



Environmental Literacy and Youth Development Outcomes



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In the field of youth development, recent emphasis has been placed on positive youth development, which involves nurturing all youths’ potential to contribute to their community and, ultimately, to society. Educators have noted that this new focus creates an exciting nexus between youth development and programs that connect students to the natural world. Examples of how these goals are complimentary are highlighted below.

School

- High school students in Canada participated in a yearlong youth leadership program focused on sustainability. Peer education was a main component of the program in which students planned, developed, and implemented activities and events to engage and educate their peers about sustainability. In addition to increases in environmental literacy, attitudes, values, actions, and behaviors, students also demonstrated a greater sense of empowerment (both individual and collective) and increased leadership, teamwork, and presentation skills. An unexpected result was a **positive effect on interpersonal relationships with students sharing information** about new friendships that they normally would not have made. (*de Vreede, Warner, & Pitter, 2014*)



a greater sense of empowerment (both individual and collective)



- While participating in an ongoing, two-year school program for fifth and sixth graders in a Hawaiian school, students investigated and evaluated environmental issues in their community. Their efforts culminated each year in a student-led community symposium addressing local environmental issues. An evaluation of the program revealed that students who participated in the program showed **higher levels of critical thinking, environmental literacy, and action competence**. Feedback from students and teachers also indicated improved academic skills, such as skills in reading, writing, oral communication, and use of technology. Personal growth was also noted in areas such as self-esteem, maturity, and poise. Additional benefits were seen at the community level, including transfer of knowledge to adults and increased enthusiasm and participation in local environmental issues and action. (Volk & Cheak, 2003)

- Students (ages 15 to 24) in China took part in school-based clubs as part of the Jane Goodall Institute's Roots & Shoots program. Through hands-on activities and service-learning, students planned and conducted a minimum of three environmental projects. Results of the program evaluation indicated significant increases in civic and social responsibility and interpersonal skills. Data also suggested **gains in self-efficacy**; cognitive competences such as **critical thinking and problem solving**; and action skills. (Johnson, Johnson-Pynn, Pynn, 2007)



increases in
civic and social
responsibility

- In Athens, Greece, youth (ages 9 to 12) were involved in a research project focused on their urban environment using storytelling, photography, and drama. Before the project, the children displayed a lack of empowerment and overall pessimism when it came to their role and future in their communities. The researcher documented gradual changes in the students as their **self-confidence and willingness to act increased**; they began to envision a better place and improved their critical thinking abilities. The youth developed knowledge of action as compared to knowledge of science that traditionally dominated their learning, with the focus not on the actual action but on the empowerment that took them there. (Tserveni, 2011)
- High school students in Ontario, Canada, had the option of participating in a five-month environmental studies program as part of their high school curriculum. The course blended science and outdoor activities to provide an authentic, holistic, community-based experience. Program components including a multi-day wilderness canoe trip, skiing, action projects, lessons, and activities such as water testing. Students also worked directly with elementary students for several weeks, serving as teachers and guides for the younger students. Student feedback and responses to questionnaires suggest **increased personal growth, interpersonal skills, and career exploration**. Students commented on their preference for the experiential, outdoors approach, finding it to be more authentic and meaningful. (Russell & Burton, 2000)

- High school students in Florida participated in yearlong, ongoing, interdisciplinary educational programs that emphasized the local environment and related issues. The programs consisted of student involvement in environmental projects and, a focus on the learner (as opposed to a teacher-centered approach). Results from test scores and student and teacher interviews suggest that this approach significantly increased their critical thinking skills, disposition toward critical thinking, and **achievement motivation**. (Athman & Monroe, 2004; Ernst & Monroe, 2006)



- Selected high school students in Spain, who had been identified as disruptive and low performing, participated in a two-year garden-based learning program that incorporated experiences in a school garden and an environmentally focused curriculum. An evaluation of the program over several years showed outcomes associated with traditional youth development such as a decrease in the dropout rate, number of courses failed by students, and number of disruptive episodes in class. Teachers reported **improved academic performance and attitudes toward school**, along with increases in skills, self-esteem, and self-confidence. (Ruiz-Gallardo, Verde, & Valdés, 2013)
- High school students in German biology classes participated in a computer-based education program that provided explicit training in decision-making strategies as they explored sustainable development issues. Three months after completing two 45-minute sessions of the program, participants showed significant increases in their decision-making competences. (Gresch, Hasselhorn, & Bögeholz, 2013)



long-term gains
in character
development,
and leadership

Residential

- Maryland middle school students from urban, suburban and rural communities who attended a five-day residential program on the shores of Chesapeake Bay demonstrated short-term gains in environmental responsibility, character development, leadership, and attitudes toward school. Longer-term gains, measured three months after the experience, were maintained for **environmental responsibility, character development, and leadership**. The five-day program focused on issue investigation, adventure activities, and character development. (Stern, Powell, & Ardoin, 2010)
- In Uganda, youth ages 16 to 24 participated in two- or three-day residential workshops conducted on national forestland and focused on climate change. These programs included **service-learning, fieldwork, and interaction with adult mentors and peers**. Workshop goals were explicitly linked to positive youth development. Results indicated significant increases in self-efficacy, connection to nature, and political awareness. Participant comments from journals suggested increased knowledge, leadership skills, social awareness, and commitment to civic action. (Johnson, Johnson-Pynn, Lugumya, Kityo, & Drescher, 2013)

Other Settings

- Urban high school and middle school students from Boston attended a two-week urban ecology summer institute where they participated in a project on either bioacoustics or urban street trees. After investigating their local environment and related issues, students displayed significant increases in science self-efficacy, demonstrating increased **confidence in their science abilities, and an increased sense of environmental stewardship**. Student comments and feedback also revealed pride in completing a complex project, new appreciation for their local environment, and an understanding that they affect and can improve their surroundings. *(Barnett, Vaughn, Strauss, & Cotter, 2011)*
- Minnesota youth took part in service projects such as trail maintenance and park enhancement sponsored by a community-based organization. The program's goals included both interpersonal and community outcomes, with a focus on youth development. An evaluation of the program suggests that students experienced increases in their sense of personal skills and strengths, self-worth, personal and social efficacy, **sense of belonging, teamwork skills, and sense of community** and civic responsibility. *(Ernst & Schwartz, 2013)*
- Youth participants of community action programs in New York reported wide-ranging personal outcomes as a result of their active involvement with environmental issues. Intellectual development was achieved through increased environmental knowledge and **improved skills in technology use, science, and public speaking**. Involved youth talked about emotional growth such as improved self-confidence and self-esteem, and learning the importance of responsibility and patience. Social networks were expanded and connections to community enhanced accompanied by greater commitment to civic engagement. Youth working in community food initiatives also shared outcomes related to health and physical development. *(Schusler & Krasny, 2010)*
- In Detroit, youth and adults collaborated to identify and address food security and environmental justice issues. By tackling a range of problems such as gentrification that threatened community gardens and toxic spill remediation through schoolyard beautification, young people developed skills in community organization and leadership. As part of an environmental justice class in an inner-city Boston high school, students worked with their teacher and mentor to advocate for better air quality and build a "peace park" on an abandoned property. They developed as citizen activists, gaining skills in advocacy and citizenship. The researcher noted remarkable **increases in self-confidence, sense of responsibility, and political knowledge and experience**. *(Smith, 2015)*
- Outdoor play, particularly in natural areas, has been identified as a critical component of positive youth development due to a range of benefits, namely: **physical health, mental health, cognitive development, and socio-emotional development**. Junior Ranger programs, sponsored by the National Park Service and state park agencies, combine outdoor activities with environmental education for youth. These programs are described in a report on outdoor play and youth development, providing an example of the role environmental education can play in getting kids outside and promoting positive youth development. *(Mainella, Agate, & Clark, 2011)*