked if they felt any differently after completing the project.

3.3. Use of information collected from tool

Youth had numerous suggestions for utilizing the data collected from the tool that fell into 6 themes: *Maintenance & Aesthetics, Feature/Amenity Addition, Online Park Information, Park Rating/Review System, Fundraising,* and *Organizing Community Projects.*

Two themes (Maintenance & Aesthetics and Feature/Amenity Addition) related to using the information to communicate improvement needs or suggested changes to those in power (e.g., parks department, city). Maintenance & Aesthetics consisted of recommended repairs to improve the appeal and physical looks of the park, such as general repairs of equipment, cleaning of facilities, as well as maintenance such as landscaping and grounds keeping. One youth stated that information and pictures of graffiti "could be communicated to someone who could actually have the authority to go in and remove it and improve it." For Feature/Amenity Addition, youth indicated wanting to be able to recommend new additions to the park (e.g., trails, dog park, or playgrounds), as well as additions that may improve the overall safety of the park, such as an emergency station. For example, "they should put trails if they don't have one ... a lot of people just want to run just for the fun or maybe to burn some fat, but some people can't do that if they don't have a trail in their park."

The next two themes, Online Park Information and Park Rating/Review System, related to the youths' desire to generate park information for the community, including visitor-generated park reviews and information that can be used by the general population to facilitate park selection. Regarding Online Park Information, youth suggested displaying informational park data online, such as a comprehensive report of a park's features and amenities, or groupings such as parks for certain interests or age groups. For example, "you could have a section that said which age group, or which type of park is it." Another participant desired additional information online: "if you had a website and a map, you could pull up information about the parks... you could click on it and it would pull up accurate information, up to date about the park....everything that was on the survey." The youth also described how the data could be used for visitors to rate parks, through a Park Rating/Review System. Many youth responded that they wished parks had "an overall star rating" so they could "see what other people thought about it," which could improve their ability to choose a park that is of the best quality. For example, "if some mom wanted to go to a park, but they weren't sure which one was good, it would be cool if you could see what other people had to write."

Finally, youth talked about getting the community involved through Community Fundraising and Community Park Maintenance projects. Community Fundraising included specific references to community fundraiser events to aid in park development. For example, "you could put up signs, or do a bake sale...tell people in your school about it or raise money at school...Just get people involved." For Community Park Maintenance, youth commented on their desire to bring together people and start a project to fix or clean up a park. One youth suggested, "get groups together and go clean up or try to solve the problem that the parks have. Like if it's litter problems or you know, something like that, you could do a clean-up."

3.4. Users of the tool

Six themes emerged regarding who the youth felt could use the tool: Frequent Park Visitors, Community Groups/Organizations, Parks and Recreation Professionals, Adults, Youth, and Everyone. Frequent Park Visitors emerged in one focus group, as youth responded that "people who like to go to parks a lot" will be the ones to use the app. Youth also felt Community Groups/Organizations (e.g., schools, youth organizations) could utilize this tool as a group activity to further support their cause, or simply a fun and beneficial activity. For example, "some schools you have to get service hours and stuff ... the kids can earn points or hours or whatever they have to earn and they they'd also get to go to a park." Parks and Recreation Professionals were also referenced in a focus group: "I would think that people like you guys or park rangers or people that are tired of cleaning up after other people at parks would want to access this app so they could get help." Youth felt Adults would be great proponents of the tool because "adults with small children ... they could use it to help and see if the park could get better so they could actually bring their kids there." Regarding Youth, participants mentioned that teens and younger-aged children may enjoy the activity of the audits as well. Specifically, one youth responded that "it's easy enough that younger kids can use it." However, the youth did discuss that certain resources would be needed for such youth participation, such as leadership to organize the youth, supplies and materials to carry out projects and fundraisers, and importantly, approval and support from the community. Finally, some youth stated that the tool could be used by Everyone: "I think the app is for like everyone."

4. Discussion

This study explored the experiences of youth participating in a community-based project involving environmental resource assessments, and how these reflections may promote efforts related to civic engagement among youth. A better understanding of the perceived challenges and benefits of youth engagement can facilitate more operative methods for public health officials and researchers to target interventions and projects aimed at increasing youth advocacy through participatory action.

Numerous themes emerged from the focus groups with youth, with some of the primary ideas relating to their experience participating in the project. Although youth expressed both positive and negative feedback, the overarching consensus, was that youth thought of the project as fun and a new experience. These results are important given that youth civic participation and engagement is associated with multiple positive outcomes, including higher life satisfaction, educational attainment, interpersonal competence, and reduced risk behaviors (e.g. violence, substance use) (Mahoney et al., 2003; Chan et al., 2014). The fact that youth found participation in the larger eCPAT project fun and an enjoyable new experience supports important elements of youth engagement theoretical frameworks such as youth attitudes and enjoyment (Millstein and Sallis, 2011) and meaningful participation and engagement (Jennings et al., 2006) that may prove key to longterm engagement. Minimizing park safety concerns and travel issues are duly noted as elements to address in future engagement efforts, as these issues indeed impacted youth project experiences and in general, can influence the use of parks by community members (Bedimo-Rung et al., 2005). Nonetheless, the positive experiential aspects of conducting environmental audits helped to enhance youth interest and enjoyment and furthered the overall objective of promoting youth engagement in community contexts.

Youth indicated multiple changes as a result of participation, including an increased level of awareness of their community resources, motivation for further action, and physical activity benefits from participation. Emergent themes illustrate that youth felt the project raised consciousness of environmental surroundings, commenting on both improved knowledge of the availability and condition of parks and surrounding neighborhoods.

These findings confirm past research suggesting a general lack of knowledge of park availability and features by community members (Lackey and AT, 2009) and provide support for critical reflection as a vital component for youth engagement in community action research as suggested by Jennings and colleagues in their Critical Social Theory of Youth Empowerment (Jennings et al., 2006). Specifically, as awareness of community characteristics increased, youth expressed motivation to take action to promote park improvements. Experimental research has similarly linked youth-led participatory action research with changes in awareness, increases in socio-political skills, and motivation to improve communities and schools (Ozer and Douglas, 2013). Our findings suggest that incorporation of environmental data collection within such efforts may help youth form a personal connection to project activities, which previous research has shown to facilitate youth motivation and engagement (Dawes and Larson, 2011). Our results provide promising underpinnings for youths' eagerness to be seen as valuable advocates in community change processes which can lead to sustained civic engagement as adults (Frisco et al., 2004). Finally, although it was mentioned in only one focus group, that some youth noted physical activity benefits during project participation, this was encouraging given considerable ongoing concerns around sedentary behavior and childhood obesity (Mitchell et al., 2013; Prentice-Dunn and Prentice-Dunn, 2012).

Youth also identified a wide range of applications for the information collected from the tool, including physical improvement of the parks, adding features or amenities, the creation of online park information and rating/review systems, as well as fueling community fundraising and maintenance. Indeed, another study conducted by our team that engaged youth in collecting park environment data using CPAT/eCPAT tools resulted in physical park improvements (Besenyi, Carter, et al., 2016). These findings also correspond with emerging youth engagement frameworks suggesting that technology is an integral component of youth health advocacy and participatory action that can aid organizing collective action, creating ownership, increasing awareness, raising funds, and communicating with decision makers (Thackeray and Hunter, 2010; Flicker et al., 2008). Interestingly, only the youth engaged with the eCPAT mentioned an online park-rating review system, which suggests that exposure to the app spurred ideas of how the data could be used in an electronic context. Further, all of the focus groups who used the eCPAT app expressed motivation for taking further action (compared to only 1 focus group using the paper audit tool). Similar to previous research, youth experiences with technology as part of a community engagement project may lead to greater intentions to use and value the technology (Carroll et al., n.d.; Efe, 2011).

Youth also identified a wide range of potential users for the tool, including frequent park visitors, community groups and organizations, parks and recreation professionals, adults, youth, and everyone. This reflection resonates with the intention and design of the CPAT as not purely a research instrument (Kaczynski et al., 2012), and is supported by recent literature citing the use of park audit tools by community members and other stakeholders (Greer et al., 2015; DeBate et al., 2011; Patton-López et al., 2015). Indeed, youth may be significant and enthusiastic contributors to community planning efforts if afforded the necessary resources and support (e.g., leadership to organize, supplies, community backing) to meaningfully participate (Frank, 2006). Interestingly, all focus groups with youth who had completed audits using the paper tool mentioned adults as potential users, whereas none of the eCPAT focus groups described their tool as such. Indeed, previous use of the CPAT for community engagement with adult populations has been shown to stimulate city officials to take action (Greer et al., 2015), whereas youth may find greater appeal in employing electronic and mobile applications for participatory action. Indeed, the use of technology within youth participatory action frameworks has increasingly drawn interest as way to increase youth self-efficacy and voice in the community, improve communications with adults, promote equitable power sharing, and provide political or social agency in the community

(Shank and Cotten, 2014; Valaitis, 2005; Al-Kodmany et al., 2012; London et al., 2010; Bell, 2005; Livingstone, 2003). Only one of the nine youth groups commented that the tools may be utilized by the parks and recreation department, potentially signifying a lack of knowledge of these roles in the community, while possibly also indicating that some see value in community feedback and participation within the local area to aid in park improvement efforts (Cohen et al., 2013).

4.1. Limitations

In summary, the current study revealed a wealth of information about youth experiences conducting park audits for community health promotion and their suggestions on how the data could be used for a variety of purposes by diverse stakeholders. However, it was limited to one county in the Southeast region of the United States and future research should explore these issues further with more diverse populations (e.g. age, race, activity levels) who might engage in park improvement and advocacy efforts nationally and internationally. The use of youth, whom voluntarily elected to participate in a park auditing project, as well as the focus groups, may be indicative of a higher level of preexisting engagement and interest that may not be fully representative of all youths in the 11-18 age range. We also did not collect follow up data to investigate the feasibility of implementing the many ideas expressed by the youth in this study, but this would be a productive avenue for future longitudinal research. Moreover, broader interventions using CPAT and eCPAT may reveal additional themes from engaging youth in longitudinal environmental change projects. Overall, understanding and fostering youth engagement in civic actions related to parks and other community resources represents a fertile area for future research and public health promotion.

References

- Al-Kodmany, K., Betancur, J., Vidyarthi, S., 2012. E-civic engagement and the youth: new frontiers and challenges for urban planning. Int. J. E-Plan. Res. 1 (3), 87–104.
- Bai, H., Wilhelm Stanis, S.A., Kaczynski, A.T., Besenyi, G.M., 2013. Perceptions of neighbor-hood park quality: associations with physical activity and body mass index. Ann. Behav. Med. 45 (1), 39–48.
- Bedimo-Rung, A.L., Mowen, A.J., Cohen, D.A., 2005. The significance of parks to physical activity and public health: a conceptual model. Am. J. Prev. Med. 28 (S2), 159–168.
- Bell, B., 2005. Children, Youth, and Civic (Dis) Engagement: Digital Technology and
- Besenyi, G.M., Diehl, P., Schooley, B., et al., 2016a. Development and testing of mobile technology for community park improvements: validity and reliability of the eCPAT application with youth. Trans. Behav. Med. 1–14.
- Besenyi, G.M., Kaczynski, A.T., Wilhelm Stanis, S.A., Bergstrom, R., Oestman, K.B., Colabianchi, N., 2016. Exploring sex differences in the relationship between park proximity and features and youth physical activity. Child. Youth Environ. (in press).
- Besenyi, G.M., Carter, T.K., Pope, A.W., Gordon, K.L., Hebda, S., Kaczynski, A.T., 2016. Youth advocacy for policy, systems, and environmental changes for healthy eating/active living: pilot evaluation of the Health Young People Empowerment (HYPE) Project Paper presented at: 11th Annual Active Living Research Conference 2014; San Diego, CA.
- Besenyi, G.M., Diehl, P., Schooley, B.L., et al., 2016b. Development and testing of mobile technology for community park improvements: validity and reliability of the eCPAT application with youth. Trans. Behav. Med. (under review).
- Carroll J, Howard S, Vetere F, Peck J, Murphy J. Just what do the youth of today want? Technology appropriation by young people. Paper presented at: System Sciences, 2002. HICSS. Proceedings of the 35th Annual Hawaii International Conference on 2002
- Chan, W.Y., Ou, S.-R., Reynolds, A.J., 2014. Adolescent civic engagement and adult outcomes: an examination among urban racial minorities. J. Youth Adolesc. 43 (11), 1829–1843.
- Checkoway, B., Allison, T., Montoya, C., 2005. Youth participation in public policy at the municipal level. Child Youth Serv. Rev. 27 (10), 1149–1162.
- Cho, J.Y., Lee, E.-H., 2014. Reducing confusion about grounded theory and qualitative content analysis: similarities and differences. Qual. Rep. 19 (32), 1.
- Cohen, D.A., Han, B., Derose, K.P., Williamson, S., Marsh, T., McKenzie, T.L., 2013. Physical activity in parks: a randomized controlled trial using community engagement. Am. J. Prev. Med. 45 (5), 590–597.
- Corbin, J.M., Strauss, A., 1990. Grounded theory research: procedures, canons, and evaluative criteria. Qual. Sociol. 13 (1), 3–21.
- Dawes, N.P., Larson, R., 2011. How youth get engaged: grounded-theory research on motivational development in organized youth programs. Dev. Psychol. 47 (1), 259.

- DeBate, R.D., Koby, E.J., Looney, T.E., et al., 2011. Utility of the physical activity resource assessment for child-centric physical activity intervention planning in two urban neighborhoods. I. Community Health 36 (1), 132–140.
- Efe, R., 2011. Science student teachers and educational technology: experience, intentions, and value. Educ. Technol. Soc. 14 (1), 228–240.
- Ferraro, K.F., Thorpe Jr., R.J., Wilkinson, J.A., 2003. The life course of severe obesity: does childhood overweight matter? J. Gerontol. B Psychol. Sci. Soc. Sci. 58 (2), S110–S119.
- Flicker, S., Maley, O., Ridgley, A., Biscope, S., Lombardo, C., Skinner, H.A., 2008. e-PAR using technology and participatory action research to engage youth in health promotion. Action Res. 6 (3), 285–303.
- Frank, K.I., 2006. The potential of youth participation in planning. J. Plan. Lit. 20 (4), 351–371.
- Frisco, M.L., Muller, C., Dodson, K., 2004. Participation in voluntary youth-serving associations and early adult voting behavior. Soc. Sci. Q. 85 (3), 660–676.
- Greer, A.E., Marcello, R., Graveline, R., 2015. Community members' assessment of the physical activity environments in their neighborhood parks: utility of the community stakeholder park audit tool. Health Promot. Pract. 16 (2), 202–209.
- Jennings, L.B., Parra-Medina, D.M., Hilfinger-Messias, D.K., McLoughlin, K., 2006. Toward a critical social theory of youth empowerment. J. Commun. Pract. 14 (1–2), 31–55.
- Kaczynski, A.T., Potwarka, L.R., Saelens, B.E., 2008. Association of park size, distance, and features with physical activity in neighborhood parks. Am. J. Public Health 98 (8), 1451–1456.
- Kaczynski, A.T., Wilhelm Stanis, S.A., Besenyi, G.M., 2012. Development and testing of a community stakeholder park audit tool. Am. J. Prev. Med. 42 (3), 242–249.
- Kamel, A.A., Ford, P.B., Kaczynski, A.T., 2014. Disparities in park availability, features, and characteristics by social determinants of health within a US-Mexico border urban area. Prev. Med. 69, S111–S113.
- Knuth, A.G., Hallal, P.C., 2009. Temporal trends in physical activity: a systematic review. J. Phys. Act. Health 6 (5), 548–559.
- Krueger, R.A., Casey, M.A., 2002. Designing and conducting focus group interviews. Soc. Anal. Select. Tools Tech. 4-23.
- Lackey, K.J., AT, K., 2009. Correspondence of perceived vs. objective proximity to parks and their relationship to park-based physical activity. Int. J. Behav. Nutr. Phys. Act. 6. 53.
- Livingstone, S., 2003. Children's use of the internet: reflections on the emerging research agenda. New Media Soc. 5 (2), 147–166.
- London, R.A., Pastor, M., Servon, L.J., Rosner, R., Wallace, A., 2010. The role of community technology centers in promoting youth development. Youth & Society. 42 (2), 199–228.
- Mahoney, J.L., Cairns, B.D., Farmer, T.W., 2003. Promoting interpersonal competence and educational success through extracurricular activity participation. J. Educ. Psychol. 95 (2), 409.
- Millstein, R.A., Sallis, J.F., 2011. Youth advocacy for obesity prevention: the next wave of social change for health. Trans. Behav. Med. 1 (3), 497–505.

- Mitchell, J., Pate, R., Beets, M., Nader, P., 2013. Time spent in sedentary behavior and changes in childhood BMI: a longitudinal study from ages 9 to 15 years. Int. J. Obes. 37 (1), 54–60.
- Ogden, C.L., Carroll, M.D., Kit, B.K., Flegal, K.M., 2014. Prevalence of childhood and adult obesity in the United States, 2011–2012. J. Am. Med. Assoc. 311 (8), 806–814.
- Ozer, E.J., Douglas, L., 2013. The impact of participatory research on urban teens: an experimental evaluation. Am. J. Community Psychol. 51 (1–2), 66–75.
- Patton, M., 2002. Qualitative Research & Evaluation Methods. 3rd ed. Sage, Thousand Oaks CA
- Patton-López, M.M., Muñoz, R., Polanco, K., Olson, B., Brown, G., DeGhetto, S., 2015. Redesigning a neighborhood park to increase physical activity: a community-based participatory approach. Journal of Public Health Management and Practice. 21, 5101–5105.
- Prentice-Dunn, H., Prentice-Dunn, S., 2012. Physical activity, sedentary behavior, and childhood obesity: a review of cross-sectional studies. Psychol. Health Med. 17 (3), 255–273
- Ribisl, K.M., Steckler, A., Linnan, L., et al., 2004. The North Carolina youth empowerment study (NCYES): a participatory research study examining the impact of youth empowerment for tobacco use prevention. Health Educ. Behav. 31 (5), 597–614.
- Richard, L., Gauvin, L., Raine, K., 2011. Ecological models revisited: their uses and evolution in health promotion over two decades. Annu. Rev. Public Health 32, 307–326.
- Rodríguez, L.F., Conchas, G.Q., 2009. Preventing truancy and dropout among urban middle school youth understanding community-based action from the Student's perspective. Educ. Urban Soc. 41 (2), 216–247.
- Sallis, J.F., Cervero, R.B., Ascher, W., Henderson, K.A., Kraft, M.K., Kerr, J., 2006. An ecological approach to creating active living communities. Annu. Rev. Public Health 27, 297–322.
- Shank, D.B., Cotten, S.R., 2014. Does technology empower urban youth? The relationship of technology use to self-efficacy. Comput. Educ. 70, 184–193.
- Thackeray, R., Hunter, M., 2010. Empowering youth: use of technology in advocacy to affect social change. J. Comput.-Mediat. Commun. 15 (4), 575–591.
- United States Census Bureau, 2015. State and County QuickFacts: Greenville County, SC. http://quickfacts.census.gov/qfd/states/45/45045.html.
- Valaitis, R., 2002. They don't trust us; We're just kids. Views about community from predominately female inner city youth. Health Care Women Int. 23 (3), 248–266.
- Valaitis, R.K., 2005. Computers and the internet: tools for youth empowerment. J. Med. Internet Res. 7 (5).
- Vaughan, K.B., Kaczynski, A.T., Wilhelm Stanis, S.A., Besenyi, G.M., Bergstrom, R., Heinrich, K.M., 2013. Exploring the distribution of park availability, features, and quality across Kansas City, Missouri by income and race/ethnicity: an environmental justice investigation. Ann. Behav. Med. 45 (1), 28–38.