Attitude Towards Science Inquiry

Instrument: Views of Scientific Inquiry, Primary School Version (VOSI-P)

Scale/Subscale Name: Attitude towards science inquiry

Source: Gogolin & Swartz, 1992

Developers: Schwartz, N. Lederman, J. Lederman, 2005, Illinois Institute of Technology, Department of Mathematics and Science Education, Chicago, IL

Year: 2005

Target Audience(s): PreK-2nd grade

Language other than English available: No information available

Type: Attitude

Data collected: Qualitative

Data collection format: Students are interviewed by teacher/researcher/adult (in groups of 4-6 students) and responses recorded by teacher/researcher/adult.

Reading Level: Flesch-Kincaid Grade level: 4.2

Existence of test/technical manuals, user guides, supplemental materials: Instrument development study

Level of training necessary for administration/scoring/interpretation: None necessary for administration. Basic understanding of statistical methods necessary for scoring.

Widespread Use/Professional Endorsements: VOSI items have been used in a variety of research projects and evaluation studies such as Project ICAN: Inquiry, Context, and Nature of Science (NSF funded project). http://msed.iit.edu/projectican/

Cost of Use: No cost is associated with the use of this instrument.

Description:
- Instrument developed to assess PreK-2nd grade students’ views and conceptions about scientific inquiry, a key component of scientific literacy.
- The VOSI-P is designed for children with limited reading and writing abilities.
- 5, opened-ended questions.
Psychometrics:
Information on reliability and validity are provided below. If information on a particular psychometric was not found, it is indicated as “no information provided.” It should be noted that this is not necessarily an indication of a lack of reliability or validity within a particular scale/instrument, but rather a lack of rigorous testing, for various reasons, by the developers or other researchers.

Reliability: A correlation of at least .80 is suggested for at least one type of reliability as evidence; however, standards range from .5 to .9 depending on the intended use and context for the instrument.

  - **Internal Consistency**: No information provided
  - **Inter-rater reliability**: No information provided
  - **Test-Retest**: No information provided

Validity: The extent to which a measure captures what it is intended to measure.

  - **Content/Face Validity**: Questions based on general aspects of the nature of scientific inquiry identified by Schwab (1962).
  - **Criterion Validity**: No information provided
  - **Construct Validity**: No information provided

References:


Project ICAN: Inquiry, Context, and Nature of Science [NSF]


Construct: Science - Attitudes

Scale Name: Attitude towards science inquiry

Developers: Schwartz, N. Lederman, J. Lederman

Instructions for a teacher / a researcher:
- This questionnaire is designed for students who have limited reading and writing abilities.
- It is best to interview a small number of students (4~6) at a time.
- Please record students' responses to each question through notes and/or audio taping.
- Remind the students that there are no "right" or "wrong" answers to the following questions.

Items:
1. What kinds of work do scientists DO?
2. Explain HOW scientists do their work. I'm not asking what they do but How they do the work you just described for the last question?
3. Do you do science in your classroom? Yes or No, and why? Give me an example.
4. There was a woman who loved birds. She traveled around the world to study them. One day, she noticed a group of birds with a very strangely shaped beak. She also noticed that all the birds with this shaped beak ate the same type of foods. When she traveled to another country, she discovered a very different type of bird that had this same shaped beak. And they ate the same type of foods as the other birds with this same beak. She decided that there is a connection between birds' beak shapes and the type of food they ate.
   (a) What should she do next to see if her idea is correct?
   (b) Do you think she was working like a scientist? Why or why not?
   (c) Do you think her work was an experiment? Why or why not?
5. A long time ago all the dinosaurs died. Many scientists have tried to find out why this happened. They have many ideas about what happened and do not always agree with each other.
   (a) Why do you think they have come up with different reasons for why the dinosaurs died?
   (b) If your friend said that he knew the reason for what happened to the dinosaurs, what would he have to tell scientists to make them believe him?
   (c) Why?

Scoring:
- No numerical scoring.
- Responses provide descriptors and examples to gain insight into students’ ideas about scientific inquiry.
- Pre/Post responses can be compared to measure students’ development over time.