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Environmental Action Programs Using Positive Youth Development May Increase Civic Engagement

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Abstract: Civic engagement in adults may be influenced by their participation as young people in environmental action programs. To assess this hypothesis, we conducted a case study to see if an environmental action program at the St. Louis Zoo impacted participants' civic engagement in respect to positive youth development practices. During 2019, we surveyed youth from the St. Louis, Missouri area participating in the Bye-to-Bags program, which was a student-initiated program. We used a modified measurement scale for civic engagement outcomes, and measured three positive youth development practices: sparks, or an individual's passions; adult relationships; and voice. We found that civic engagement and positive youth development outcomes were both present in the Bye-to-Bags program, which offered opportunities for youth engagement in environmental action in the community. Our results also showed that zoos with environmental action programs may increase youth civic engagement, especially when young people are given a sense of voice in programmatic decisions supported by strong adult relationships. Environmental education programs promoting sustainable behavior may help young people become environmentally responsible and civically engaged adults.

Keywords: adolescents; civic engagement; environmental action programs; positive youth development; teen volunteers

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1. Introduction

Climate change is increasingly impacting the global community, and environmental education programs can mitigate these impacts by encouraging pro-environmental behaviors through environmental actions and civic engagement. To date, much citizen engagement addressing climate change has involved individual actions like voluntary recycling programs or green consumerism, rather than substantive behavioral change [1,2]. Many communities and organizations, however, have incorporated environmental education programs to increase civic engagement and ultimately increase environmental sustainability [3,4]. An important aspect of advancing climate policy is the inclusion of younger audiences in environmental education programs [5–7]. While many adults sense a growing threat from the effects of climate change, young people are more concerned than adults [8], but environmental awareness and sustainable behavior may decline in some adolescents [9]. Not only are young people (ages 15–24 years) directly invested in the future [10], the ubiquitous nature of social media provides young people with global-scale connectivity that may affect environmental change through increased civic engagement [11,12]. Sustainable behaviors, through civic engagement [13–15], may be influenced by positive youth development practices [16–18] that help young people become environmentally responsible thriving adults.

Civic engagement in adolescence, however, may be complex and multifaceted, and can refer to several different types of prosocial activities that simultaneously benefit the individual and their associated community institutions [19]. Civically engaged youth often have a stronger sense of self-efficacy, are more internally motivated, have greater self-esteem, and tend to be less prone to risky behaviors [20]. Specific definitions of civic engagement include factors such as community service, collective action with others, involvement with political processes, and efforts focused on affecting social change [14]. More broadly defined, civic engagement includes almost all informal and formal activities that together build social capital within a community [21,22]. Specific examples of youth civic engagement include participating in positive activities with family and community members including sharing, volunteering, or voting [13,23,24]. Other characteristics affecting a young person's civic engagement include their background, family employment status and corresponding wealth, and racial or ethnic identity [25–27]. Historically underrepresented or immigrant youths from low-income communities and those with low educational opportunities are less likely to be civically active, and may report feeling the political system does not work for them [26]. Adolescent civic participation may also be effected by demographic factors related to urban obstacles not experienced by more affluent suburban youth [28]. Adolescent participation in high school or community service projects has been shown to positively influence civic engagement activities in adulthood [20,29]. However, many youths have lost faith in community and political systems, based on U.S. presidential scandals and federal government shutdowns in previous decades [30,31]. These various factors have prompted many youths to become disconnected from civic engagement and the electoral system [30].

One way to increase civic engagement among youth is through environmental education, which aims to increase awareness, knowledge, and behaviors associated with natural processes and environmental challenges [21,32]. Environmental education, however, is more complex than simply sharing information about natural processes and climate change, it must also include effective strategies for solving emerging environmental challenges [23]. Meaningful environmental education often occurs in connection with informal science education and fosters civic engagement by using place-based education, intergenerational learning, and participatory learning [21]. Effective informal science education in an out-of-school context involves multiple opportunities for adolescents to become consumers and practitioners of science, repeated exposure to and experience of building social networks, opportunities to develop shared scientific identities with peers and adults, and exposure to a wide range of possible science careers [33]. Environmental education within an informal science education context can simultaneously increase scientific knowledge and civic engagement [34]. Combining informal science education with innovative positive youth development practices may also increase the likelihood of higher civic engagement in adulthood and meaningful occupational accomplishments in the future [19,35].

Positive youth development views young people as a social asset and focuses on their potential while promoting positive outcomes, compared to simplistically preventing or mitigating maladaptive behaviors [16,36]. It promotes programs and policies aimed at all young people and not just specific individuals or groups at risk [15]. The approach focuses on the entire individual, with equal weight given to social and cognitive development and civic engagement being a potential positive outcome [15]. Based on forty developmental assets, eight categories have been conceptualized to describe positive youth development in thriving adolescents [17]. An alternative and complementary perspective is the "Five Cs" model, which describes positive youth development defined by competence, confidence, connection, character, caring, along with a sixth "C": contribution [37]. Correspondingly, the America's Promise Alliance suggests successful young people need to experience five basic "promises": caring adults, safe places, a healthy start, effective education, and opportunities [38]. In other words, an adolescent demonstrating most or all of these developmental characteristics could be considered a thriving individual who is dynamic and energized over time, able to balance continuity and discontinuity, and on a path

towards an effectual adulthood [17]. Besides improved civic engagement, the benefits of exposing young people to positive youth development practices include improved academic success, enhanced leadership skills, increased physical and emotional health, the ability to delay gratification, and an improved sense of valuing equality and social justice [23,39,40].

Building upon these models of thriving adolescents within the context of positive youth development, Scales et al. (2011) suggested three interrelated, but distinctly different concepts that may guide adolescents toward a thriving path forward: sparks, relationships, and voice. The first of these, sparks are considered a set of positive attitudes which ignite passions or deep interest in a particular hobby or activity that provides energy, joy, purpose, and direction [17]. Second, adult relationships consist of supportive relational opportunities that assist in developing self-empowerment while being a catalyst for social change and doing things for others [38]. Third, voice can be described as an adolescent's self-perception of having a sense of ownership of decisions and outcomes that affect them [38]. When adolescents experienced all three strengths, they tended to have greater prosocial values and not only pursued their own personal interests but also contributed to community improvement.

We suggest that coupling positive youth development practices with civic engagement could be a recipe for young people to become thriving adults who develop environmentally sustainable behaviors and connections to civic processes in their communities. To explore this hypothesis, we used a case study framework to conduct a program evaluation of a teen volunteer-initiated environmental outreach program, to assess the influence of three elements of positive youth development (i.e., sparks, relationships, and voice) on adolescents' inclination towards civic engagement.

2. Materials and Methods

We conducted our assessment in conjunction with Zoo Active Leaders in Volunteer Education (Zoo ALIVE), which was an on-going teen volunteer program at the St. Louis Zoo, St. Louis, MO, USA [41]. The program was designed to develop future environmental leaders through youth-oriented programming and transformative experiences. It was an environmental education program with a nonformal science education format in an out-of-school setting. Zoo ALIVE offered an array of opportunities for young people to volunteer, including activities like assisting at summer camps, overnight programs, information booths, serving on the Zoo's executive board, and providing opportunities to develop and implement their own environmental action activities.

As part of the larger Zoo ALIVE youth program, Bye-to-Bags was an environmental action campaign independently initiated, designed, and implemented by teen volunteers enrolled in Zoo ALIVE. The volunteer teens' objectives for the Bye-to-Bags program were to reduce plastic waste in the community, empower zoo visitors to reduce waste, and work toward meaningful sustainability solutions. Bye-to-Bags events consisted of an information table at the zoo with teen-volunteers providing information about the negative environmental impacts of plastic-bag waste and asking zoo visitors to pledge to discontinue the use of disposable plastic bags. To encourage follow-up, visitors to the information booth were given a free reusable bag as an incentive (Figure 1).

To assess if participation by teen volunteers in the Bye-to-Bags program led to increased civic engagement via positive youth development practices (i.e., sparks, adult relationships, and voice), we used a purposive sample of adolescents working with the Bye-to-Bags program during 2019 to conduct our survey. This nonprobability sampling technique was used because there were only approximately 100 potential survey participants, ie. eligible adolescents from the St. Louis, Missouri metropolitan area who participated in both the Zoo ALIVE and Bye-to-Bags programs. After a brief orientation session about our study, 65 individuals volunteered to participate in our survey. The survey was pilot-tested with Zoo ALIVE volunteers who had not participated in Bye-to-Bags. We used Qualtrics software (Version 2019, Provo, UT, USA) to design and implement the survey. The final

survey consisted of 41 multi-item questions requiring ≤7 min to complete, and resulted in an 81.5% response rate (n = 53).

Figure 1. Youth volunteers participating in a Bye-to-Bags event at the St. Louis Zoo.

We created a measurement scale for civic engagement outcomes [23] which included specific items relating to the Bye-to-Bags program. We also created measurement scales for the positive youth development outcomes of sparks, relationships, and voice [38]. All variables used a 5-point scale (1 = strongly agree, 5 = strongly disagree). To test our hypothesis, we used a linear model with civic engagement (11 items; α = 0.67) as our dependent variable, with independent variables including sparks (one item; [26]), adult relationships (seven items; α = 0.90), and voice (five items; α = 0.73; Table 1). We used IBM-SPSS (Version 27, Armonk, NY, USA) for descriptive statistics, scale construction, and a linear regression model.

Table 1. List of linear model variables and measurements.

Variable	Measurement
Civic engagement (Dependent variable)	Continuous scale ranging from 1 to 5 (low score = low civic engagement). Scale constructed based on agreement of 13 indicators of civic engagement: Are you currently involved in any other organizations besides Zoo ALIVE?; when I turn 18, I intend to vote; I have written or plan to write to public officials; I have given or plan to give money to a political candidate or cause; When I leave high school, get to college, or enter the work force, I intend to continue volunteering in my community; I believe I have a strong understanding/awareness of environmental issues; I value the environment; I believe that I can make a change; I value the environment to a point where I will sacrifice/give up certain luxuries/conveniences to help the environment; I inform others (i.e., family, friends, classmates, etc.) about how to help the environment because I feel that it is important to do so; I inform others (i.e., family, friends, classmates, etc.) to act to reduce their impact on the environment. Scale reliability α = 0.67.

Table 1. *Cont.*

Variable	Measurement
Sparks (Independent variable)	Continuous scale ranging from 1 to 5 (low score = low civic engagement). Scale constructed based on agreement of one spark indicator: A spark is when people are happy, energized, and passionate about their talents, interests, or hobbies; we say they have a "spark" in their life. This spark is more than just interesting or fun for them. They are passionate about it. It gives them joy and energy. It is an important part of their life that gives them real purpose, direction, or focus. Scale reliability n/a.
Relationships (Independent variable)	Continuous scale ranging from 1 to 5 (low score = low relationships). Scale constructed based on agreement of seven indicators of relationships: When I spend time working on something, I develop warm, trusting relationships with adults; I feel that if I ask for help from the adults involved, I will get the resources I need; I feel supported by adults when I talk about my talents, interests, or hobbies; I am encouraged by adults to pursue my talents, interests, or hobbies; I feel this has helped me develop at least one skill that will help me in my future career; I feel this has helped me make friends, meet other people, or helped deepen an already existing relationship; I take the initiative to develop my talents, skills, interests, or hobbies. Scale reliability $\alpha = 0.90$.
Voice (Independent variable)	Continuous scale ranging from 1 to 5 (low score = low voice). Scale constructed based on agreement of five indicators of voice: The adults who have the decision-making power listen to what I have to say; I am given lots of chances to help plan events/create new opportunities; I share what I know to help make the Zoo, Saint Louis, and the world a better place; because of what I have learned, when things don't go well for me, I am good at finding a way to make things better; I believe that my actions make a big difference. Scale reliability $\alpha = 0.73$.

3. Results

Participants were predominantly female (75%), ranged in age 15–22 years ($M = 18.0$, $SD = 1.8$), and were mostly non-Hispanic/non-Latinx (95.9%; Table 2). More than half of Zoo ALIVE volunteers attended 9–10 monthly meetings per year, 84.9% worked any Zoo ALIVE event, 75.6% worked at least one Zoo ALIVE Bye-to-Bags event, and 67.6% worked 6–10 Zoo ALIVE Bye-to-Bags events.

Table 2. Characteristics of Zoo ALIVE participants.

Characteristic	*n* (%)
Gender	
Male	12 (24.5)
Female	37 (75.5)
Race	
Non-Hispanic/Non-Latinx	47 (95.9)
Other	2 (4.1)
Volunteered any Zoo ALIVE event	
Yes	45 (84.9)
No	3 (5.7)
Hours volunteered at Zoo ALIVE	
0–50	5 (10.4)
51–100	7 (14.6)
101–300	15 (31.3)
301–500	12 (25.0)
501–800	5 (10.4)
≥801	4 (8.3)
Volunteered at Bye-to-Bags event	
Yes	34 (75.6)
No	11 (24.4)
Bye-to Bags events worked	
1–5	15 (44.1)
6–10	8 (23.5)
≥11	11 (32.4)

The linear model with civic engagement outcomes as the dependent variable was significant (F (3, 43) = 5.10, $p = 0.004$) and represented a medium effect size ($R^2_{adj} = 0.21$),

accounting for 21% of the variance in civic engagement (Table 3). Regression results showed that only voice significantly predicted civic engagement ($p = 0.01$). Voice also had the strongest effect on civic engagement ($\beta = 0.51$) followed by relationships ($\beta = 0.04$) and sparks ($\beta = -0.04$). In other words, a one unit increase in voice led to a 51% increase in civic engagement, a one unit increase in adult relationships led to a 4% increase in civic engagement, and a one unit increase in sparks led to a 4% decrease in civic engagement while controlling for the other variables in the model.

Table 3. Linear regression predicting civic engagement.

Variable	M (SD) (n = 47)	b (95% CI)	SE_b	β	p
Civic engagement (Constant)	1.92 (0.54)	0.982 (0.472, 1.493)	0.253		**<0.001**
Sparks	1.94 (1.01)	−0.022 (−0.210, 0.166)	0.093	−0.041	0.814
Relationships	1.63 (0.57)	0.034 (−0.347, 0.415)	0.189	0.036	0.856
Voice	1.88 (0.56)	0.492 (0.115, 0.869)	0.187	0.510	**0.012**

Note: significant variables ($p < 0.05$) are in bold text.

4. Discussion

Overall, our results assessing the Bye-to-Bags environmental action program initiated and implemented by teen volunteers provided some support for our original research question exploring the relationship between civic engagement and the three elements of positive youth development practices. However, only two of the three independent variables in our linear model (i.e., voice and adult relationships) were positively related to civic engagement, with sparks having a negative relationship. Scales et al. (2011) suggested that if only two of three strengths are demonstrated, as in our case, this may be sufficient to obtain "good enough" civic engagement outcomes, but not necessarily the "outstanding" outcomes obtained when three are present.

Of the three independent variables, our findings show that voice had the greatest impact on civic engagement. This suggests that successful youth–adult relationships and opportunities for expressing one's voice can create a recipe for civically engaged youth. Having a voice in making important decisions may be empowering for young people and may lead to increased civic engagement in the future [42]. We also discovered insights into the value for adolescents of having a framework such as Zoo ALIVE to express their voice by designing and implementing their own environmental action programs such as Bye-to-Bags. If the goal of volunteer youth programs is to develop future environmental leaders and offer a clear path for greater civic engagement, it will be important for adults to listen and be attentive to young people's voices and seriously consider their ideas and suggestions. In this context, adult zoo employees can be a catalyst for encouraging civic engagement among adolescent volunteers who are passionate about environmental sustainability and stewardship. Previous research has also found that strong youth–adult relationships may be important for developing civic engagement and community connectedness [40,42]. Meanwhile, civically apathetic adults can hamper programmatic efforts to foster positive and healthy adolescent development [19].

Our results suggest the importance of spending substantial amounts of time on relationship-building between adult program professionals and participating teens. When working full-time with dedicated staff to provide exceptional experiences for young people, relationships between adults and youth participants are strengthened compared to part-time informal efforts [43]. Adding a full-time adult zoo employee exclusively dedicated to developing and implementing the Zoo ALIVE youth program could potentially provide greater civic engagement by enhancing all three positive youth development factors—voice, relationships, and sparks.

The Bye-to-Bags program offered a civic engagement experience potentially synergistic to one experienced at home, potentially magnifying the overall civic engagement education

effects. Adolescent civic engagement may be enhanced by coupling environmental action programs with a combination of strong adult relationships at home andwithin volunteer programs in an informal science education setting. When youth programs work in combination with families, they can increase the likelihood of positive youth development outcomes and strengthen adult–youth relationships [44]. Not only do parents teach their children behaviors, but children can also teach their parents, particularly pro-environmental and sustainable behaviors [45,46]. In addition to parents, adult zoo employees can encourage civic engagement among adolescent volunteers who are passionate about environmental sustainability and stewardship.

There were, however, several limitations to our project that need to be addressed with further research. As noted earlier, sparks are those passionate personal interests that work together with other factors to assist the development of thriving and civically engaged adults [15,18,38]. Surprisingly, however, sparks had an inverse relationship to civic engagement, suggesting sparks may be more complicated than initially anticipated. Given our results, we suggest that future research should consider developing a more robust scale for evaluating sparks, while taking into account multiple socio-economic, socio-cognitive, and emotional competencies affecting civic engagement and environmental action.

Additionally, our results may have been influenced by the relatively small sample of participants, who were involved with only one environmental action program and represented primarily by non-Hispanic/non-Latinx females from one metropolitan area. For example, civic engagement and competence among inner-city urban adolescents lags behind those from more suburban or small town backgrounds, and they are less likely to participate in after-school clubs or sports teams [28]. Future research should consider other factors influencing civic engagement, such as the emotional and socio-cognitive competencies of empathy and emotional regulation for younger individuals, and prosocial moral reasoning and future orientation in older youth [47]. Our findings from a single case study suggest that future research should assess environmental action programs across a broader demographic spectrum, and should also consider factors affecting youth development.

5. Conclusions

Although our sample was limited to one localized environmental action program, we found that zoos may potentially increase youth civic engagement by giving young people a sense of voice in designing and implementing a sustainability outreach program, especially when supported by strong adult relationships [41,48]. We suggest that youth-engagement programs should offer participation incentives to reduce attrition and develop civic engagement outcomes, encourage strong adult relationships, and implement communication platforms for young people to use their voices to make meaningful programmatic contributions. Climate change education programs promoting sustainable behavior can help young people become environmentally responsible and civically engaged adults.

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