



When screens replace backyards: Strategies to connect electronic-media-oriented young people to nature



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What is Connection to Nature (CTN)?

- The **sense of oneness** a person feels with the natural world
 - cognitive, affective, and experiential dimensions (Zylstra et al. 2014)
- **Direct experiences in nature** are essential to the development of a strong CTN (Chawla 2007)

Strong Childhood CTN leads to...



- 1) Environmentally Responsible Behaviour as Adults (Rosa, Profice, and Collado 2018)
- 2) Health and Wellbeing (Keniger et al. 2013)

Children's contact with nature and CTN are in generational decline

(Louv 2005; Hughes, Richardson, and Lumber 2018)

From Biophilia to Videophilia: Implications for Environmental Education

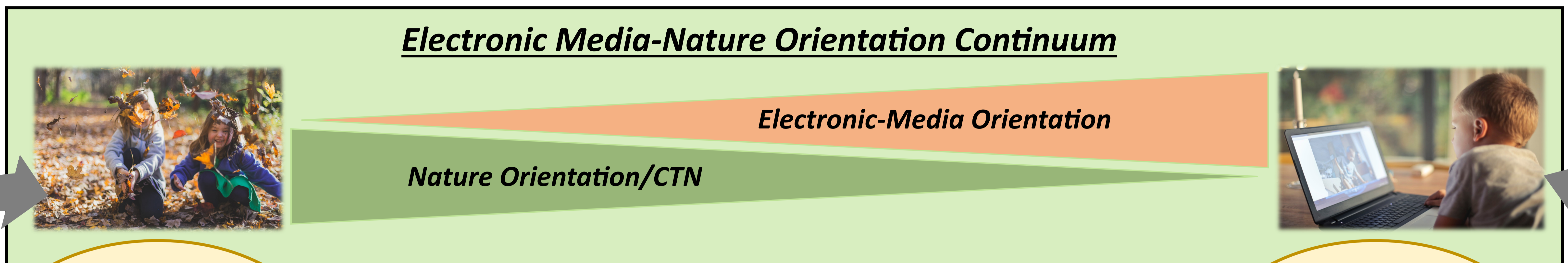
- **Videophilia:** "The new human tendency to focus on sedentary activities involving electronic media" (Pergams and Zaradic 2007)
- Human orientation is thought to be shifting from nature (**biophilia**) to electronic media (**videophilia**) for a variety of reasons: (Soga and Gaston 2018; Hougie 2010)

Screen time replacing nature-based play as dominant childhood leisure activity

(Larson et al. 2018)

- ↑ Parental risk aversion
- ↑ Urbanization
- ↑ Societal reliance on electronic media
- ↓ Parental CTN
- ↑ Over organization of childhood

Electronic Media-Nature Orientation Continuum



Programs tend to focus on traditional outdoor activities that appeal to children with strong CTN

Preference for electronic media over nature often not considered in the design of nature-based programs (e.g., Wells and Lekies 2006; Louv 2005)

Failing to engage youth with low prior interest in nature (aka "preaching to choir") (Miller 2005)

Current generation largely oriented towards electronic media

"we recommend programs that promote nature experiences that are integrated with human lives - for everyone (...). This can be accomplished (...) innovatively, by acknowledging the diversity of new [experiences of nature]. Rather than bemoaning the increase in video games, for example, conservation practitioners could (as many are doing) examine ways to link them to conservation efforts, and use social media as a tool to promote conservation caring." (Clayton et al. 2017)

Program Design Recommendations for Connecting Electronic-Media-Oriented Youth to Nature

Methods: Undertook a **comprehensive review** of the literature from a wide range of fields (e.g., CTN in children, outdoor recreation trends, conservation marketing, and novel childhood education methods) to produce the following recommendations:

Key finding: Program design must **acknowledge and exploit children's affinity for electronic media** as competing leisure activity to nature-based play.

- 1) Ensure **marketing/engagement** strategies reach and appeal to electronic-media-oriented youth
 - Advertise through organizations with broad reach (e.g., schools, faith-based institutions, youth centres) (Bickford et al. 2012)
 - Use popular media and celebrity conservation advocates in marketing strategies (Duthie et al. 2017)
- 2) Choose locations with **unintimidating forms of nature** that appeal to adolescents (Eder and Arnberger 2016)
 - e.g., local parks with trails and built infrastructure, farms, zoos, community gardens
 - Priority: **promote comfort in nature** for youth with low prior CTN (Giusti et al. 2018)
- 3) Involve entire families to create **role models**
 - Role models highly important for development of strong CTN in children (Cheng and Monroe 2012)
 - e.g. **Family Nature Clubs** (see the Children and Nature Network), peer mentorship initiatives
- 4) Integrate **gamification** techniques (e.g., Geocaching [Battista et al. 2016]) (Farber 2014)
 - Elements of game design (e.g., problem solving, points-based achievement, competition) used in non-game contexts
 - High entertainment value; often more effective than traditional education techniques (Morganti et al. 2017)
- 5) Use **location-based digital games** (Sandbrook et al. 2015)
 - Making use of mobile games can increase CTN: **particularly effective for youth with initially low CTN** (Schneider and Schaal 2018)
 - e.g., apps such as Seek (by iNaturalist) and Nature Passport (by IslandWood and Nature Play)



References

- Battista, West, Mackenzie, & Son. Is this exercise? No, it's Geocaching! *J. Park Recreat. Admi.* 34, 30-48 (2016).
 Bickford, Posa, Qie, Campos-Arceiz, & Kudavidanage. Science communication for biodiversity conservation. *Biol. Conserv.* 151, 74-76 (2012).
 Chawla. Childhood experiences associated with care for the natural world. *Child. Youth Environ.* 17, 144-170 (2007).
 Cheng & Monroe. Connection to nature: Children's affective attitude toward nature. *Environ. Behav.* 44, 31-49 (2012).
 Clayton, et al. Transformation of experience. *Conserv. Lett.* 10, 645-651 (2017).
 Duthie, Verissimo, Keane, & Knight. The effectiveness of celebrities in conservation marketing. *PLoS One* 12, 1-16 (2017).
 Eder & Arnberger. How heterogeneous are adolescents' preferences for natural and semi-natural riverscapes as recreational settings? *Landscape Res.* 41, 555-568 (2016).
 Farber, M. Gamify your classroom: A field guide to game-based learning. (Peter Lang Publishing, 2014).
 Giusti, Svane, Raymond, & Beery. A framework to assess where and how children connect to nature. *Front. Psychol.* 8, 1-21 (2018).
 Hughes, Richardson, & Lumber. Evaluating connection to nature and the relationship with conservation behaviour in children. *J. Nat. Conserv.* 45, 11-19 (2018).
 Keniger, Gaston, Irvine, & Fuller. What are the benefits of interacting with nature? *Int. J. Environ. Res. Public Health* 10, 913-935 (2013).
 Larson, et al. Outdoor time, screen time, and connection to nature. *Environ. Behav.* 51, 966-991 (2019).
 Louv. Last child in the woods. (Algonquin Books, 2005).
 Miller. Biodiversity conservation and the extinction of experience. *Trends Ecol. Evol.* 20, 430-434 (2005).
 Morganti et al. Gaming for Earth: Serious games and gamification to engage consumers in pro-environmental behaviours for energy efficiency. *Energy Res. Soc. Sci.* 29, 95-102 (2017).
 Pearlman Hougie. Can family outdoor and countryside recreation help reconnect children with the outdoors? *J. Outdoor Recreat. Educ. Leadersh.* 2, 217-244 (2010).
 Rosa, Profice, & Collado. Nature experiences and adults' self-reported pro-environmental behaviors. *Front. Psychol.* 9, 1-10 (2018).
 Sandbrook, Adams, & Monteferrri. Digital games and biodiversity conservation. *Conserv. Lett.* 8, 118-124 (2015).
 Soga & Gaston. Shifting baseline syndrome. *Front. Ecol. Environ.* 16, 222-230 (2018).
 Wells & Lekies. Nature and the life course. *Child. Youth Environ.* 16, 1-25 (2006).
 Zaradic & Pergams. Videophilia. *J. Dev. Process.* 2, 130-144 (2007).
 Zylstra, Knight, Esler, & Le Grange. Connectedness as a core conservation concern. *Springer Sci. Rev.* 2, 119-143 (2014).

