16.7 Positive environmental attitudes motivated by contact with NBS

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Positive environmental attitudes motivated by contact with NBS	Knowledge and Social Capacity Building
Description and justification	Positive environmental attitudes (EA) make for a significant part of the environmental education (EE) process/environmental literacy (EL) continuum. EE programs are expected to engage individuals in exploration of environmental issues, critical thinking, problem solving, and decision making to improve the environment (Kudryavtsev, Krasny and Stedman, 2012; Kudryavtsev, Stedman, & Krasny, 2012). Accordingly, attitudes of concern for the environment and motivation to improve or maintain environmental quality (U.S. EPA, n.d.) have been invested as an indicator of a finely tuned and efficient intervention through such transformative programs. Moreover, a number of studies have provided empirical support to the idea that exposure to nature is positively associated with constructive attitudes towards the environment (Baur, Tynon, Ries, & Rosenberger, 2014; Byrka, Hartig, & Kaiser, 2010; Tarrant & Green, 1999; Whitburn, Linklater, & Milfont, 2019; Williams, Jones, Gibbons, & Clubbe, 2015). In a quasi-experimental study with 423 urban residents in 20 neighborhoods in Wellington City, New Zealand, Whitburn et al. (2019) identified environmental attitudes as mediator of the relationship between exposure to nature/engagement with nature and pro-environmental behaviors. Baur et al. (2014) employed a general population survey of urban residents of four cities in Oregon (734 completed surveys returned), USA and found that increased visitation to urban parks, forest reserves or other urban and urban-proximate green spaces is strongly associated with greater public understanding and support for urban natural resource management. Along similar lines, Williams et al. (2015) interviewed 1054 visitors at five UK botanic gardens and found that environmental attitudes are more positive among respondents leaving a botanic garden, than among those about to enter one. In a systematic review of the existing literature on the benefits of children's engagement with nature, Gill (2015) finds support for the assertion that time spent in nature promotes positive

	environmental attitudes and values. The studies reviewed present solid evidence that "spending time in natural environments as child is associated with adult pro-environment attitudes and feelings of being connected with the natural world and is also associated with a stronger sense of place" (p. 18). Additionally, Soga et al. (2016) surveyed 397 Tokyo elementary schoolchildren and found that children's affective attitudes and willingness to conserve biodiversity were positively associated not only with the frequency of direct experiences of nature, but also with the frequency of vicarious manifestations of experience with nature (like reading books/watching TV about wildlife and nature, or talking with parents/friends about wildlife and nature). Schultz, Shriver, Tabanico, & Khazian (2004) defined EA as "the collection of beliefs, affect, and behavioral intentions a person holds regarding environmentally related activities or issues". The intricate nature of the construct as latent (i.e., cannot be observed directly) and multidimensional (i.e., values rooted in a concern for the self - egoistic, for other people – altruistic, or for the biosphere) has been a fertile ground for numerous studies attempting at consolidating the relevance of predicted connection between general environmental concern and ecological behavior (Bamberg, 2003; Bamberg & Rees, 2015; Milfont & Duckitt, 2006; Milfont, Duckitt, & Cameron, 2006; Milfont & Duckitt, 2010). Milfont and Duckitt (2006, 2010) have approached the challenge by departing from the traditional three-component model of attitude structure (i.e., cognitive, affective, and behavioral) to integrate the function of *evaluative tendencies* (i.e., values) which can both be inferred from and have an influence on beliefs, affects, and behaviors regarding human-environment relations. Subsequently, authors developed a multidimensional inventory to assess EA cross-culturally. Environmental Attitudes Inventory (EAI) is a collection of twelve specific scales that capture the main facets measured by previous research (Milfont & Duckitt, 2010). The twelve scales have shown high internal consistency, homogeneity, high test-retest reliability, and have also proven to be largely free from social desirability (Milfont, 2009; Milfont & Duckitt, 2010). Furthermore, their psychometric qualities have been supported in cross-cultural studies (Milfont, Duckitt, & Wagner, 2010). These attributes render authors' conceptual model empirically robust, thus relevant to our research objectives.
Definition	"Psychological tendency that is expressed by evaluating perceptions of or beliefs regarding the natural environment,

	including factors affecting its quality, with some degree of favor […]" (Milfont, 2007 as quoted in Milfont, 2009). *See section "Measurement Procedure and Tool" below for construct definition of EAI Scales (i.e., constructs measured by previous research).*
Strengths and weaknesses	+indicator of resources (awareness, values, etc.) that create preconditions for environmentally responsible behaviors +indicator of successful impact of environmental education initiatives (longitudinal studies) -low relevance as predictors of actual behaviors; general agreement to treat them as general decisional preconditions for considering the potential environmental impact of decisions (Bamberg & Rees, 2015) -impact vs. intent – approach and risk for methodological bias: intent-oriented measures tend to neglect behavior patterns with a strong objective environmental impact (e.g., reducing CO_2 emissions) by omitting relevant structural/contextual factors (e.g., income, type of car, size of house) in favor of psychological variables like values or attitudes (Bamberg & Rees, 2015)
Measurement procedure (P) and tool (T)	☒ *Quantitative P – self-report measures*: Scale inventory/Questionnaire (survey procedure, paper-and-pencil administration, computer-based administration) o T: *Environmental Attitudes Inventory* (EAI – Milfont & Duckitt, 2010) assesses broad evaluating perceptions of or beliefs regarding the natural environment, including factors affecting its quality; EAI 24, the brief 24 items version of the instrument is included here; authors recommend use of a shortened Social Desirability Scale with the brief EAI. **Construct definition of EAI scales** (Milfont & Duckitt, 2010): Scale 1. Enjoyment of nature: Belief that enjoying time in nature is pleasant and preferred to spending time in urban areas, versus belief that enjoying time in nature is dull, boring and not enjoyable, and not preferred over spending time in urban areas. Scale 2. Support for interventionist conservation policies: Support for conservation policies regulating industry and the use of raw materials, and subsidising and supporting alternative ecofriendly energy sources and practices, versus opposition to such measures and policies.

Scale 3. Environmental movement activism: Personal readiness to actively support or get involved in organized action for environmental protection, versus disinterest in or refusal to support or get involved in organized action for environmental protection.

Scale 4. Conservation motivated by anthropocentric concern: Support for conservation policies and protection of the environment motivated by anthropocentric concern for human welfare and gratification, versus support for such policies motivated by concern for nature and the environment as having value in themselves.

Scale 5. Confidence in science and technology: Belief that human ingenuity, especially science and technology, can and will solve all environmental current problems and avert or repair future damage or harm to the environment, versus belief that human ingenuity, especially science and technology, cannot solve all environmental problems.

Scale 6. Environmental fragility: Belief that the environment is fragile and easily damaged by human activity, and that serious damage from human activity is occurring and could soon have catastrophic consequences for both nature and humans, versus belief that nature and the environment are robust and not easily damaged in any irreparable manner, and that no damage from human activity that is serious or irreparable is occurring or is likely.

Scale 7. Altering nature: Belief that humans should and do have the right to change or alter nature and remake the environment as they wish to satisfy human goals and objectives, versus belief that nature and the natural environment should be preserved in its original and pristine state and should not be altered in any way by human activity or intervention.

Scale 8. Personal conservation behaviour: Taking care to conserve resources and protect the environment in personal everyday behaviour, versus lack of interest in or desire to take care of resources and conserve in one's everyday behaviour.

Scale 9. Human dominance over nature: Belief that nature exists primarily for human use, versus belief that humans and nature have the same rights.

	Scale 10. Human utilization of nature: Belief that economic growth and development should have priority rather than environmental protection, versus belief that environmental protection should have priority rather than economic growth and development. Scale 11. Ecocentric concern: A nostalgic concern and sense of emotional loss over environmental damage and loss, versus absence of any concern or regret over environmental damage. Scale 12. Support for population growth policies: Support for policies regulating the population growth and concern about overpopulation, versus lack of any support for such policies and concern. ☒ *Implicit measuring techniques that counterbalance limitations of self-report measures*: o T: case study methodology – interviews, unobtrusive observation o T: priming and response competition measures (Van Vugt & Samuelson, 1999)
Scale of measurement	▪ EAI 24 (Milfont & Duckitt, 2010) – 24 items *Please indicate the extent to which each of the following statements describes your beliefs by using the appropriate number from the scale below.* *1 - strongly disagree ...2...3...4 - neither agree nor agree...5...6...7 - strongly agree* *___1. I really like going on trips into the countryside, for example to forests or fields. [SCALE 01 - Enjoyment of nature]* *___2. I think spending time in nature is boring. (R) [SCALE 01 - Enjoyment of nature]* *___3. Governments should control the rate at which raw materials are used to ensure that they last as long as possible. [SCALE 02 - Support for interventionist conservation policies]* *___4. I am opposed to governments controlling and regulating the way raw materials are used in order to try and make them last longer. (R) [SCALE 02 - Support for interventionist conservation policies]* *___5. I would like to join and actively participate in an environmentalist group. [SCALE 03 - Environmental movement activism]*

___6 would NOT get involved in an environmentalist organization. (R) [SCALE 03 - Environmental movement activism]
___7. One of the most important reasons to keep lakes and rivers clean+H17 is so that people have a place to enjoy water sports. [SCALE 04- Conservation motivated by anthropocentric concern]
___8. We need to keep rivers and lakes clean in order to protect the environment, and NOT as places for people to enjoy water sports. (R) [SCALE 04- Conservation motivated by anthropocentric concern]
___9. Modern science will NOT be able to solve our environmental problems. (R) [SCALE 05 - Confidence in science and technology]
___10. Modern science will solve our environmental problems. [SCALE 05 - Confidence in science and technology]
___11. Humans are severely abusing the environment. [SCALE 06 - Environmental threat]
___12. I do not believe that the environment has been severely abused by humans. (R) [SCALE 06 - Environmental threat]
___13. I'd prefer a garden that is wild and natural to a well groomed and ordered one. (R) [SCALE 07 - Altering nature]
___14. I'd much prefer a garden that is well groomed and ordered to a wild and natural one. [SCALE 07 - Altering nature]
___15. I am NOT the kind of person who makes efforts to conserve natural resources. (R) [SCALE 08 - Personal conservation behavior]
___16. Whenever possible, I try to save natural resources. [SCALE 08 - Personal conservation behavior]
___17. Human beings were created or evolved to dominate the rest of nature. [SCALE 09 - Human dominance over nature]
___18. I DO NOT believe humans were created or evolved to dominate the rest of nature.(R) [SCALE 09 - Human dominance over nature]
___19. Protecting peoples' jobs is more important than protecting the environment. [SCALE 10 - Human utilization of nature]
___20. Protecting the environment is more important than protecting peoples' jobs. (R) [SCALE 10 - Human utilization of nature]
___21. It makes me sad to see forests cleared for agriculture. [SCALE 11 - Ecocentric concern]
___22. It does NOT make me sad to see natural environments destroyed. (R) [SCALE 11 - Ecocentric concern]

	___23. Families should be encouraged to limit themselves to two children or less. [SCALE 12 - Support for population growth policies] *___24. A married couple should have as many children as they wish, as long as they can adequately provide for them. (R) [SCALE 12 - Support for population growth policies]*
Data source	
Required data	✓ Essential: NBS characteristics for each city/site, more specifically objectives (short-, medium-, and long-term) and challenges ✓ Desirable: Data on environmental education programs which mediated contact with NBS, longitudinal evaluations of impact of programs (environmental literacy)
Data input type	Quantitative (quantitative and qualitative, if case study methodology is opted for)
Data collection frequency	After NBS implementation, longitudinally, over years, aligned with long-term objectives.
Level of expertise required	☒ Methodology and data analysis requires high expertise in psycho-social research ☒ Quantitative data collection requires no expertise ☒ Qualitative data collection through case study methodology requires high expertise in psycho-social research o Basic training needed if participatory data collection is opted for
Synergies with other indicators	SC1 Bonding social capital SC2 Bridging social capital SC3 Linking social capital SC4.1 Trust in community SC4.2 Solidarity between neighbours SC4.3 Tolerance and respect SC6 Place attachment (Sense of Place): Place Identity SC9 Empowerment: Perceived control and influence over NBS decision-making SC10 Environmental education opportunities SC11.2 Environmental Identity SC14 Social desirability
Connection with SDGs	Goal 8. Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all Goal 9. Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation Goal 10. Reduce inequality within and among countries Goal 11. Make cities and human settlements inclusive, safe, resilient and sustainable Goal 13. Take urgent action to combat climate change and its impacts

	Goal 16. Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels
Opportunities for participatory data collection	-
Additional information	
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16.8 Urban farming educational and/or participatory activities

Project Name: URBAN GreenUP (Grant Agreement no. 730426)

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Urban Farming Educative/ participate activities, Learning for producers	**Knowledge and Social Capacity Building**
Description and justification	Especially farmers living in the urban and peri-urban will be informed about climate change and its increasing affects, periodically. First of all, leading farmers living in the urban periphery (Çiğli and Menemen districts), agricultural cooperatives and students will be determined and training seminars will be organized. Secondly, the visitors of the Sasalı Natural Life Park where the Demo Site area is also located will also benefit from these seminars. Visitors to the natural life park (around 1.500.000) area will be able to visit climate sensitive greenhouse and its garden. All visitors will be counted for measuring. After each training seminar, the participants will complete detailed questionnaires and the success of the training will be measured. The results of the specially prepared questionnaires will be analyzed using statistical methods. Likewise, after analysing the questionnaires, the results will be shared by using ICT platforms.
Definition	In progress
Strengths and weaknesses	- This KPI will require citizens' collaboration, so recovering the data could be difficult.
Measurement procedure and tool	