

# Integrating Youth Development and Nature: An Exploration

A Synthesis of Learning Prepared by Search Institute

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S. D. BECHTEL, JR.  
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STEPHEN BECHTEL FUND

This literature review was developed in partnership between Search Institute and Children & Nature Network with funding from the S.D. Bechtel, Jr. Foundation.



## Introduction

Both youth development focused programs and nature-based programs can and do achieve successful outcomes. Yet, what important outcomes might be achieved when principles from both approaches are thoughtfully and effectively integrated? This focused literature review explored studies of programs that often “live” in the intersection of intentional youth development and nature.

As a tool, the purpose of this literature review is meant for programs that have a focus on nature and/or youth development to explore “what works” to support young people’s growth on a number of youth development and nature-based outcomes and to consider learning that might be useful to enhance programs and practice. Although not a completely exhaustive review of all youth development and nature-based literature, we intend for the highlighted themes to provide a thought-provoking guide and catalyst for discussion.



## Methods

- Literature Review Process
- Natural Leaders Cohort Input

The literature compiled for this review was guided by articles that informed our focus on the intersection of youth development and nature which included:

- Select individual research articles and comprehensive reviews identified by the Children & Nature Network research team to support the youth development and nature focus
- Reports/articles from several Search Institute studies focusing on youth development and nature

The Atlanta and Grand Rapids Natural Leaders Cohorts also guided this work through their discussions about youth development and nature. Notes and visuals from cohort calls about important ideas that surfaced were shared with Search researchers to also guide the focus of the literature review.

Initial literature review themes were “member-checked” with the Michigan and Atlanta cohorts during the summer of 2020 to see if they resonated. Members of these cohorts were invited to share examples with us about how they experience certain themes in their own organizations.



## Youth Development Programs

### Typical Goals...

- Social-emotional skill development
- Identity development, agency, and commitment to community
- Academic growth and success
- Prevention of risky behaviors
- Civic engagement

### Typical Approaches...

- Social-emotional skill building
- Relationship-building
- Youth-centered
- Strengths-based
- Experiential learning

Youth development is a broad field employing a wide range of approaches to achieve youth outcomes. Many now use the term Positive Youth Development to demonstrate a focus moving away from young people being seen as “at risk” or problems to be solved to being seen as assets to their communities (Lerner & Lerner, 2011). Yet, there has been critique that positive youth development has not focused enough on structural barriers youth face such as poverty and racism. Social Justice Youth Development posits that young people are not only assets but agentic human beings capable of creating positive change in their communities and centers building critical consciousness (Ginwright & Cammarota, 2002; Ginwright & James, 2002).

Typical goals of youth development programming include:

- Developing young people’s social-emotional skills (SES).
  - Social-emotional skills include competencies and mindsets beyond academic knowledge, such as confidence, responsibility, growth mindset, leadership, or self-awareness. There are a number of frameworks programs may use to inform their approach to social-emotional skills. Some of the most commonly used include:
    - Self-awareness, self-management, social awareness, relationship skills, responsible decision-making (CASEL)
    - Emotion management, empathy, teamwork, responsibility, initiative, and problem solving (Weikart Center for Youth Program Quality)
- Academic growth and career readiness.
- Prevention of risk behaviors, like drug use, teen pregnancy, crime, or other negative behaviors.
- Building youth motivation. Self-determination theory posits that motivation is driven by

- feeling competent, autonomous, and connected to others. (Ryan & Deci, 2000)
- Building critical consciousness (Ginwright & Cammarota, 2002; Ginwright & James, 2002).
- Preparing young people to make positive contributions to society.
  - The 5 Cs Model focuses on young people building competence, confidence, connection, character, and caring/compassion as strategies to prepare youth to contribute to their communities (Lerner & Lerner, 2011).
  - Civic engagement (Syvertsen et. al., 2011)

Typical approaches used by youth development programs to achieve these goals include:

- Asset-based, or strengths-based approach, including family engagement
  - holistic view that includes approaches designed to achieve social, emotional, cognitive, physical, and civic outcomes (Ready by 21)
- Safe environment, supportive environment, interaction, engagement, youth-centered policies and practices, high expectations for youth and staff, access (Weikart Center for Youth Program Quality)
- Social-emotional skill-building focus
- Relationship-building focus
  - Developmental Relationships Framework: Building on previous developmental assets work (Benson et al., 2004) Search Institute created the *Developmental Relationships Framework* which identifies five key elements that propel young people's resilience and positive development: express care; challenge growth; provide support; share power; and expand possibilities. They have found when young people from diverse backgrounds experience these qualities in their relationships they are more likely to be motivated and engaged in school, and to experience other positive outcomes. Developmental relationships help young people, "discover who they are, cultivate abilities to shape their own lives, and learn how to contribute to the world around them" (Roehlkepartain et al., 2017).
- Clover model: Assertiveness, Belonging, Active Engagement, and Reflection (Noam & Triggs)
- Experiential learning (which sometimes overlaps with nature-based education)
- Youth-centered - creating an environment that's safe, supportive, interactive, engaging, and accessible, where young people experience a sense of belonging.

Sources:

Benson, P. L., Mannes, M., Pittman, K., & Ferber, T. (2004). Youth development, developmental assets, and public policy. *Handbook of adolescent psychology*, 2, 781-814.

CASEL. *SEL Impact*. <https://casel.org/impact/>

David P. Weikart Center for Youth Program Quality. *Youth Program Quality Assessment*® and *School-Age Program Quality Assessment*. <http://www.cypq.org/assessment>

Forum for Youth Investment. *Ready by 21: Our Key Ideas*. <https://forumfyi.org/work/ready-by-21/>

Ginwright, S., & Cammarota, J. (2002). New terrain in youth development: The promise of a social justice approach. *Social Justice*, 29(4 (90)), 82-95.

Ginwright, S. & James, T. (2002). From assets to agents of change: social justice, organizing, and youth development. *New Directions for Youth Development*, 96, 2746

Lerner, R. M., & Lerner, J. V. (2011). The positive development of youth report of the findings from the first seven years of the 4-H study of positive youth development.

Noam, G.G. & Triggs, B. *The Clover Model: A Developmental Process Theory of Social-Emotional Development*. Pear Institute. <https://www.thepearinstitute.org/clover-model-overview>

Roehlkepartain, E. C., Pekel, K., Syvertsen, A. K., Sethi, J., Sullivan, T. K., & Scales, P. C. (2017). [Relationships First: Creating Connections that Help Young People Thrive](#). Minneapolis, MN: Search Institute

Ryan, R.M. and Deci, E.L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist*, 55(1), p.68.

Syvertsen, A. K., et. al (2011) Thirty-year trends in US adolescents' civic engagement: A story of changing participation and educational differences. *Journal of Research on Adolescence*, 21(3), 586-594.



## Nature-based Programs

### Typical Goals...

- Physical and mental health and well-being
- Cognitive improvement
- Environmental ethos and conservation mindset
- Green career paths

### Typical Approaches...

- Conservation work or environmental education
- Farming and gardening (urban and rural)
- Green space and nature immersion, interaction, contact, or exposure
- Outdoor adventure education or camp
- Nature-based academic instruction

Like youth development, nature-based programming is also an expansive field that includes many different approaches and outcomes.

Typical goals of nature-based programming include:

- Physical health and fitness, mental health and well-being.
  - Contact with nature (including urban green space, not just remote nature settings and exposure, not just interaction) can positively affect humans' mental and physical health (Kondo et al., 2018; Frumkin et al., 2017; Twohig-Bennett & Jones, 2018; Kuo et al., 2019).
  - Positive physical health outcomes from green space exposure have been shown to be stronger among people in marginalized communities or with lower socioeconomic status (Twohig-Bennett & Jones, 2018).
- Cognitive outcomes
  - Improved concentration, focus on tasks, attention, and memory (Norwood et al., 2019; Kuo et al., 2019)
- Environmental stewardship
  - Feeling more connected to nature and pro-environmental and environmental justice behaviors (Bowers, 2002; Kuo et al., 2019)
- Encouraging young people to pursue green/environmental career paths

Nature-based programming has also been shown to achieve youth development outcomes, including academic and social-emotional skill development (Kuo et al., 2019).

Typical approaches used by nature-based programs to achieve their goals include:

- Conservation education and/or environmental justice education and activism
- Community service (Deane & Harre, 2013)
- Farming and gardening, in both urban and rural settings.
- Green space exposure, nature contact, or immersion. These approaches involve being surrounded by or exposed to natural or green space without intentional interaction with the natural environment. This can be as simple as being able to see foliage outside of a classroom window or having plant life outside of the school or home (Kuo et al., 2019).
- Active nature interaction, in which participants intentionally engage with the natural environment.
- Outdoor adventure education and wilderness programming or camp
- Nature-based instruction in academic settings. (Kuo et al., 2019)

Sources:

Bowers, C. A. (2002). Toward an eco-justice pedagogy. *Environmental Education Research*, 8(1), 21-34.

Deane, K. L., & Harré, N. (2014). The youth adventure programming model. *Journal of Research on Adolescence*, 24(2), 293-308.

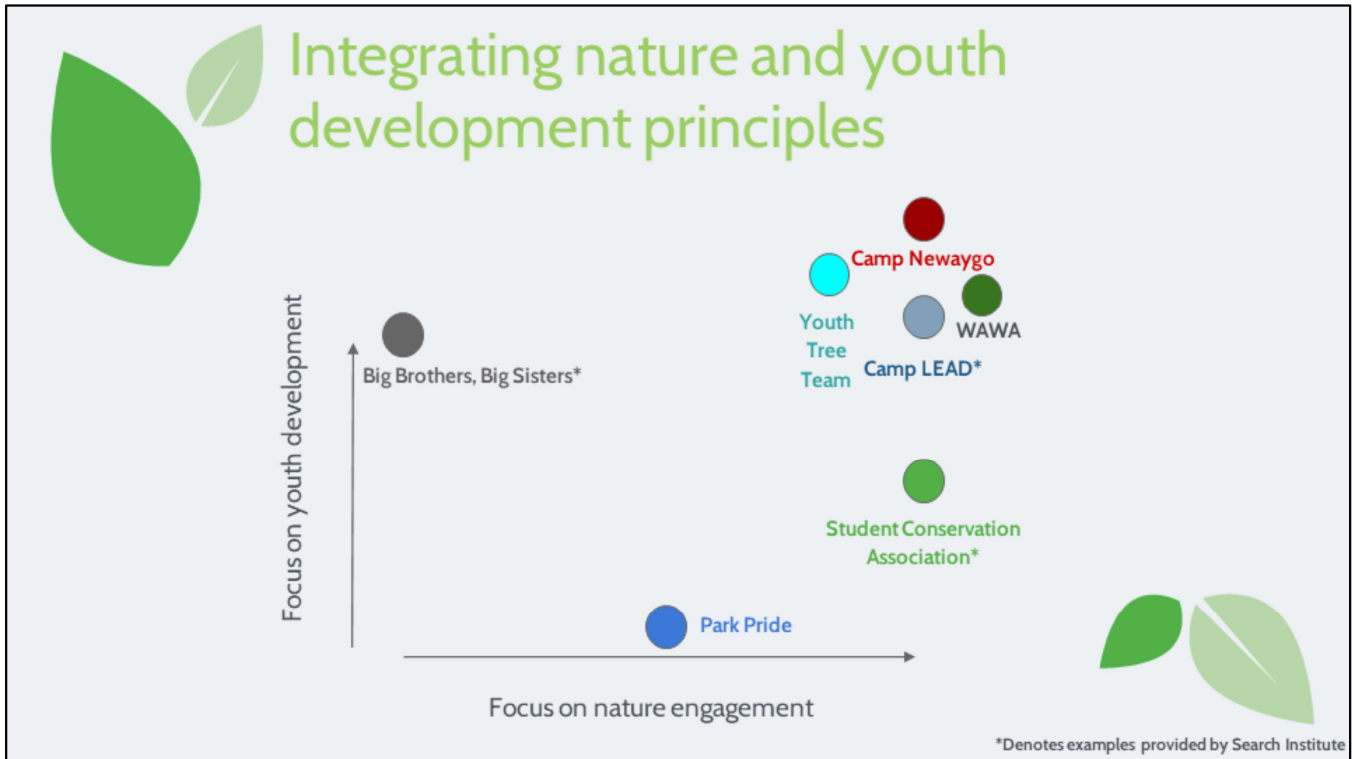
Frumkin, H., Bratman, G.N., Breslow, S.J., Cockran, B., Kahn, P.H., Lawler, J.J., Levin, P.S., Tandon, P.S., Varanasi, U., Wolf, K.L., Wood, S.A., (2017). Nature contact and human health: A research agenda. *Environmental Health Perspectives*.

Kondo, M.C., Fluehr, J.M., McKeon, T., Branas, C.C., (2018). Urban green space and its impact on human health. *International Journal of Environmental Research and Public Health*, 15(3).

Kuo, M., Barnes, M., & Jordan, C. (2019). Do experiences with nature promote learning? Converging evidence of a cause-and-effect relationship. *Frontiers in psychology*, 10, 305.

Norwood, M.F., Lakhani, A., Fullagar, S., Maujean, A., Downes, M., Byrne, J., Stewart, A., Barber, B., Kendall, E., (2019). A narrative and systematic review of the behavioural, cognitive and emotional effects of passive nature exposure on young people: Evidence for prescribing change. *Landscape and Urban Planning*, 189, 71-79.

Twohig-Bennett, C., Jones, A., (2018). The health benefits of the great outdoors: A systematic review and meta-analysis of greenspace exposure and healthy outcomes. *Environmental Research*, 166, 628-637.



This visual depicts how different programs might land on different “intersections” of youth development and nature depending on their focus. There is no “right” or “wrong” place to be, yet programs can use this simple graph to think about where their program focus is and how they may want to enhance what they do by bringing in more intentional nature or youth development opportunities and practices.

This visual can be used to think about an organization overall or programs within the organization

\*To give some examples of where current programs might fit, Search Institute added them to the chart based on our research and/or work with these organizations. Organizations without an asterisk are Nature Leaders Cohort member organizations, whose members placed their own organizations on the chart.

### Camp LEAD\*

Camp LEAD blends a positive youth development-based curriculum with youth rafting trips. Through developmental relationships and intentional reflection, staff support campers in finding “comfort beyond their comfort zone” as they experience new people, a new setting, and physical and mental challenges on their trips. Outcomes experienced by campers include increased agency, identity development, and connection with and commitment to others.

### Student Conservation Association\*

SCA aims to develop young people into conservation leaders and environmental stewards. Youth engage in conservation projects as part of a team while also learning about environmental and conservation focused career opportunities. While their programming originally focused on nature and environmental approaches and outcomes, they broadened their scope to focus on youth development approaches and outcomes and found that youth participants experienced a wide range of social-emotional, identity-based, and relational outcomes in addition to conservation outcomes.

**Big Brothers, Big Sisters\***

Big Brothers, Big Sisters is a youth development-focused mentoring program. While individual mentoring pairs may engage in nature-based experiences, nature experiences are not intentionally included in their program model or seen as integral to youth experience in the program.

**Youth Tree Team**

The Youth Tree Team (YTT) is a summer employment opportunity that gives high school students exposure to forestry, landscape design, horticulture, and arboriculture. Included in the program are leadership and team-building activities, job skills training, personal financial literacy workshops, and networking opportunities with green collar professionals. The Youth Tree Team offers the opportunity for youth to be part of growing Atlanta's urban canopy.

What's  
happening at  
the intersection  
of Youth  
Development  
& Nature that  
works?



When elements from nature-based programming and youth development programming are integrated thoughtfully, impactful experiences happen for participants.



Through a focused literature review, Search Institute researchers identified program experiences connected with positive youth development outcomes. In this graphic we highlight four elements that are impactful to youth development and nature-based outcomes and explore each in more depth on the following slides.

- **Integrating unique opportunities provided by nature:** When thoughtfully integrated, nature provides a unique setting for growth.
- **Consistent time for individual and group reflection:** Nature is a venue for experiential learning and key to that experience is built in time for guided self or group reflection.
- **Providing space that affirms young people's identities, perspectives, and leadership.** Programs that are culturally responsive spaces invite youth to lead and grow. Youth have voice and choice within programs and their thoughts, identities, experiences, and perspectives are respected, celebrated, and taken seriously by adults and peers.
- **Inclusively and intentionally building relationships:** Positive relationships between youth and adults and among peers support growth and learning.

# Integrating unique opportunities provided by nature



## Integrating unique opportunities provided by nature


When youth development and nature are thoughtfully integrated, nature is not the “backdrop” to youth development activities, but integral to the experiences and growth of young people.

Nature provides opportunities not often found in other settings. In the literature, these opportunities have been described as the “affordances” of nature (Gibson, 1979). Certain affordances are accessible only in natural settings, ranging from physical materials people can manipulate (e.g., sticks and rocks) to opportunities for personal growth through risk and physical or mental challenge (e.g., a challenging hike). Some have noted these affordances can be “...social, emotional, and cognitive” (Sharma-Brymer et al., 2018, p. 107). For example, in addition to natural material, an individual’s knowledge about the natural setting or their perception of the environment may also be considered affordances.

### Sources:

Gibson, J. (1979). *The ecological approach to visual perception*. Hillsdale: Lawrence Erlbaum Associates.

Sharma-Brymer, V., Brymer, E., Gray, T., & Davids, K. (2018). Affordances guiding Forest School practice: the application of the ecological dynamics approach. *Journal of outdoor and environmental education*, 21(1), 103-115.



## Being in nature provides a shift in setting and perspective

- Change from “typical” physical and social environment
- Different engagement with technology or social media
- May feel more calm or quiet than usual settings


For most, being in nature is a change from their usual environment - both in terms of the physical space a person occupies and in terms of their perspective. They may notice things they may not typically perceive in their regular lives (Deane & Harre, 2013). When young people are in natural settings, they may take on different social roles than in their usual settings. They may be away from school, work, home, or stressors. The “uniqueness and novelty that wilderness settings provide...allow for separation from the day-to-day built environment” (Holland et al., 2018, p. 213).

Some may think of nature as a place to “escape” or “unplug” from technology and while some nature-based programs do include little to no access to technology (either by intentionally unplugging or because of a remote location without cellular service), technology can also be used as a medium for nature engagement. For example, young people may use their phones to document an experience in nature - although they are using the same technology they may use at home or in school, they are using it in a different way in the natural setting. Youth can and do experience nature in many settings from remote locations to local parks in urban areas.

Spending time in nature has been shown to reduce stress and improve attention in addition to providing enjoyment for people. Research has shown that many (but not all) young people experience a sense of safety and calmness in natural environments (Kuo et al., 2019). However, nature is also not necessarily free of stressors - people may experience unique stressors in a natural environment they may not experience in their usual setting, particularly if they have not spent much time in nature before.

Sources:

- Asah, S. T., Bengston, D. N., Westphal, L. M., & Gowan, C. H. (2018). Mechanisms of children's exposure to nature: Predicting adulthood environmental citizenship and commitment to nature-based activities. *Environment and Behavior, 50*(7), 807-836.
- Cagle, N. L. (2018). Changes in experiences with nature through the lives of environmentally committed university faculty. *Environmental Education Research, 24*(6), 889-898.
- Deane, K. L., & Harré, N. (2014). The youth adventure programming model. *Journal of Research on Adolescence, 24*(2), 293-308.
- Holland, W. H., Powell, R. B., Thomsen, J. M., & Monz, C. A. (2018). A systematic review of the psychological, social, and educational outcomes associated with participation in wildland recreational activities. *Journal of Outdoor Recreation, Education, and Leadership, 10*(3).
- Kuo, M., Barnes, M., & Jordan, C. (2019). Do experiences with nature promote learning? Converging evidence of a cause-and-effect relationship. *Frontiers in psychology, 10*, 305.
- Mygind, L., Kjeldsted, E., Hartmeyer, R., Mygind, E., Bølling, M., & Bentsen, P. (2019). Mental, physical and social health benefits of immersive nature-experience for children and adolescents: a systematic review and quality assessment of the evidence. *Health & Place, 58*, 102136.
- Richmond, D., Sibthorp, J., Gookin, J., Annarella, S., & Ferri, S. (2018). Complementing classroom learning through outdoor adventure education: Out-of-school-time experiences that make a difference. *Journal of Adventure Education and Outdoor Learning, 18*(1), 36-52.
- Williams, C. C., & Chawla, L. (2016). Environmental identity formation in nonformal environmental education programs. *Environmental Education Research, 22*(7), 978-1001.



## Being in nature provides opportunities for challenge and risk-taking

- New challenges
- Taking risks
- Getting out of “comfort zone”

Nature isn't just a different environment; it provides unique developmental opportunities for risk-taking and challenge that young people may not be able to experience in other settings. Nature settings provide “challenging yet attainable activities” - youth can take risks and experience accomplishment and success especially when challenges are appropriately scaffolded (Deane & Harre, 2013).

In a national study of exemplary peer programs (Sullivan et al., 2017) researchers studied a program that used challenging outdoor physical obstacles to grow relationships and teamwork. Their motto - “challenge by choice” - made young people feel more comfortable when trying new obstacles. Leaders and peers alike were expected to try and “live up to their potential,” while knowing they could take a step back and assess their comfort level when needed.

In another study of a youth leadership wilderness camp (Sethi et al., 2018) many participants were physically out of their comfort zones learning to whitewater raft. Some were nervous about falling out of the raft at the beginning of the week. Yet, by the end, some participants said they “hoped to fall out” on a “big hit” because they felt confident they could navigate safely back to the raft. They saw themselves and others grow in many ways through this challenging experience. As one camper noted, “rafting, for me, was a big thing, because it built teamwork and leadership on our teams.”

As one leader noted at the camp, “We’re allowing these kids to be confident in who they are and they are more confident to take risks that they otherwise might not have taken. And we’re not creating daredevils, that’s not my point, but we’re allowing people—helping people to challenge themselves, both in the camp setting and later on outside of the camp setting.”

Sources:

Delia, J., & Krasny, M. E. (2018). Cultivating positive youth development, critical consciousness, and authentic care in urban environmental education. *Frontiers in psychology, 8*, 2340.

Gibson, J. (1979). *The ecological approach to visual perception*. Hillsdale: Lawrence Erlbaum Associates.

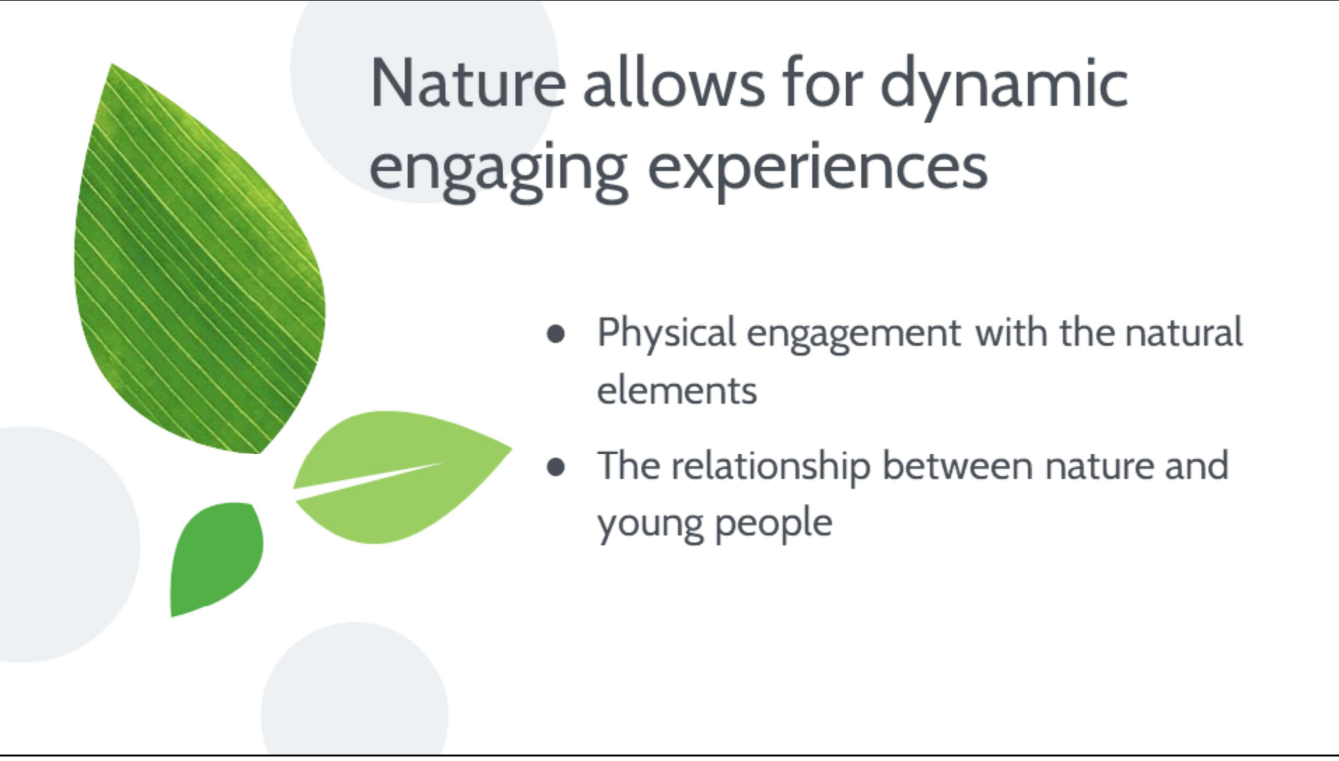
Hatala, A. R., Njeze, C., Morton, D., Pearl, T., & Bird-Naytowhow, K. (2020). Land and nature as sources of health and resilience among Indigenous youth in an urban Canadian context: a photovoice exploration. *BMC Public Health, 20*, 1-14.

Kuo, M., Barnes, M., & Jordan, C. (2019). Do experiences with nature promote learning? Converging evidence of a cause-and-effect relationship. *Frontiers in psychology, 10*, 305.

Sethi, J., Sullivan, T. K., & Allen, L. (2018). *Unpacking the Magic*. Minneapolis, MN: Search Institute.

Sharma-Brymer, V., Brymer, E., Gray, T., & Davids, K. (2018). Affordances guiding Forest School practice: the application of the ecological dynamics approach. *Journal of outdoor and environmental education, 21*(1), 103-115.

Sullivan, T., Sethi, J., & Roehlkepartain, E.C., (2017). *The Power of Peer Relationships: A Study of Peer Programs in the United States*. Minneapolis, MN: Search Institute.



## Nature allows for dynamic engaging experiences

- Physical engagement with the natural elements
- The relationship between nature and young people

There are different views in the literature on the relationship between humans and nature. One traditional approach or theory centers the humans, ascribing agency to youth and assuming the environment and materials they engage with are passive.

Another theory assumes that nature has agency as well - this lens emphasizes that humans, other animals, materials, and spaces exist together in the world. When young people and natural elements are both viewed as active participants, nature can be viewed as an extension of the young person rather than something the young person manipulates (Harwood & Collier, 2017). When nature and youth are understood as intertwined and overlapping, young people can empathize with plants, animals, and other natural features, reducing the divide between nature and human culture (Argent, 2017).

Some authors talk about nature as providing “loose parts” or items that humans can interact with, such as sticks, rocks, or leaves. Nature also provides greater forces, like scenery humans can view and weather that humans experience (Rooney, 2018).

Yet another theory about the relationship between youth and nature not only recognizes the interplay between humans and their environment, but also the “external social, economic, political, and geographical contexts” (Sharma-Brymer et al., 2014, p. 105) within which the interactions take place.

These theories raise the importance of understanding the lived experience a young person brings to a natural setting and the ways in which it informs their interactions with nature.

Sources:

Argent, A., Vintimilla, C.D., Lee, C., Wapenaar, K., (2017). A dialogue about place and living pedagogies: Trees, ferns, blood, children, educators, and wood cutters. *Journal of Childhoods and Pedagogies*, 1(2), 1-20.

Harwood, D., Collier, D.R., (2017). The matter of the stick: Storying/(re)storying children's literacies in the forest. *Journal of Early Childhood Literacy*, 17(3), 336-352.

Rooney, T., (2018). Weather worlding: Learning with the elements in early childhood. *Environmental Education Research*, 24(1), 1-12.


Sharma-Brymer, V., Brymer, E., Gray, T., & Davids, K. (2018). Affordances guiding Forest School practice: the application of the ecological dynamics approach. *Journal of outdoor and environmental education*, 21(1), 103-115.

# Consistent time for reflection



## **Providing consistent time for individual and group reflection**

Youth have new experiences and opportunities to engage in intentional individual and group reflection. This experiential and nature-based approach to pedagogy is effective within and beyond natural settings.



## Youth have new experiences and engage in intentional reflection

- Experiential learning
- Reflection deepens learning and growth

“We open their eyes to the things that pop up every day.”

*-Conservation Program Leader*

Experiential learning is an underlying feature in many youth development nature-based programs. Participants undertake a task and experience mastery, receive feedback through reflection (from themselves, peers, facilitators, and the physical environment), and then make meaning from the experience. It is through this meaning-making that a participant learns and grows through the experience. This process also helps participants connect their experiences in nature to situations outside of nature where their learnings may also be relevant (Deane & Harre., 2013).

Often, these experiences are new for young people and may involve experiencing the challenges uniquely afforded by the natural setting. Time spent intentionally processing experiences through individual or group reflection can deepen learning and growth (Sethi et al., 2018).

A nature-based teaching style tends to be hands-on, youth-centered, activity-based and discussion-based and the effectiveness of this style is not limited to natural settings - the approach has outperformed traditional approaches even when it happens indoors (Kuo et al., 2019).

Examples in programming could include:

- Practicing group outdoor survival tasks paired with individual and group reflection evaluating how the tasks went, a discussion of the challenges and successes, and making plans for improvement on the next try.

- Food justice training followed by a critical discussion in which participants reflect on their roles in dismantling food inequities.

In a study of a national conservation program leaders shared that they intentionally looked for opportunities to share new ideas and build new skills as their teams worked and lived together, recognizing teachable moments. “We open their eyes to the things that pop up every day” (Sullivan et al., 2018).

One Nature Leaders Cohort program encourages youth participants to use photography as storytelling to share a personal narrative. Then, they share their documentation with the group.

#### Sources:

Deane, K. L., & Harré, N. (2014). The youth adventure programming model. *Journal of Research on Adolescence*, 24(2), 293-308.

Delia, J., & Krasny, M. E. (2018). Cultivating positive youth development, critical consciousness, and authentic care in urban environmental education. *Frontiers in psychology*, 8, 2340.

Holland, W. H., Powell, R. B., Thomsen, J. M., & Monz, C. A. (2018). A systematic review of the psychological, social, and educational outcomes associated with participation in wildland recreational activities. *Journal of Outdoor Recreation, Education, and Leadership*, 10(3).

Kuo, M., Barnes, M., & Jordan, C. (2019). Do experiences with nature promote learning? Converging evidence of a cause-and-effect relationship. *Frontiers in psychology*, 10, 305.

Margalit, D., & Ben-Ari, A. (2014, April). The effect of wilderness therapy on adolescents' cognitive autonomy and self-efficacy: Results of a non-randomized trial. In *Child & Youth Care Forum* (Vol. 43, No. 2, pp. 181-194). Springer US.

Richmond, D., Sibthorp, J., Gookin, J., Annarella, S., & Ferri, S. (2018). Complementing classroom learning through outdoor adventure education: Out-of-school-time experiences that make a difference. *Journal of Adventure Education and Outdoor Learning*, 18(1), 36-52.

Sethi, J., Sullivan, T. K., & Allen, L. (2018). *Unpacking the Magic*. Minneapolis, MN: Search Institute.

Sullivan, T., Sethi, J., Van Boekel, M., Gebru, E., & Allen, L., Chamberlain, R. (2018). *Bright Spots: An Exemplar Study of SCA Crew Leaders*. Minneapolis, MN: Search Institute.



## Youth identities, perspectives and leadership are affirmed

### **Providing space that affirms young people's identities, perspectives, and leadership**

Responsive programs provide space that affirms young people's identities, perspectives, and leadership. Effective programs invite youth to lead and grow. Youth have voice and choice within programs and their thoughts, identities, experiences, and perspectives are respected, celebrated, and taken seriously by adults and peers.



## Affirming Youth Identities

- Programs recognize and celebrate the identities and lived experiences of youth

“It’s about youth voice, gender, identity, race, culture, lifestyle. You have to set a context of respect and that all points of view are valued and appreciated where they will not be judged.”

-Nature Leaders Cohort member



Inviting youth to participate as their whole selves and share their identities is important for positive growth. Derr (2017) found that youth who participated in nature- and art-based civic engagement projects intentionally designed to be culturally-relevant showed an increased sense of contribution to their community, feeling heard, and that their input was important.

However, the literature also shows that often, programs use a Eurocentric and individualistic approach that does not necessarily affirm the identities of youth participants of different backgrounds. The authors of a study (Gartner-Manzon & Giles, 2018) about a recreation and arts program for Aboriginal youth found that programs could be made more culturally relevant particularly for Indigenous youth if they increased focus on honoring a sense of place and spirituality. Their research found that Aboriginal youth who entered a leadership program with more Eurocentric views of leadership (i.e., individualistic leadership, with designated leaders and followers) fared better in the program because it was not set up with their community’s values. They suggest that the program could be more culturally relevant for Indigenous youth had the approach to leadership been more relational. Other literature (Deane & Harre, 2014) suggests that there can be a “conquering nature” mentality in some outdoor adventure-based programs that runs counter to Indigenous cultures.

In exploring the affirmation of youth identities, the concepts of cultural responsiveness, competence, and relevance were less prevalent in the current academic literature around nature-based youth development programming than other program elements. However, in our

monthly calls, the Nature Leaders Cohort members noted these concepts as highly important aspects of programming. Some of their suggestions about how to affirm young people's identities and culture included:


- Hiring staff who reflect the youths' identities, particularly racial identities: "We ensure that we have representation from the community in front of our students...those that are in front of our students are those people that look like them and are delivering content that aligns with our values, and their values too." -Nature Leaders Cohort Member
- Discussing the history of place and different individuals' relationships to place, including Indigenous groups who inhabited (and continue to inhabit) an area. Programs may use storytelling as a method for understanding stories about the past and present of a place.
- Recognizing and celebrating program participants' cultures. For example, drawing on cultural practices that help Black youth connect with African heritage, even if they cannot trace their ancestry to specific countries or regions due to enslavement
- Making sure materials are available in different languages
- Examining potential barriers to participation and equipping staff to break down those barriers
- Avoiding an assimilation-based approach to nature engagement that acknowledges that nature-based experiences include a wide range of activities and can exist in urban environments, not just remote settings. (In addition, engaging young people in experiences that do take place in remote environments with facilitators who reflect their identities can also be a successful way to expand young people's horizons in a non-assimilative way.)
- Inviting young people to share information about their identities and cultures.

#### Sources:

Deane, K. L., & Harré, N. (2014). The youth adventure programming model. *Journal of Research on Adolescence*, 24(2), 293-308.

Derr, V., (2017). Participation as a supportive framework for cultural inclusion and environmental justice. *Revista Internacional de Educación para la Justicia Social*, 6(1), 77-89.

Gartner-Manzon, S., & Giles, A. R. (2018). Lasting impacts of an Aboriginal youth leadership retreat: a case study of Alberta's Future Leaders Program. *Journal of Adventure Education and Outdoor Learning*, 18(4), 338-352.



## Youth are Invited to Share their Perspectives

- Programs make youth feel heard
- Youth express themselves and their ideas

Young people who participated in nature-based civic engagement programs emphasized how important it was for their programs to provide “opportunities to share ideas, to express themselves, and to make their city a better place for people, and for nature” (Derr, 2017, p. 83). After participation, youth reported feeling more heard, believing that their input was important, and that they had made a contribution to their community.

### Sources:

Delia, J., & Krasny, M. E. (2018). Cultivating positive youth development, critical consciousness, and authentic care in urban environmental education. *Frontiers in psychology, 8*, 2340.

Derr, V. (2017). Participation as a supportive framework for cultural inclusion and environmental justice. *Revista Internacional de Educación para la Justicia Social (RIEJS)*.

Gartner-Manzon, S., & Giles, A. R. (2018). Lasting impacts of an Aboriginal youth leadership retreat: a case study of Alberta’s Future Leaders Program. *Journal of Adventure Education and Outdoor Learning, 18*(4), 338-352.

Riemer, M., Voorhees, C., Dittmer, L., Alisat, S., Alam, N., Sayal, R., & Mugagga, F. (2016). The Youth Leading Environmental Change project: A mixed-method longitudinal study across six countries. *Ecopsychology, 8*(3), 174-187.

Sethi, J., Sullivan, T. K., & Allen, L. (2018). *Unpacking the Magic*. Minneapolis, MN: Search Institute.

Sharma-Brymer, V., Brymer, E., Gray, T., & Davids, K. (2018). Affordances guiding Forest School practice: the application of the ecological dynamics approach. *Journal of outdoor and environmental education*, 21(1), 103-115.

Sonti, N. F., Campbell, L. K., Johnson, M. L., & Daftary-Steel, S. (2016). Long-term outcomes of an urban farming internship program. *Journal of Experiential Education*, 39(3), 269-287.

Sullivan, T., Sethi, J., Van Boekel, M., Gebru, E., & Allen, L., Chamberlain, R. (2018). *Bright Spots: An Exemplar Study of SCA Crew Leaders*. Minneapolis, MN: Search Institute.

Sullivan, T. K., & Syvertsen, A. K. (2019). Conservation leadership: A developmental model. *Journal of Adolescent Research*, 34(2), 140-166.



## Supportive Space for Youth to Practice Leadership

“I just get out of their way. . . . Because they interpret it perfectly, almost always, as, ‘Okay, here’s our chance. Let’s step up and lead and develop and not fail miserably.’”

-Wilderness Conservation Program Leader

- Leadership roles
- Youth serve as experts
- Civic engagement



Nature-based and youth development programs offer opportunities for young people to take on leadership roles and for their voices to be heard. Leadership roles can include being responsible and accountable for tasks and having roles that situate them as “experts” within the group. Some leadership roles also engage youth in teaching their peers. Nature also provides a setting and context for youth participation in civic initiatives, particularly relating to environmental justice.

In a study of conservation leaders, one crew leader noted, “I just get out of their way. That’s a huge part of what I do that I think is effective. Because they interpret it perfectly, almost always, as, ‘Okay, here’s our chance. Let’s step up and lead and develop and not fail miserably’” (Sullivan et al., 2018).

### Sources:

Delia, J., & Krasny, M. E. (2018). Cultivating positive youth development, critical consciousness, and authentic care in urban environmental education. *Frontiers in psychology*, 8, 2340.

Derr, V. (2017). Participation as a supportive framework for cultural inclusion and environmental justice. *Revista Internacional de Educación para la Justicia Social (RIEJS)*.

Gartner-Manzon, S., & Giles, A. R. (2018). Lasting impacts of an Aboriginal youth leadership retreat: a case study of Alberta’s Future Leaders Program. *Journal of Adventure Education and Outdoor Learning*, 18(4), 338-352.

Riemer, M., Voorhees, C., Dittmer, L., Alisat, S., Alam, N., Sayal, R., ... & Mugagga, F. (2016). The Youth Leading Environmental Change project: A mixed-method longitudinal study across six countries. *Ecopsychology, 8*(3), 174-187.

Sethi, J., Sullivan, T. K., & Allen, L. (2018). *Unpacking the Magic*. Minneapolis, MN: Search Institute.

Sharma-Brymer, V., Brymer, E., Gray, T., & Davids, K. (2018). Affordances guiding Forest School practice: the application of the ecological dynamics approach. *Journal of outdoor and environmental education, 21*(1), 103-115.

Sonti, N. F., Campbell, L. K., Johnson, M. L., & Daftary-Steel, S. (2016). Long-term outcomes of an urban farming internship program. *Journal of Experiential Education, 39*(3), 269-287.

Sullivan, T., Sethi, J., Van Boekel, M., Gebru, E., & Allen, L., Chamberlain, R. (2018). *Bright Spots: An Exemplar Study of SCA Crew Leaders*. Minneapolis, MN: Search Institute.

Sullivan, T. K., & Syvertsen, A. K. (2019). Conservation leadership: A developmental model. *Journal of Adolescent Research, 34*(2), 140-166.



### **Inclusively and intentionally building relationships**

Intentional and inclusive relationship building between adults and youth and between young people and their peers is foundational for positive youth development outcomes.

As Bowers (2015) has argued, the most important resources across different programs and contexts are the relationships that young people have with committed, caring adults.

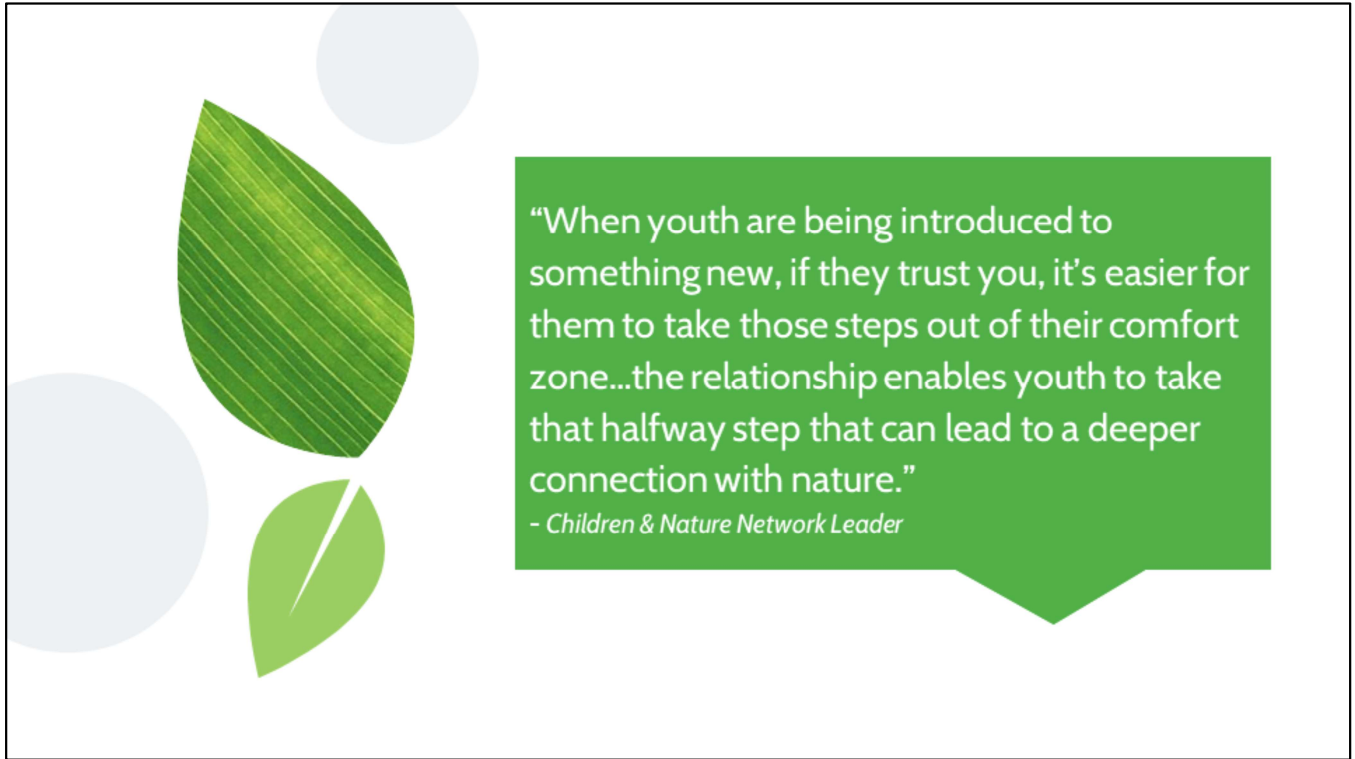
#### **Intentional Authentic Care:**

When youth experience intentional and authentic care, it honors their “experiences of class, race, and culture” (Valenzuela, 1999 in Delia & Krasny, 2018). It is rooted in reciprocal trusting connections. Authentic care for youth by adult leaders can be considered “a social affordance” provided through environmental education programs (Delia & Krasny, 2018; Bartolome, 2008; Valenzuela, 1999).

#### **Sources:**

Bartolomé, L. I. (2008). Authentic cariño and respect in minority education: The political and ideological dimensions of love. *The International Journal of Critical Pedagogy*, 1(1).

- Bowers, E. P., Johnson, S. K., Warren, D. J., Tirrell, J. M., & Lerner, J. V. (2015). Youth–adult relationships and positive youth development. In *Promoting positive youth development* (pp. 97-120). Springer, Cham.
- Deane, K. L., & Harré, N. (2014). The youth adventure programming model. *Journal of Research on Adolescence*, 24(2), 293-308.
- Delia, J., & Krasny, M. E. (2018). Cultivating positive youth development, critical consciousness, and authentic care in urban environmental education. *Frontiers in psychology*, 8, 2340.
- Derr, V. (2017). Participation as a supportive framework for cultural inclusion and environmental justice. *Revista Internacional de Educación para la Justicia Social (RIEJS)*.
- Holland, W. H., Powell, R. B., Thomsen, J. M., & Monz, C. A. (2018). A systematic review of the psychological, social, and educational outcomes associated with participation in wildland recreational activities. *Journal of Outdoor Recreation, Education, and Leadership*, 10(3).
- Norton and Watt, 2014
- Sullivan, T., Sethi, J., Van Boekel, M., Gebru, E., & Allen, L., Chamberlain, R. (2018). Bright Spots: An Exemplar Study of SCA Crew Leaders. Minneapolis, MN: Search Institute.
- Sullivan, T. K., & Syvertsen, A. K. (2019). Conservation leadership: A developmental model. *Journal of Adolescent Research*, 34(2), 140-166.
- Valenzuela, A. (1999). *Subtractive Schooling: US-Mexican Youth and the Politics of Caring*. Albany, NY: State University of New York Press.



Trust is an important element of the relationships among participants and between participants and program leaders. An important aspect of trust raised by Nature Leaders Cohort members was having staff or facilitators who are reflective of the youth population. As one cohort member shared, when engaging young people in potentially unfamiliar experiences, "representation and seeing people that look like you doing those things is so important."



## Inclusive Relationships

- Equitable opportunities to build relationships
- Group relationships

It is important that relationship-building is also *inclusive*, meaning that all participants in a program have equitable opportunities to build relationships (with both adults and peers) and that those relationships are inclusive of all aspects of their identities. Particularly in a long-term or overnight nature experience, it's important that these relationships are not only inclusive of all young people, but also allow for them to have space if and when they need it. One counselor in a wilderness explained, "It does require a balance of respect for their space and checking in with them, . . . being able to judge when you need to . . . say, 'Hey, how's it going?' and, if they're not too chatty, just let them be, if that's how they're comfortable" (Sethi et al., 2018).

Nature experiences often involve small groups that are isolated or separate from others. This allows for conflict-resolution, trying new social roles, and practicing communication. Positive relationships can be viewed as both an outcome of programming and an important ingredient in the experience (Deane & Harre, 2014). The dynamics of a group experiencing nature and learning together has been associated with positive outcomes; smaller groups may be most beneficial for achieving outcomes as they allow for close relationships to form (Holland et al., 2018).

A participant in a youth conservation program reflected, "These people are here with me doing this for different reasons, but we're still here for the same thing.' So I think that made it for me. The relationship part" (Sullivan & Syvertsen, 2019). Strong relationships with program leaders can also help young people who are new to nature feel more comfortable. When they can connect with and trust a leader who models confidence and comfort in a setting that may feel

foreign to the young person, the young person can more easily become confident in nature as well.

Sources:

Deane, K. L., & Harré, N. (2014). The youth adventure programming model. *Journal of Research on Adolescence*, 24(2), 293-308.

Delia, J., & Krasny, M. E. (2018). Cultivating positive youth development, critical consciousness, and authentic care in urban environmental education. *Frontiers in psychology*, 8, 2340.

Derr, V. (2017). Participation as a supportive framework for cultural inclusion and environmental justice. *Revista Internacional de Educación para la Justicia Social (RIEJS)*.

Holland, W. H., Powell, R. B., Thomsen, J. M., & Monz, C. A. (2018). A systematic review of the psychological, social, and educational outcomes associated with participation in wildland recreational activities. *Journal of Outdoor Recreation, Education, and Leadership*, 10(3).

Norton, C. L., & Watt, T. T. (2014). Exploring the impact of a wilderness-based positive youth development program for urban youth. *Journal of Experiential Education*, 37(4), 335-350.

Sethi, J., Sullivan, T. K., & Allen, L. (2018). *Unpacking the Magic*. Minneapolis, MN: Search Institute.

Sullivan, T., Sethi, J., Van Boekel, M., Gebru, E., & Allen, L., Chamberlain, R. (2018). *Bright Spots: An Exemplar Study of SCA Crew Leaders*. Minneapolis, MN: Search Institute.

Sullivan, T. K., & Syvertsen, A. K. (2019). Conservation leadership: A developmental model. *Journal of Adolescent Research*, 34(2), 140-166.



# Developmental Relationships

- Express Care
- Challenge Growth
- Provide Support
- Share Power
- Expand Possibilities

## Developmental Relationships:

In several studies of programs that focus on youth development in nature, findings demonstrated that youth experienced developmental relationships with adults and peers (Sethi et al., 2018; Sullivan et al., 2018; Sullivan & Syvertsen, 2019). Developmental relationships have five key elements that propel young people's resilience and positive development: express care, challenge growth, provide support, share power, and expand possibilities. When diverse young people experience developmental relationships with adults and peers, they report a wide range of outcomes, including social-emotional strengths (Syvertsen et al., 2015), resilience (Roehlkepartain et al., 2017), and academic motivation (Scales et al., 2020).

## Sources:

Roehlkepartain, E. C., Pekel, K., Syvertsen, A. K., Sethi, J., Sullivan, T. K., & Scales, P. C. (2017). [Relationships First: Creating Connections that Help Young People Thrive](#). Minneapolis, MN: Search Institute.

Scales, P. C., Pekel, K., Sethi, J., Chamberlain, R., & Van Boekel, M. (2020). Academic Year Changes in Student-Teacher Developmental Relationships and Their Linkage to Middle and High School Students' Motivation: A Mixed Methods Study. *The Journal of Early Adolescence*, 40(4), 499-536.

Sethi, J., Sullivan, T. K., & Allen, L. (2018). *Unpacking the Magic*. Minneapolis, MN: Search Institute.

Sullivan, T., Sethi, J., Van Boekel, M., Gebru, E., & Allen, L., Chamberlain, R. (2018). *Bright Spots: An Exemplar Study of SCA Crew Leaders*. Minneapolis, MN: Search Institute.

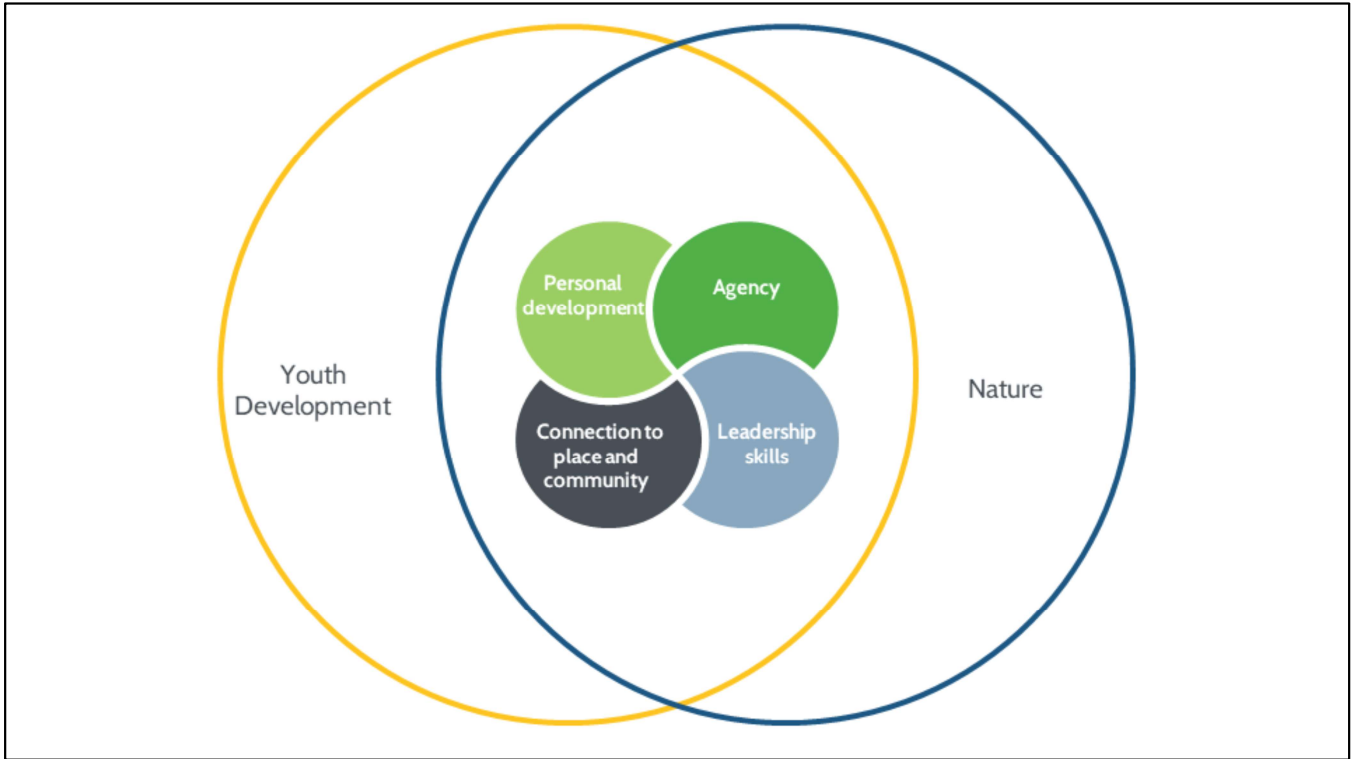
Sullivan, T. K., & Syvertsen, A. K. (2019). Conservation leadership: A developmental model. *Journal of Adolescent Research*, 34(2), 140-166.

Syvertsen, A.K., Sullivan, T.S., & Wu, C. (2015). *SCA Youth Program Outcome and Critical Program Factors: Summary of Findings*. Minneapolis, MN: Search Institute.



What outcomes do youth experience from participating in programs that focus intentionally on youth development *and* nature?

Literature on nature and youth development programming demonstrates numerous positive physical, emotional, cognitive, academic and psychological outcomes. For this review, we focus on specific outcomes evidenced within the literature about programs that are intentionally combining youth development and nature-based principles and were prioritized by the Nature Leaders cohort members.



Personal development, agency, connection to place and community, and leadership skills are four key outcomes that occur at the intersection of nature and youth development.



Within each of these four core outcomes, there are also sub-themes that emerged in the literature and through our conversations with the Nature Leaders cohorts.

# Personal Development



Personal Development includes youth having a deeper understanding of themselves, developing an environmental ethos and appreciation for nature, making career and education choices based on their experiences in nature or youth development programs, and having greater self-confidence and self-esteem.



## Deeper Understanding of Self

- Different perspectives
- Motivation
- Stronger self-concept
- Respect for themselves

“Not only do you get to know people, but you’re also finding yourself in a way.”

- Outdoor Leadership Camp Participant



Young people can engage in deeper self-reflection and gain a better understanding of themselves through nature-based youth development programming. Through these programs, they may develop new or different perspectives, motivation, stronger self-concept, and respect for themselves.

### Sources:


Deane, K. L., & Harré, N. (2014). The youth adventure programming model. *Journal of Research on Adolescence*, 24(2), 293-308.

Delia, J., & Krasny, M. E. (2018). Cultivating positive youth development, critical consciousness, and authentic care in urban environmental education. *Frontiers in psychology*, 8, 2340.

Gartner-Manzon, S., & Giles, A. R. (2018). Lasting impacts of an Aboriginal youth leadership retreat: a case study of Alberta’s Future Leaders Program. *Journal of Adventure Education and Outdoor Learning*, 18(4), 338-352.

Hatala, A. R., Morton, D., Njeze, C., Bird-Naytowhow, K., & Pearl, T. (2019). Re-imagining miyo-wicehtowin: Human-nature relations, land-making, and wellness among Indigenous youth in a Canadian urban context. *Social Science & Medicine*, 230, 122-130.

Holland, W. H., Powell, R. B., Thomsen, J. M., & Monz, C. A. (2018). A systematic review of the psychological, social, and educational outcomes associated with participation in wildland recreational activities. *Journal of Outdoor Recreation, Education, and Leadership*, 10(3).



## Environmental Ethos & Appreciation of Nature

- Care for the environment
- More likely to pursue more nature-based experiences
- Inclination toward nature- or environment-related education and career paths

*“I feel more connected to Earth, so I just feel that makes me feel a lot happier and a lot more calm. And that also makes me feel more passionate about the work that we’re doing individually and as a group.” -Participant in a youth conservation program (Sullivan et. al 2018)*

Experiencing nature programming can lead youth to develop a stronger appreciation for nature and an environmental ethos, or care for the environment. Youth who participate in nature-based programs may also be more likely to pursue more nature-based or outdoor experiences for themselves in the future (Holland et al., 2018). Feeling a sense of connectedness to nature has been found to be a strong predictor of pro-environmental attitudes and well-being (Capaldi et al., 2014).

Beyond appreciation for nature, young people may also be more inclined to pursue nature- or environment-related education or career paths. For example, one alumnus of an outdoor summer camp said, “[Going to Camp L.E.A.D.] also has affected my major. I’m doing business, but also with a side of recreational management. So, next semester I’m taking a couple classes and I’m stoked” (Sethi et al., 2018). Others began to see themselves in outdoor recreational careers and explored other camps where they could work (Sethi et al., 2018). Youth who participated in a conservation program developed a stronger sense of the type of career they want to pursue (Syvertsen et al., 2015).

Sources:

- Asah, S. T., Bengston, D. N., Westphal, L. M., & Gowan, C. H. (2018). Mechanisms of children's exposure to nature: Predicting adulthood environmental citizenship and commitment to nature-based activities. *Environment and Behavior, 50*(7), 807-836.
- Cagle, N. L. (2018). Changes in experiences with nature through the lives of environmentally committed university faculty. *Environmental Education Research, 24*(6), 889-898.
- Capaldi, C. A., Dopko, R. L., & Zelenski, J. M. (2014). The relationship between nature connectedness and happiness: a meta-analysis. *Frontiers in psychology, 5*, 976.
- Holland, W. H., Powell, R. B., Thomsen, J. M., & Monz, C. A. (2018). A systematic review of the psychological, social, and educational outcomes associated with participation in wildland recreational activities. *Journal of Outdoor Recreation, Education, and Leadership, 10*(3).
- James, J. J., Bixler, R. D., & Vadala, C. E. (2010). From play in nature, to recreation then vocation: A developmental model for natural history-oriented environmental professionals. *Children Youth and Environments, 20*(1), 231-256.
- Pritchard, A., Richardson, M., Sheffield, D., & McEwan, K. (2019). The relationship between nature connectedness and eudaimonic well-being: A meta-analysis. *Journal of Happiness Studies, 1-23*.
- Richmond, D., Sibthorp, J., Gookin, J., Annarella, S., & Ferri, S. (2018). Complementing classroom learning through outdoor adventure education: Out-of-school-time experiences that make a difference. *Journal of Adventure Education and Outdoor Learning, 18*(1), 36-52.
- Sethi, J., Sullivan, T. K., & Allen, L. (2018). *Unpacking the Magic*. Minneapolis, MN: Search Institute.
- Sonti, N. F., Campbell, L. K., Johnson, M. L., & Daftary-Steel, S. (2016). Long-term outcomes of an urban farming internship program. *Journal of Experiential Education, 39*(3), 269-287.
- Sullivan, T., Sethi, J., Van Boekel, M., Gebru, E., & Allen, L., Chamberlain, R. (2018). *Bright Spots: An Exemplar Study of SCA Crew Leaders*. Minneapolis, MN: Search Institute.
- Syvertsen, A.K., Sullivan, T.S., & Wu, C. (2015). *SCA Youth Program Outcome and Critical Program Factors: Summary of Findings*. Minneapolis, MN: Search Institute.
- Wells, N. M., Lekies, K. S., Louv, R., & Fitzpatrick, J. W. (2012). Children and nature. *Citizen science: Public participation in environmental research, 201-213*.

Wight, R.A., Kloos, H., Maltbie, C. V., & Carr, V. W. (2016). Can playscapes promote early childhood inquiry towards environmentally responsible behaviors? An exploratory study. *Environmental Education Research*, 22(4), 518-537.

Williams, C. C., & Chawla, L. (2016). Environmental identity formation in nonformal environmental education programs. *Environmental Education Research*, 22(7), 978-1001.



## Greater Confidence

- Higher self-esteem
- Willing to try new things

“I am more confident than I was before and I’m more of a leader than I was before I came here.”

-Conservation program member

*“If we choose to acknowledge the things that people share with us that they feel are important...that’s a critical piece of...improving their confidence. Especially if we don’t look like them and if we don’t have the same cultural and historical backgrounds.” -Nature Leaders Cohort Member*

Young people may demonstrate positive changes in behavior and increased self-esteem as a result of participation in a nature-based youth development program. In addition, they may be more motivated to attempt “bigger things” in life, such as attending school and developing a career focus. One participant in a conservation program shared that they felt “very brave and confident in my work ethic” (Sullivan et al., 2018).

One Nature Leaders Cohort member explained that when youth participate in programs that cultivate a non-judgemental space, “those youth grow to become more vulnerable because they see that when they are vulnerable and share, it is heard and it is noted and it is respected. Over time, they become more willing to share more and then that leads into more willing to try more, and more willing to teach more, and then after that more willing to bring their experience outside of their own - outside to their family and greater community and friends. That’s our whole purpose - not just a place-based, but a person-based change and shift in how the outdoors should be accessible.”

Nature Leaders Cohort members shared that programs that emphasize cultural relevance and

connectedness helped youth build stronger confidence in their cultural identities as well.

Sources:

Deane, K. L., & Harré, N. (2014). The youth adventure programming model. *Journal of Research on Adolescence, 24*(2), 293-308.

Gartner-Manzon, S., & Giles, A. R. (2018). Lasting impacts of an Aboriginal youth leadership retreat: a case study of Alberta's Future Leaders Program. *Journal of Adventure Education and Outdoor Learning, 18*(4), 338-352.

Pritchard, A., Richardson, M., Sheffield, D., & McEwan, K. (2019). The relationship between nature connectedness and eudaimonic well-being: A meta-analysis. *Journal of Happiness Studies, 1*-23.

Sethi, J., Sullivan, T. K., & Allen, L. (2018). *Unpacking the Magic*. Minneapolis, MN: Search Institute.

Sonti, N. F., Campbell, L. K., Johnson, M. L., & Daftary-Steel, S. (2016). Long-term outcomes of an urban farming internship program. *Journal of Experiential Education, 39*(3), 269-287.

Sullivan, T., Sethi, J., Van Boekel, M., Gebru, E., & Allen, L., Chamberlain, R. (2018). *Bright Spots: An Exemplar Study of SCA Crew Leaders*. Minneapolis, MN: Search Institute.

Sullivan, T. K., & Syvertsen, A. K. (2019). Conservation leadership: A developmental model. *Journal of Adolescent Research, 34*(2), 140-166.

# Agency



Youth Agency includes self-efficacy and resilience as well as social and environmental justice-oriented behaviors.



## Self-efficacy & Resilience

- Realizing one's capability
- Ability to shape a system
- Confidence in overcoming challenges

Connection to nature can help youth realize their own capabilities (Chawla, 2015). The opportunity to physically engage with a natural environment through shaping, changing, or protecting it not only builds self-efficacy, but also demonstrates to youth that they have the ability to shape a system - for example, the manipulation of a natural environment through farming engages young people in shaping their local food system. Youth in leadership roles may also play a role in shaping the program itself by providing feedback and ideas or otherwise driving their own experience (Delia & Krasny, 2018). Participation in outdoor adventure education programming has been found to lead to increased self-efficacy in leadership (Richmond et al., 2018).

Self-efficacy also often includes a sense of resilience. Nature-based youth development programming provides opportunities for young people to build resilience and confidence in their ability to overcome challenges (Opper et al., 2014). Beyond overcoming challenges they are presented with as part of the program, youth may also be able to define their own success and “re-story” their identity to overcome challenges they have faced in the past (Delia & Krasny, 2018).

Sources:

Chawla, L. (2015). Benefits of nature contact for children. *Journal of Planning Literature*, 30(4),

433-452.

Deane, K. L., & Harré, N. (2014). The youth adventure programming model. *Journal of Research on Adolescence, 24*(2), 293-308.

Delia, J., & Krasny, M. E. (2018). Cultivating positive youth development, critical consciousness, and authentic care in urban environmental education. *Frontiers in psychology, 8*, 2340.


Margalit, D., & Ben-Ari, A. (2014, April). The effect of wilderness therapy on adolescents' cognitive autonomy and self-efficacy: Results of a non-randomized trial. In *Child & Youth Care Forum* (Vol. 43, No. 2, pp. 181-194). Springer US.

Mygind, L., Kjeldsted, E., Hartmeyer, R., Mygind, E., Bølling, M., & Bentsen, P. (2019). Mental, physical and social health benefits of immersive nature-experience for children and adolescents: a systematic review and quality assessment of the evidence. *Health & Place, 58*, 102136.

Opper, B., Maree, J. G., Fletcher, L., & Sommerville, J. (2014). Efficacy of outdoor adventure education in developing emotional intelligence during adolescence. *Journal of Psychology in Africa, 24*(2), 193-196.

Richmond, D., Sibthorp, J., Gookin, J., Annarella, S., & Ferri, S. (2018). Complementing classroom learning through outdoor adventure education: Out-of-school-time experiences that make a difference. *Journal of Adventure Education and Outdoor Learning, 18*(1), 36-52.

Tillmann, S., Tobin, D., Avison, W., & Gilliland, J. (2018). Mental health benefits of interactions with nature in children and teenagers: A systematic review. *J Epidemiol Community Health, 72*(10), 958-966.



## Conservation and environmental justice orientation

- Motivated to work to preserve nature
- View themselves as “agents of change”

*“I started thinking about wild spaces as a large, connected system. These places need people to protect them from other people and to be sustained.” -Youth conservation program participant (Sullivan et al., 2018)*

Young people can become motivated to work toward conservation or nature preservation, social justice, or environmental justice through nature-based youth development programming.

### Conservation

When youth feel more connected to nature, they may be more likely to want to protect it (Mackay & Schmitt, 2019). Youth in nature-based programs develop a sense of environmental stewardship, which goes beyond a connection with nature to include “pro-environmental intentions” and a desire to follow environmental ethics (Holland et al., 2018).

### Environmental/Social Justice

Youth adventure programs can also cultivate “expressive and inquisitive courage,” such as youth feeling confident in expressing their opinions (Deane & Harre, 2013); they may begin to see themselves as “agents of change” for environmental issues and developed a more emotional connection to environmental issues rather than simply knowing about them cognitively or in an abstract way (Riemer et al., 2016). Youth who participated in a conservation program felt more responsible for addressing issues they noticed in their community after participating in the program (Syvertsen et al., 2015).

Sources:

Holland, W. H., Powell, R. B., Thomsen, J. M., & Monz, C. A. (2018). A systematic review of the psychological, social, and educational outcomes associated with participation in wildland recreational activities. *Journal of Outdoor Recreation, Education, and Leadership*, 10(3).

Mackay, C. M., & Schmitt, M. T. (2019). Do people who feel connected to nature do more to protect it? A meta-analysis. *Journal of Environmental Psychology*, 65, 101323.

Riemer, M., Voorhees, C., Dittmer, L., Alisat, S., Alam, N., Sayal, R., Bidisha, S.H., De Souza, A., Lynes, J., Metternich, A., Mugagga, F., Schweizer-Ries, P., (2016). The Youth Leading Environmental Change project: A mixed-method longitudinal study across six countries. *Ecopsychology*, 8(3), 174-187.

Syvertsen, A.K., Sullivan, T.S., & Wu, C. (2015). *SCA Youth Program Outcome and Critical Program Factors: Summary of Findings*. Minneapolis, MN: Search Institute.



Leadership outcomes include social skills, decision-making skills, and adaptability.

The graphic features the title 'Social Skills' in a dark grey font. To the left of the text are several stylized green leaves of varying sizes and shades, some with fine lines representing veins. In the background, there are several light blue circles of different diameters, some partially overlapping the leaves and the text area.

## Social Skills

- Communication
- Teamwork
- Respect
- Working across difference

*“Before I came here, I felt like I really judged a book by its cover. Once we heard the stories of other people, or I talked to new people, it really changed my perspective on what I thought about them.” - Wilderness Leadership Camp Participant (Sethi et al., 2018)*

The category of “social skills” includes a wide range of skills, often also called social-emotional skills, relational skills, or 21st Century Skills. These are non-academic skills that help young people thrive and achieve success in school, careers, and beyond. Examples of social skills include communication, teamwork, respect, and cooperation, among many others.

Communication skills are a frequently-reported outcome of participation in nature-based youth development programming. Many nature-based programs, such as wildland education programs, have been shown to lead to teamwork and cooperation skill development (Holland et al., 2018) and young people’s ability to work with others who may be different than them (Syvertsen et al., 2015).

Even something as simple as access to open space and nature within a neighborhood is associated with prosocial behavior and respect, particularly for youth from socioeconomically disadvantaged backgrounds (Alderton et al., 2019).

Sources:

- Alderton, A., Villanueva, K., O'Connor, M., Boulange, C., & Badland, H. (2019). Reducing inequities in early childhood mental health: how might the neighborhood built environment help close the gap? A systematic search and critical review. *International journal of environmental research and public health*, *16*(9), 1516.
- Deane, K. L., & Harré, N. (2014). The youth adventure programming model. *Journal of Research on Adolescence*, *24*(2), 293-308.
- Holland, W. H., Powell, R. B., Thomsen, J. M., & Monz, C. A. (2018). A systematic review of the psychological, social, and educational outcomes associated with participation in wildland recreational activities. *Journal of Outdoor Recreation, Education, and Leadership*, *10*(3).
- Kuo, M., Barnes, M., & Jordan, C. (2019). Do experiences with nature promote learning? Converging evidence of a cause-and-effect relationship. *Frontiers in psychology*, *10*, 305.
- Sethi, J., Sullivan, T. K., & Allen, L. (2018). *Unpacking the Magic*. Minneapolis, MN: Search Institute.
- Sonti, N. F., Campbell, L. K., Johnson, M. L., & Daftary-Steel, S. (2016). Long-term outcomes of an urban farming internship program. *Journal of Experiential Education*, *39*(3), 269-287.
- Sullivan, T. K., & Syvertsen, A. K. (2019). Conservation leadership: A developmental model. *Journal of Adolescent Research*, *34*(2), 140-166.
- Syvertsen, A.K., Sullivan, T.S., & Wu, C. (2015). *SCA Youth Program Outcome and Critical Program Factors: Summary of Findings*. Minneapolis, MN: Search Institute.



## Decision-making Skills

- Anticipating and evaluating possible outcomes

“I realized that you get to choose who you surround yourself with and I can do that when I get home from this experience...”

-Wilderness leadership camp participant

Youth developed the ability to make decisions based on their own internal values through summer camp (Sethi et al., 2018) and the ability to make decisions by anticipating and evaluating possible outcomes (Syvertsen et al., 2015).

Margalit and Ben-Ari (2014) found that a wilderness therapy program for youth improved “cognitive autonomy,” which includes decision-making based on possible outcomes. Youth who participated in an outdoor adventure program reported developing decision-making skills through the program that they used later in school (Richmond et al., 2018); similarly, youth who participated in an urban farming program reported developing decision-making skills through the program (Sonti et al., 2016).

### Sources:

Kuo, M., Barnes, M., & Jordan, C. (2019). Do experiences with nature promote learning? Converging evidence of a cause-and-effect relationship. *Frontiers in psychology*, *10*, 305.

Margalit, D., & Ben-Ari, A. (2014, April). The effect of wilderness therapy on adolescents' cognitive autonomy and self-efficacy: Results of a non-randomized trial. In *Child & Youth Care Forum* (Vol. 43, No. 2, pp. 181-194). Springer US.

Richmond, D., Sibthorp, J., Gookin, J., Annarella, S., & Ferri, S. (2018). Complementing classroom learning through outdoor adventure education: Out-of-school-time experiences that make a difference. *Journal of Adventure Education and Outdoor Learning*, 18(1), 36-52.

Sethi, J., Sullivan, T. K., & Allen, L. (2018). *Unpacking the Magic*. Minneapolis, MN: Search Institute.

Sonti, N. F., Campbell, L. K., Johnson, M. L., & Daftary-Steel, S. (2016). Long-term outcomes of an urban farming internship program. *Journal of Experiential Education*, 39(3), 269-287.

Syvertsen, A.K., Sullivan, T.S., & Wu, C. (2015). *SCA Youth Program Outcome and Critical Program Factors: Summary of Findings*. Minneapolis, MN: Search Institute.



# Adaptability

- Responding to challenges

“When you try something new, you’re always going to make a mistake . . . but you’ve got to get over it. You will see it, acknowledge, find a solution, and keep going.”

-Conservation corps participant

Research on youth participants in a conservation program suggests that through the program they learned to adapt when faced with challenges. Particularly when working as part of a group, participants adapted to better work with different personalities and navigate “group dynamics” (Sullivan et al., 2018). They also learned to adapt to a different lifestyle than they were used to, living and working outdoors sometimes without access to electricity or running water.

A study on an outdoor adventure education program found that participants’ emotional intelligence increased through the program. Emotional intelligence includes a variety of factors, including flexibility and adaptability. Participants’ increased adaptability was one of the most significant and longer-lasting outcomes (Oppen et al., 2014).

## Sources:

Oppen, B., Maree, J. G., Fletcher, L., & Sommerville, J. (2014). Efficacy of outdoor adventure education in developing emotional intelligence during adolescence. *Journal of Psychology in Africa, 24*(2), 193-196.

Sullivan, T., Sethi, J., Van Boekel, M., Gebru, E., & Allen, L., Chamberlain, R. (2018). Bright Spots: An Exemplar Study of SCA Crew Leaders. Minneapolis, MN: Search Institute.



Connection to place and community includes stronger relationships (youth-adult, peer-to-peer, and group cohesion) and sense of belonging and place-making. Research has found that learning in “greener settings” (as opposed to a traditional classroom setting) can help youth bridge differences in relationship-building and overcome barriers to building relationships and group functioning (White, 2012; Cooley et al., 2014; Warber et al., 2015; all in Kuo et al., 2019). In other words, being out on your own in nature as a group can lead to working out differences and building relationships across differences.

#### Sources:

Kuo, M., Barnes, M., & Jordan, C. (2019). Do experiences with nature promote learning? Converging evidence of a cause-and-effect relationship. *Frontiers in psychology, 10*, 305.



## Stronger Relationships

- Youth-youth
- Youth-adult
- Group cohesion

“ I have a greater interest in other people...in what they think and the stories they have to tell.”

-Conservation program participant

“...it's amazing to see it every year. Like with every single year, it'll turn into a big family by Friday.” - Wilderness camp staff (Sethi et al., 2018)

Stronger relationships form between youth participants and adult leaders and among peers through nature-based youth development programs (Richmond et al., 2018).

Nature-based youth development programs often involve experiences shared by a group of participants, including going through challenges and being in an unfamiliar setting. This can strengthen social connections among the group of participants. New social connections can be formed among a group of people who did not know one another prior to the program (Sethi et al., 2018); existing groups (such as a school class) who participate in nature-based programs can also build stronger connections through these experiences (Richmond et al., 2018). Youth who participated in a summer camp formed stronger relationships with siblings and built new relationships with other young people on rival sports teams (Sethi et al., 2018).

### Sources:

Gartner-Manzon, S., & Giles, A. R. (2018). Lasting impacts of an Aboriginal youth leadership retreat: a case study of Alberta's Future Leaders Program. *Journal of Adventure Education and Outdoor Learning*, 18(4), 338-352.

Richmond, D., Sibthorp, J., Gookin, J., Annarella, S., & Ferri, S. (2018). Complementing classroom

learning through outdoor adventure education: Out-of-school-time experiences that make a difference. *Journal of Adventure Education and Outdoor Learning*, 18(1), 36-52.

Sethi, J., Sullivan, T. K., & Allen, L. (2018). *Unpacking the Magic*. Minneapolis, MN: Search Institute.

Sullivan, T., Sethi, J., Van Boekel, M., Gebru, E., & Allen, L., Chamberlain, R. (2018). *Bright Spots: An Exemplar Study of SCA Crew Leaders*. Minneapolis, MN: Search Institute.



## Sense of Belonging & Place

- Connection to group
- Connection to physical place

“I think it helped me to realize that, throughout camp, a lot of my peers felt the same way that I did about a lot of the same issues... It changed my perception and I was able to see that most of us were in the same boat.”

-Wilderness leadership camp participant

*“I think the nature of how we live communally and in the woods, and for so long, you get really lonely if you’re not relying on other people and really investing in the other people in the group. . . I think [the leaders] are pretty aware of that dynamic. They make that happen.” -Youth conservation program participant (Sullivan et. al., 2018)*

Through nature-based youth development programming, young people develop a sense of connection to the group of participants and the physical place.

Youth experience a sense of belonging, feeling welcomed and safe in the program community (Delia & Krasny, 2018; Deane & Harre, 2014; Sethi et al., 2018). Prosocial behavior outcomes from nature-based youth development programming include group cohesion, a sense of responsibility for other people, and empathy (Holland et al., 2018). Group cohesion includes empathy and a sense of responsibility for others.

This sense of belonging exists within the program, but can also prepared them to cultivate their own sense of belonging outside the program: one camp participant reflected, “I realized that you get to choose who you surround yourself with...once you leave camp, you can create a similar environment where you feel supported and you can have that emotional connection with people” (Sethi et al., 2018).

Youth also develop a sense of place through nature-based programming (Holland et al. 2018). This can include feeling a sense of attachment to the location of the program but can also go

beyond that. Youth may develop critical consciousness tied to place, in which they understand a place through a lens of decolonization and environmental equity (Delia & Krasny, 2018). Place-making, a concept rooted in some Indigenous cultures, emphasizes the ways in which humans are connected to a physical place and conceptualizes nature as “lived places that are experienced, embodied, and cultured” (Hatala et al., 2019, p. 125). Norgaard and Reed (2017) found in their research with the Karuk Indigenous people that the environment influenced their “emotional experiences, which played a role in shaping their sense of identity, their social roles, and their resistance to racism and ongoing colonialism” (p. 463).

Programs that recognize the Indigenous people whose land the programs take place on provide youth participants with cultural context of place.

#### Sources:

Deane, K. L., & Harré, N. (2014). The youth adventure programming model. *Journal of Research on Adolescence, 24*(2), 293-308.

Delia, J., & Krasny, M. E. (2018). Cultivating positive youth development, critical consciousness, and authentic care in urban environmental education. *Frontiers in psychology, 8*, 2340.

Gartner-Manzon, S., & Giles, A. R. (2018). Lasting impacts of an Aboriginal youth leadership retreat: a case study of Alberta's Future Leaders Program. *Journal of Adventure Education and Outdoor Learning, 18*(4), 338-352.

Hatala, A. R., Morton, D., Njeze, C., Bird-Naytowhow, K., & Pearl, T. (2019). Re-imagining miyo-wicehtowin: Human-nature relations, land-making, and wellness among Indigenous youth in a Canadian urban context. *Social Science & Medicine, 230*, 122-130.

Holland, W. H., Powell, R. B., Thomsen, J. M., & Monz, C. A. (2018). A systematic review of the psychological, social, and educational outcomes associated with participation in wildland recreational activities. *Journal of Outdoor Recreation, Education, and Leadership, 10*(3).

Norgaard, K. M., & Reed, R. (2017). Emotional impacts of environmental decline: What can Native cosmologies teach sociology about emotions and environmental justice?. *Theory and Society, 46*(6), 463-495.

Sullivan, T., Sethi, J., Van Boekel, M., Gebru, E., & Allen, L., Chamberlain, R. (2018). Bright Spots: An Exemplar Study of SCA Crew Leaders. Minneapolis, MN: Search Institute.

Sethi, J., Sullivan, T. K., & Allen, L. (2018). *Unpacking the Magic*. Minneapolis, MN: Search Institute.



## Directions for Further Research...

Several articles note that nature-based programming (e.g., wilderness education, urban farming, etc.) coupled with authentic caring and relationship-building appears to be particularly beneficial to youth in under-resourced or historically marginalized groups. However, the majority of research on nature-based programming has not intentionally focused on these populations and they are under-represented in research samples. Nature-based programming often has barriers to participation, such as high costs or equipment needs, that reduce the number of youth in lower-income settings who can participate.

While nature programs may be particularly beneficial to youth in under-served or marginalized communities, programs in nature are not more culturally-responsive or youth centered by default. The Forest School approach draws upon the Scandinavian *friluftsliv* principle, connections between humans and nature, but the model has also become commodified and used to achieve outcomes that are “deemed appropriate [by adults] for a child’s development, which may sometimes be in tension with philosophical perspectives that emphasize connection to nature” (Sharma-Brymer et al., 2018, p. 106). Sharma-Brymer et al. argue that Forest School programs must “embrace sociocultural diversity, to respect and respond to local knowledge(s) and perspectives, and to focus on person-environment relationships” (104).

Holland et al. (2018) point out a lack of diversity in much of the literature around outdoor education. Most outdoor recreation programs serve dominant groups (white, male, etc.) which means that much of the data primarily includes these participants. The programs that do invite diverse populations are often not the ones that are part of research studies and current studies

do not always cite racial demographics. In this literature review, we intentionally sought to include studies that *do* include under-represented groups, but the gaps in the literature as a whole are important to acknowledge.

Authors have noted that ethnic differences in nature-based programming has rarely been studied (Deane & Harre, 2014) and some studies have found that a “one size fits all ethnicities” program model may lead to negative outcomes for some groups. This may also apply to different genders and single-gender versus mixed gender groups (Deane & Harre, 2014).

In having the opportunity to speak with the Atlanta and Grand Rapids Nature Leaders Cohorts, we heard that there is a diversity of both participants and leaders in many of these programs and that they are mindful of honoring different racial, ethnic, and cultural backgrounds as well as other identities youth bring. One cohort member explained, “If a young person is feeling as if their culture is being embraced...those students that find that their culture shows up in the programming or is accepted and embraced, they are more engaged over time.” Authenticity in a program’s approach to cultural relevance and responsiveness may help build stronger connections with participants and remove barriers to participation for participants from groups that have historically experienced barriers to engaging in nature-based programming. Our hope is that the experiences and outcomes of youth of these kinds of programs could be included in studies that influence the field in the future.

#### Sources:

Deane, K. L., & Harré, N. (2014). The youth adventure programming model. *Journal of Research on Adolescence*, 24(2), 293-308.

Holland, W. H., Powell, R. B., Thomsen, J. M., & Monz, C. A. (2018). A systematic review of the psychological, social, and educational outcomes associated with participation in wildland recreational activities. *Journal of Outdoor Recreation, Education, and Leadership*, 10(3).

Sharma-Brymer, V., Brymer, E., Gray, T., & Davids, K. (2018). Affordances guiding Forest School practice: the application of the ecological dynamics approach. *Journal of outdoor and environmental education*, 21(1), 103-115.



## About Search Institute



### About Search Institute

**Our Vision:** All young people have what they need to thrive.

**Our Mission:** Search Institute partners with organizations to conduct and apply research that promotes positive youth development and advances equity.

### Project team:

**Jenna Sethi, Ph.D - Research Scientist**

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## References

Alderton, A., Villanueva, K., O'Connor, M., Boulange, C., & Badland, H. (2019). Reducing inequities in early childhood mental health: how might the neighborhood built environment help close the gap? A systematic search and critical review. *International journal of environmental research and public health*, 16(9), 1516.

Argent, A., Vintimilla, C.D., Lee, C., Wapenaar, K., (2017). A dialogue about place and living pedagogies: Trees, ferns, blood, children, educators, and wood cutters. *Journal of Childhoods and Pedagogies*, 1(2), 1-20.

Asah, S. T., Bengston, D. N., Westphal, L. M., & Gowan, C. H. (2018). Mechanisms of children's exposure to nature: Predicting adulthood environmental citizenship and commitment to nature-based activities. *Environment and Behavior*, 50(7), 807-836.

Bartolomé, L. I. (2008). Authentic cariño and respect in minority education: The political and ideological dimensions of love. *The International Journal of Critical Pedagogy*, 1(1).

Benson, P. L., Mannes, M., Pittman, K., & Ferber, T. (2004). Youth development, developmental assets, and public policy. *Handbook of adolescent psychology*, 2, 781-814.

Bowers, E. P., Johnson, S. K., Warren, D. J., Tirrell, J. M., & Lerner, J. V. (2015). Youth–adult

relationships and positive youth development. In *Promoting positive youth development* (pp. 97-120). Springer, Cham.

Bowers, C. A. (2002). Toward an eco-justice pedagogy. *Environmental Education Research*, 8(1), 21-34.

Brody, S., Grover, H., Lindquist, E., & Vedlitz, A. (2010). Examining climate change mitigation and adaptation behaviours among public sector organisations in the USA. *Local Environment*, 15(6), 591-603.

Cagle, N. L. (2018). Changes in experiences with nature through the lives of environmentally committed university faculty. *Environmental Education Research*, 24(6), 889-898.

Capaldi, C. A., Dopko, R. L., & Zelenski, J. M. (2014). The relationship between nature connectedness and happiness: a meta-analysis. *Frontiers in psychology*, 5, 976.

Chawla, L. (2015). Benefits of nature contact for children. *Journal of Planning Literature*, 30(4), 433-452.

Clark, C., & Uzzell, D. L. (2006). 11 The socio-environmental affordances of adolescents' environments. *Children and their environments: Learning, using and designing spaces*, 176.

Deane, K. L., & Harré, N. (2014). The youth adventure programming model. *Journal of Research on Adolescence*, 24(2), 293-308.

Delia, J., & Krasny, M. E. (2018). Cultivating positive youth development, critical consciousness, and authentic care in urban environmental education. *Frontiers in psychology*, 8, 2340.

Derr, V. (2017). Participation as a supportive framework for cultural inclusion and environmental justice. *Revista Internacional de Educación para la Justicia Social (RIEJS)*.

Frumkin, H., Bratman, G.N., Breslow, S.J., Cockran, B., Kahn, P.H., Lawler, J.J., Levin, P.S., Tandon, P.S., Varanasi, U., Wolf, K.L., Wood, S.A., (2017). Nature contact and human health: A research agenda. *Environmental Health Perspectives*.

Gartner-Manzon, S., & Giles, A. R. (2018). Lasting impacts of an Aboriginal youth leadership retreat: a case study of Alberta's Future Leaders Program. *Journal of Adventure Education and Outdoor Learning*, 18(4), 338-352.

Gibson, J. (1979). *The ecological approach to visual perception*. Hillsdale: Lawrence Erlbaum Associates.

Ginwright, S., & Cammarota, J. (2002). New terrain in youth development: The promise of a social justice approach. *Social Justice*, 29(4 (90)), 82-95.

Ginwright, S. & James, T. (2002). From assets to agents of change: social justice, organizing, and youth development. *New Directions for Youth Development*, 96, 2746

Harwood, D., Collier, D.R., (2017). The matter of the stick: Storying/(re)storying children's literacies in the forest. *Journal of Early Childhood Literacy*, 17(3), 336-352.

Hatala, A. R., Njeze, C., Morton, D., Pearl, T., & Bird-Naytowhow, K. (2020). Land and nature as sources of health and resilience among Indigenous youth in an urban Canadian context: a photovoice exploration. *BMC Public Health*, 20, 1-14.

Hatala, A. R., Morton, D., Njeze, C., Bird-Naytowhow, K., & Pearl, T. (2019). Re-imagining miyo-wicehtowin: Human-nature relations, land-making, and wellness among Indigenous youth in a Canadian urban context. *Social Science & Medicine*, 230, 122-130.

Holland, W. H., Powell, R. B., Thomsen, J. M., & Monz, C. A. (2018). A systematic review of the psychological, social, and educational outcomes associated with participation in wildland recreational activities. *Journal of Outdoor Recreation, Education, and Leadership*, 10(3).

James, J. J., Bixler, R. D., & Vadala, C. E. (2010). From play in nature, to recreation then vocation: A developmental model for natural history-oriented environmental professionals. *Children Youth and Environments*, 20(1), 231-256.

Kondo, M.C., Fluehr, J.M., McKeon, T., Branas, C.C., (2018). Urban green space and its impact on human health. *International Journal of Environmental Research and Public Health*, 15(3).

Kuo, M., Barnes, M., & Jordan, C. (2019). Do experiences with nature promote learning? Converging evidence of a cause-and-effect relationship. *Frontiers in psychology*, 10, 305.

Lerner, R. M., & Lerner, J. V. (2011). The positive development of youth report of the findings from the first seven years of the 4-H study of positive youth development.

Mackay, C. M., & Schmitt, M. T. (2019). Do people who feel connected to nature do more to protect it? A meta-analysis. *Journal of Environmental Psychology*, 65, 101323.

Margalit, D., & Ben-Ari, A. (2014, April). The effect of wilderness therapy on adolescents' cognitive autonomy and self-efficacy: Results of a non-randomized trial. In *Child & Youth Care Forum* (Vol. 43, No. 2, pp. 181-194). Springer US.

Mygind, L., Kjeldsted, E., Hartmeyer, R., Mygind, E., Bølling, M., & Bentsen, P. (2019). Mental, physical and social health benefits of immersive nature-experience for children and adolescents: a systematic review and quality assessment of the evidence. *Health & Place, 58*, 102136.

Norgaard, K. M., & Reed, R. (2017). Emotional impacts of environmental decline: What can Native cosmologies teach sociology about emotions and environmental justice?. *Theory and Society, 46*(6), 463-495.

Norton, C. L., & Watt, T. T. (2014). Exploring the impact of a wilderness-based positive youth development program for urban youth. *Journal of Experiential Education, 37*(4), 335-350.

Norwood, M.F., Lakhani, A., Fullagar, S., Maujean, A., Downes, M., Byrne, J., Stewart, A., Barber, B., Kendall, E., (2019). A narrative and systematic review of the behavioural, cognitive and emotional effects of passive nature exposure on young people: Evidence for prescribing change. *Landscape and Urban Planning, 189*, 71-79.

Opper, B., Maree, J. G., Fletcher, L., & Sommerville, J. (2014). Efficacy of outdoor adventure education in developing emotional intelligence during adolescence. *Journal of Psychology in Africa, 24*(2), 193-196.

Pritchard, A., Richardson, M., Sheffield, D., & McEwan, K. (2019). The relationship between nature connectedness and eudaimonic well-being: A meta-analysis. *Journal of Happiness Studies, 1-23*.

Riemer, M., Voorhees, C., Dittmer, L., Alisat, S., Alam, N., Sayal, R., ... & Mugagga, F. (2016). The Youth Leading Environmental Change project: A mixed-method longitudinal study across six countries. *Ecopsychology, 8*(3), 174-187.

Richmond, D., Sibthorp, J., Gookin, J., Annarella, S., & Ferri, S. (2018). Complementing classroom learning through outdoor adventure education: Out-of-school-time experiences that make a difference. *Journal of Adventure Education and Outdoor Learning, 18*(1), 36-52.

Roehlkepartain, E. C., Pekel, K., Syvertsen, A. K., Sethi, J., Sullivan, T. K., & Scales, P. C. (2017). Relationships first: Creating connections that help young people thrive. *Minneapolis, MN: Search Institute, 1-20*.

Rooney, T., (2018). Weather worlding: Learning with the elements in early childhood. *Environmental Education Research, 24*(1), 1-12.

Ryan, R.M. and Deci, E.L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist, 55*(1), p.68.

Scales, P. C., Pekel, K., Sethi, J., Chamberlain, R., & Van Boekel, M. (2020). Academic Year Changes

in Student-Teacher Developmental Relationships and Their Linkage to Middle and High School Students' Motivation: A Mixed Methods Study. *The Journal of Early Adolescence*, 40(4), 499-536.

Sethi, J., Sullivan, T. K., & Allen, L. (2018). *Unpacking the Magic*. Minneapolis, MN: Search Institute.

Sharma-Brymer, V., Brymer, E., Gray, T., & Davids, K. (2018). Affordances guiding Forest School practice: the application of the ecological dynamics approach. *Journal of outdoor and environmental education*, 21(1), 103-115.

Sonti, N. F., Campbell, L. K., Johnson, M. L., & Daftary-Steel, S. (2016). Long-term outcomes of an urban farming internship program. *Journal of Experiential Education*, 39(3), 269-287.

Sullivan, T. K., & Syvertsen, A. K. (2019). Conservation leadership: A developmental model. *Journal of Adolescent Research*, 34(2), 140-166.

Sullivan, T., Sethi, J., Van Boekel, M., Gebru, E., & Allen, L., Chamberlain, R. (2018). *Bright Spots: An Exemplar Study of SCA Crew Leaders*. Minneapolis, MN: Search Institute.

Sullivan, T., Sethi, J., & Roehlkepartain, E.C., (2017). *The Power of Peer Relationships: A Study of Peer Programs in the United States*. Minneapolis, MN: Search Institute.

Syvertsen, A.K., Sullivan, T.S., & Wu, C. (2015). *SCA Youth Program Outcome and Critical Program Factors: Summary of Findings*. Minneapolis, MN: Search Institute.

Syvertsen, A. K., Wray-Lake, L., Flanagan, C. A., Wayne Osgood, D., & Briddell, L. (2011). Thirty-year trends in US adolescents' civic engagement: A story of changing participation and educational differences. *Journal of Research on Adolescence*, 21(3), 586-594.

Tillmann, S., Tobin, D., Avison, W., & Gilliland, J. (2018). Mental health benefits of interactions with nature in children and teenagers: A systematic review. *J Epidemiol Community Health*, 72(10), 958-966.

Tsang, S. K., Hui, E. K., & Law, B. (2012). Self-efficacy as a positive youth development construct: a conceptual review. *The Scientific World Journal*, 2012.

Twohig-Bennett, C., Jones, A., (2018). The health benefits of the great outdoors: A systematic review and meta-analysis of greenspace exposure and healthy outcomes. *Environmental Research*, 166, 628-637.

Valenzuela, A. (1999). *Subtractive Schooling: US-Mexican Youth and the Politics of Caring*. Albany, NY: State University of New York Press.

Wells, N. M., Lekies, K. S., Louv, R., & Fitzpatrick, J. W. (2012). Children and nature. *Citizen science: Public participation in environmental research*, 201-213.

Wight, R.A., Kloos, H., Maltbie, C. V., & Carr, V. W. (2016). Can playscapes promote early childhood inquiry towards environmentally responsible behaviors? An exploratory study. *Environmental Education Research*, 22(4), 518-537.

Williams, C. C., & Chawla, L. (2016). Environmental identity formation in nonformal environmental education programs. *Environmental Education Research*, 22(7), 978-1001.