



Building comfort in outdoor settings: How participation in multiple nature-science programs during the school year influence children's attitudes and comfort in nature?

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Access to Natural Environments

- ▶ American Youth
 - ▶ Spend less time in natural areas (Louv, 2005)
 - ▶ Have limited access to Natural Environments – 85% of population in or near urban areas (Census, 2010)
 - ▶ More time with sports & technology
 - ▶ Recent research that examines the life history of committed environmentalists, wildland recreationists and amateur field biologists indicates that a love and concern for the environment starts in childhood (Tanner, 1980; Chawla, 1988; James & Bixler, 2010)
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Nature Centers & Camps Role

- ▶ Contact with natural environments combined with contact with enthusiastic and knowledgeable peers and adults shapes these interests (James & Bixler, 2010).
 - ▶ Play an important role in this process, since they can provide repeated and extended contact with the natural world within a supportive social environment.
 - ▶ Experiences foster awareness, competency and affection for a world that is now largely unavailable to most American children.
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Study Purpose

Overall Study

- ▶ To assess how middle school students' participation in a nature center in-school science programs during the school year influence their attitudes and comfort in nature.
- ▶ RQ1: Do multiple experiences with the nature center staff and program change student's attitude toward the environment?
- ▶ RQ2: Do multiple experiences with the nature center staff and program change student's comfort in the outdoors?

Pre-nature center Experience

- ▶ To create a baseline understanding of childhood outdoor experiences, fears & expectations in outdoors and environmental worldview
- ▶ RQ 1: What are children's fear expectancy in the outdoors?
- ▶ RQ 2: What outdoor activities are desirable for children?
- ▶ RQ 3: What are children's environmental worldview?



Sample

- ▶ 5th Grade Students (10-11 years old).
 - ▶ Title 1 North Carolina School (40% or more students are enrolled in the Free or Reduced Lunch program).
- ▶ N=83 participants (49 females, and 34 males).



Methods

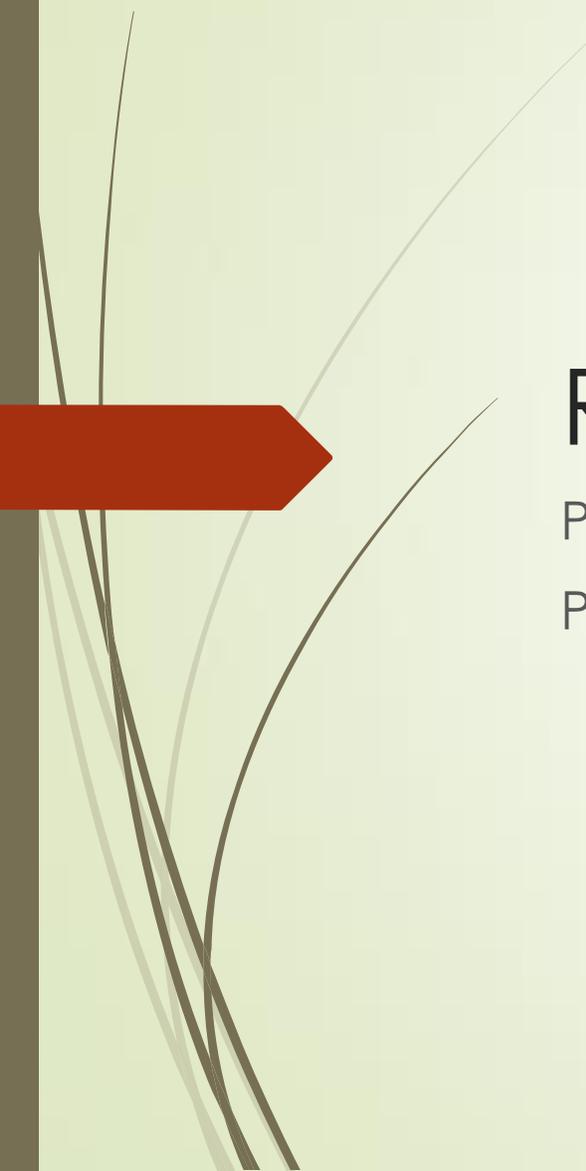


Questionnaire

- ▶ New Ecological Paradigm Scale for Children (Dunlap, R.E., Van Liere, K.D., Mertig, A.G., and Jones, R.E.; 2007)
- ▶ Wildland Fear Expectancy Scale (Bixler, R.D. & Floyd, M.F.; 1999)
- ▶ Expectation of Encounter Subscales (Bixler, R.D. & Floyd, M.F.; 1999)
- ▶ Developing scale: Environmental Socialization Scale (James & Gross)

Administered

- ▶ Pre-Questionnaire in science class prior to visit to nature center
- ▶ Read aloud to clarify



Results

Pre-questionnaire Analyzed – baseline for experiences

Post-questionnaire in progress



Fear Expectancy in Outdoors

Participants asked

- ▶ On a scale of 1-5 how scared they would be if certain situations happened to them in the outdoors
 - ▶ 1 being Not Scared
 - ▶ 2 being A Little Scared,
 - ▶ 3 being Somewhat Scared
 - ▶ 4 being Very Scared
 - ▶ 5 being Extremely Scared

Then asked

- ▶ On a scale of 1-5 how likely those events were to happen
 - ▶ 1 being No Chance
 - ▶ 2 being Little Chance
 - ▶ 3 being Good Chance
 - ▶ 4 being Very Good Chance
 - ▶ 5 being 100% Chance



Fear Expectancy in Outdoors

Scared:

- ▶ Caught in an earthquake (68.3%)
- ▶ Seeing a tornado (60.5%)
- ▶ Get hit by lightning (59.8%)

Likelihood of happening:

- ▶ 50.6% no chance of being caught in an earthquake
- ▶ 48.8% said there was no chance of getting a bat caught in their hair
- ▶ 44.4% said there was no chance of seeing a tornado in the woods
- ▶ 33.8% said there was no chance of being hit by lightning



Fear Expectancy in Outdoors

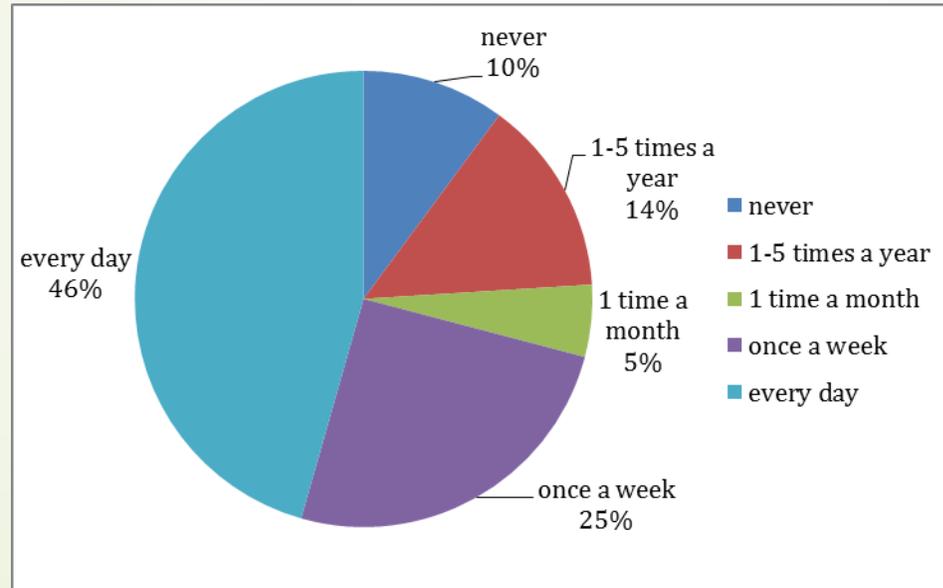
Scared

- ▶ If stung by a bee, 40.2% of participants answered Not Scared
- ▶ Seeing a Snake - 30% not be scared, & 20% a little scared

Likelihood of happening:

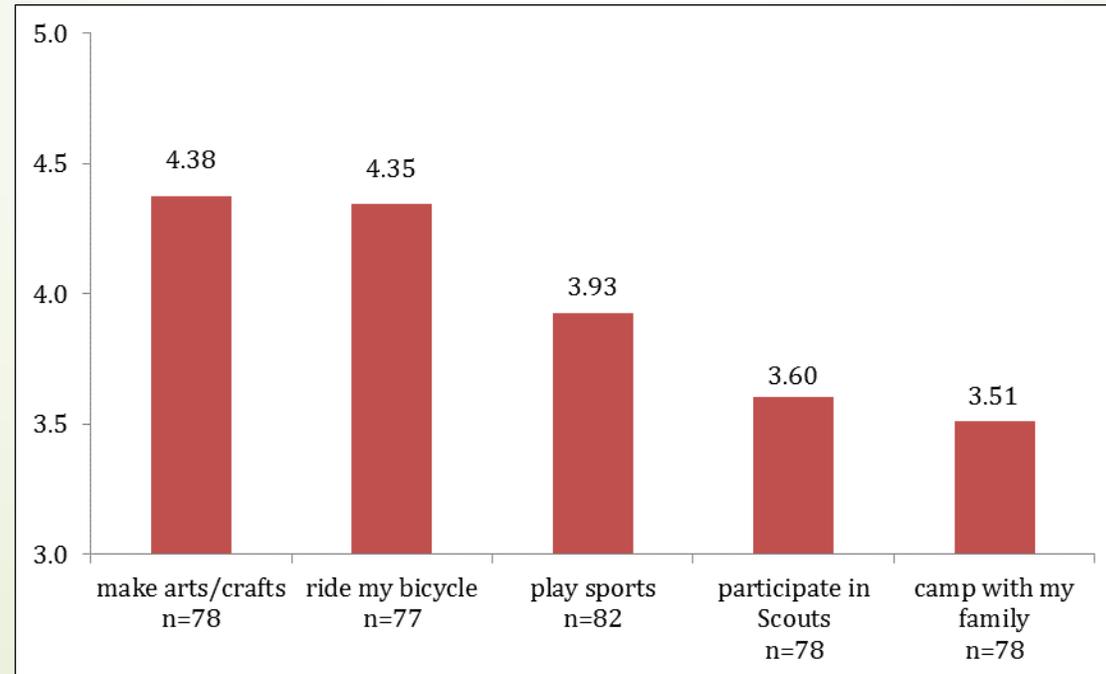
- ▶ Stung by a bee, 61% of participants answered that there would be at least a Good Chance
- ▶ Seeing a Snake - 74.1% of participants said there would be at least a good chance.

Desire to visit Nature Center

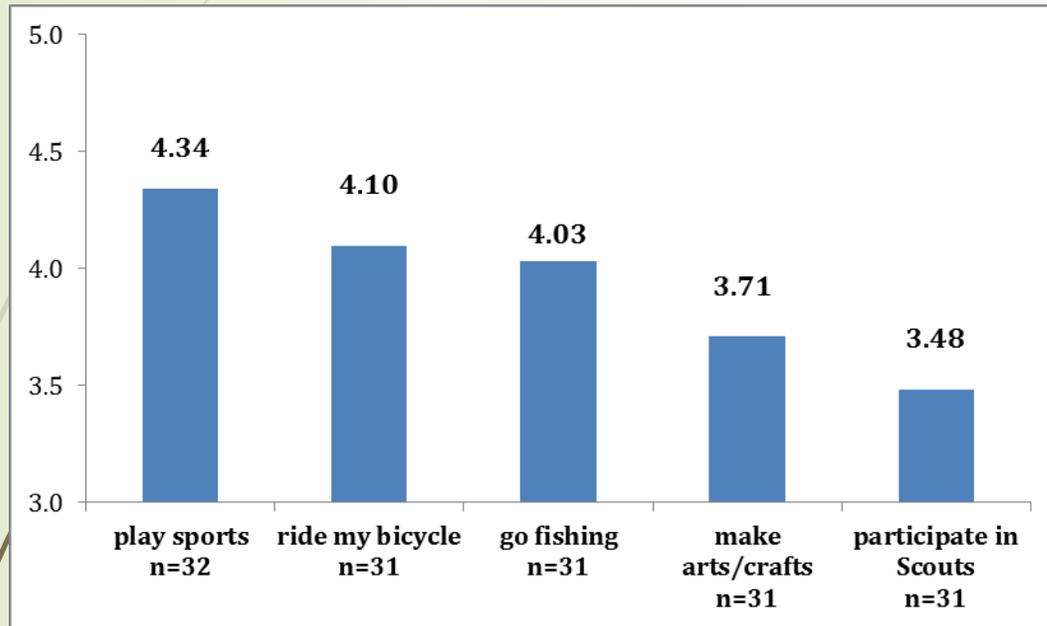


Desirable Outdoor Activities

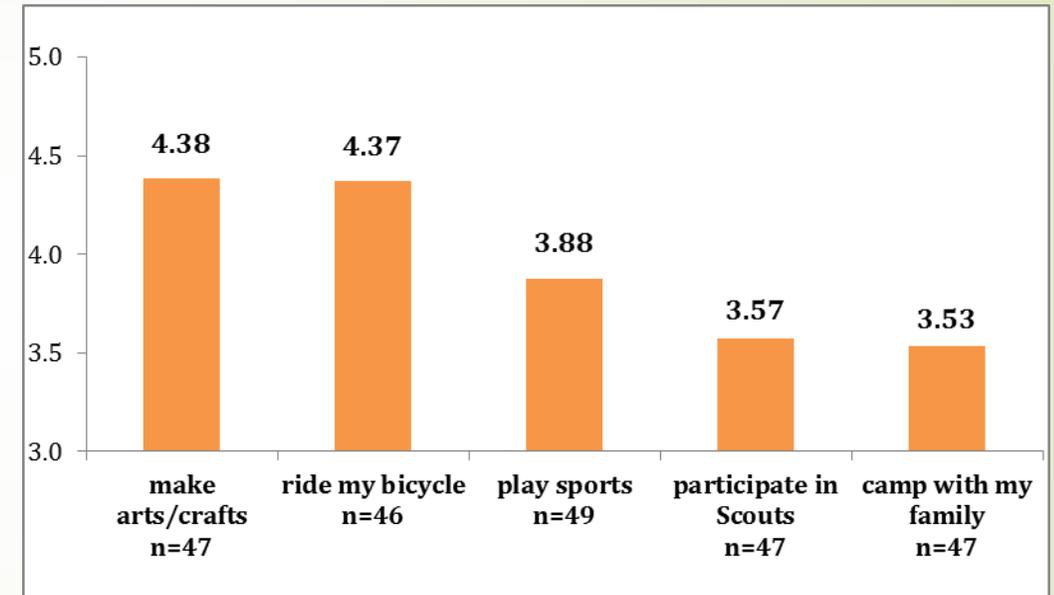
- ▶ A semantic differential scale and asked to rate (scale of 1-5. 1 being never, and five being every day) how often they would like to participate in activities commonly offered at local nature centers.



Desirable Outdoor Activities by Gender

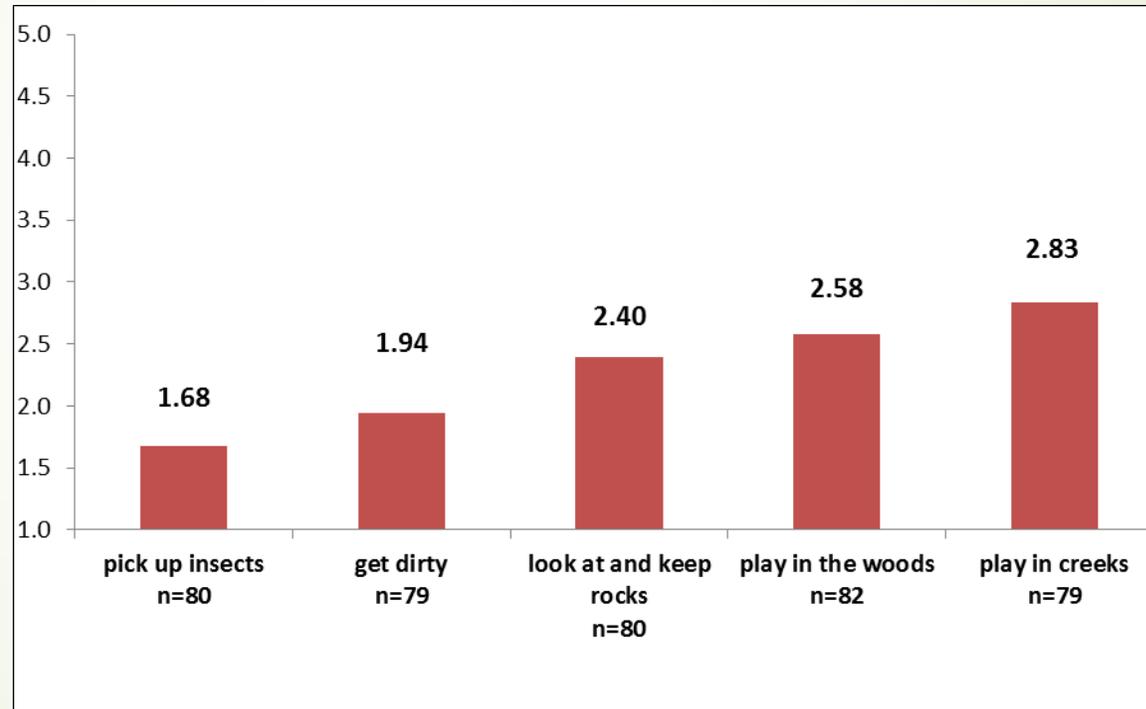


Male



Female

Least Desirable Outdoor Activities



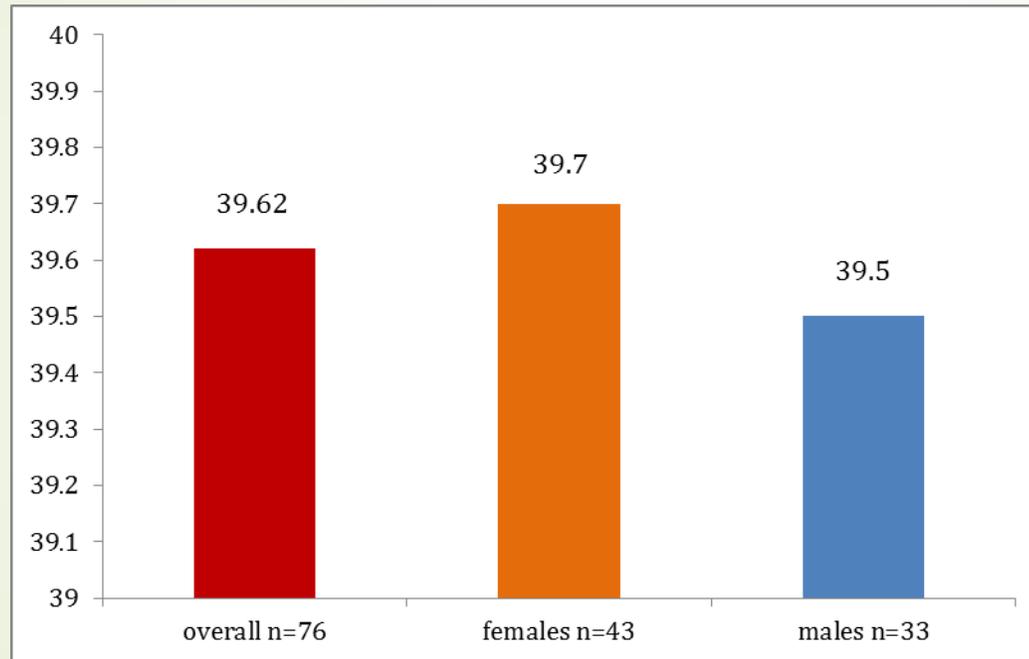
All Respondents

Environmental Worldview (NEP)

TABLE 1: Frequency Distributions of the Responses to the 10-Item New Ecological Paradigm (NEP) Scale for Children

Question	Responses (% of students) n=76				
	Strongly Agree	Agree	Unsure	Disagree	Strongly Disagree
1. Plants and animals have as much a right as people to live	54.9	35.4	49.4	2.4	2.4
2. There are too many (or almost too many) people on Earth	19.5	17.1	15.9	24.4	23.2
3. People are clever enough to keep from ruining the Earth	28.4	21.0	25.9	14.8	9.9
4. People must still obey the laws of nature	65.4	23.5	4.9	2.5	3.7
5. When people mess with nature it has bad results	34.6	30.9	29.6	4.9	0.0
6. Nature is strong enough to handle the bad effects of our modern lifestyle	14.8	24.7	34.6	16.0	9.9
7. People are supposed to rule over the rest of nature	1.2	8.6	13.6	30.9	45.7
8. People are treating nature badly	26.3	28.8	33.8	7.5	3.8
9. People will someday know enough about how nature works to be able to control it	22.2	30.9	30.9	7.4	8.8
10. If things don't change, we will have a big disaster in the environment soon	40.7	24.7	24.7	6.2	3.7
Note: Items 3, 6, 7, and 9 (anti-environmental) were reverse scored to obtain an overall NEP score.					

NEP Overall Score



A score of 30 (neutral environmental concern) is considered to be the midpoint.



Conclusion



- ▶ Based on the pre-data, there is a desire of both male and female respondents to visit nature centers.
 - ▶ Over 71% of respondents would like to visit nature centers at least once a week.
- ▶ Respondents had high level of ecological concern, as evidenced by their scores on the New Ecological Paradigm (NEP) Scale for Children.
- ▶ Distinct contrast between what these respondents desire to do in the out of doors and what nature centers currently offer as programs.
- ▶ The most desirable activities involve structure, supervision, and do not necessarily involve the natural world.
- ▶ Respondents of both genders reported low desires to get dirty, or to collect/inspect insects, rocks, and streams.
- ▶ Respondents consistently expressed high desires to be involved with arts and crafts, scouting, and sports not nature.



Applications to Camps?

- ▶ Baseline of 10/11 year old environmental socialization experiences, expectations to see in nature and possibly fear and environmental worldview.
- ▶ Directors, who are quite comfortable in outdoors, will gain understanding of campers' experiences, expectations and apprehensions about the outdoor environment.
 - ▶ Train staff on how to alleviate fears and build comfort in outdoor settings.