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Technical Brief: Interest in Science and Nature (Youth Version)

Description:

Interest in science is considered a key driver to pursuing science careers in youth (Tai et al. 2006, Maltese and Tai 2010) and sustained lifelong learning and engagement in adults (Dabney et al. 2011, Falk et al. 2007). We define interest as it relates to science and the environment as “the degree to which an individual assigns personal relevance to a science topic, activity, environmental issue, or the scientific endeavor.” This definition is compatible with Hidi and Renninger’s (2006) later phases of interest development, which are characterized by positive feelings and an increasing investment in learning more about a particular topic. Over time, this type of interest can lead to sustained engagement and motivation, and it can support an individual’s identity development as a science learner (Fenichel and Schweingruber, 2010, National Research Council 2009).

Intended Use/Audience: Youth

The Interest in Science and Nature scale measures general interest in learning science topics and engaging in scientific activities among adults. This youth version of the scale contains 10 items and can be administered online, by telephone, or via paper. It should take about 10 minutes to complete and can be administered as a pretest and/or posttest. (Please contact us if you would like to administer a retrospective pre-post version of this scale). The scale was developed and tested in informal science learning settings, primarily with elementary school-aged girls engaged in citizen science projects.

Evidence Reliability/Structure:

The youth version of Interest in Science and Nature scale utilizes, with permission, nine statements from the validated Girls Interest in Nature and Science Scale (Flagg, 2015). An additional tenth statement has been added to this scale and the directions and response categories are matched to other Cornell Lab of Ornithology scales. In-person focus groups, online teacher feedback, and expert review were initially conducted with several small groups of students (8-24) to establish face and content validity. High internal consistency was additionally confirmed with larger groups of young citizen scientists (Flagg, 2016).

How to Score:

Cleaning your data

Some project participants will not respond to this scale as carefully as you might hope. It is important to clean your data to account for this. Once you have entered the data into a spreadsheet such as Microsoft Excel or a statistical package such as SPSS or R, keep an original version of the master data set, and make a copy from which to work. Do the following simple checks:

- 1) Look across each row or case (i.e., set of responses from individual participants). If more than 25% of responses are missing from any row, exclude that row (participant) from your analysis.
- 2) Look across each row again, checking for rows in which all responses are the same. In general, seeing the same response for all items in a row is an indication that the respondent was not reading the items carefully. We recommend excluding from your analysis cases where all answers are the same unless they are all threes, as many respondents legitimately provide midpoint responses to all questions.

Scoring instructions

These instructions pertain to the full 10-item instrument: Once your data are in a spreadsheet, calculate a score for the individual and/or group:

- 1) Average the scores for all responses for each participant (the average should be between 1-5). Average scores below the midpoint indicate low levels of interest in science. Conversely, you can determine high or low interest of an individual relative to the average of the group score (see below).
- 2) You can also average the scores from all participants for an overall group score (which also should be between 1-5). Average scores below the midpoint indicate low levels of interest in science.

Note: if you are administering the scale before and after program participation and comparing the two sets of scores as part of a pre-post participation evaluation, you might want to consider grouping your participants into those who started out with relatively low scores in the pretest and those who started out relatively high. While expecting an increase in interest in science among participants who started out relatively low is reasonable, you should not expect to see much, if any, increase in those who started out quite high in their interest. You should consider merely maintaining that high level as a positive outcome.

Analytic Options: After your data have been cleaned, the scores can be treated as either ordinal or continuous variables and used in a multitude of analytical options such as t-tests, ANOVA, and regressions.

References:

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The Interest in Science and Nature (Youth Version) scale is on the next page. There is a form field above the scale so that you may enter your own title for your survey.

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Interest in Science and Nature (Youth Version)

Please indicate how much you DISAGREE or AGREE with each of the following statements by circling the number in the appropriate column. Please respond as you really feel, rather than how you think “most people” feel.

Choose one answer in each row.	Disagree Strongly	Disagree a little	Unsure	Agree a little	Agree Strongly
1. It's fun to do science activities.	1	2	3	4	5
2. It's fun to collect things from the outdoors.	1	2	3	4	5
3. I like to hear about new discoveries in science.	1	2	3	4	5
4. I want to understand how things in nature work.	1	2	3	4	5
5. I like to identify things in nature.	1	2	3	4	5
6. I like to observe birds, butterflies, bugs, streams, trees or other things in nature.	1	2	3	4	5
7. I enjoy watching nature shows.	1	2	3	4	5
8. I enjoy reading about science.	1	2	3	4	5
9. I like talking about science topics with others.	1	2	3	4	5
10. Science is one of my favorite topics. *	1	2	3	4	5

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*New item, has not been tested with this scale.