

Attitudes Towards Science Test

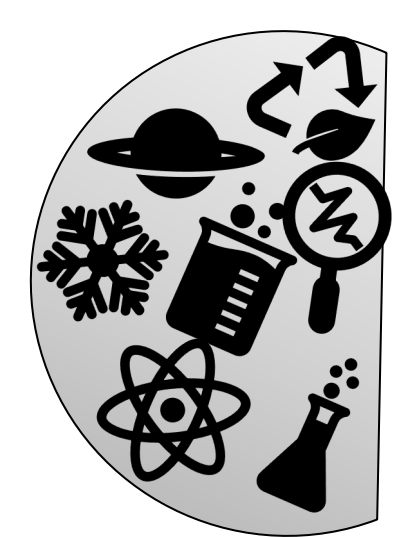


Nektaria Adaktylou, Kevin O'Connor, Andrea Ventoso, Hanan Albuflasa, Yogendra Chitrakar, Ylliass Lawani, Lawrence kambiwoa
Evaluation Working Group

Abstract

The purpose of this work was to develop an 'Attitudes towards science' pre- and post- test that the community can use to identify changes before and after students become involved in GLOBE related activities. The test is appropriate for middle and high school students. We ask for feedback from teachers, country coordinators, US partners or other groups, so as to make the necessary adjustments and finalize the tool

Research Question



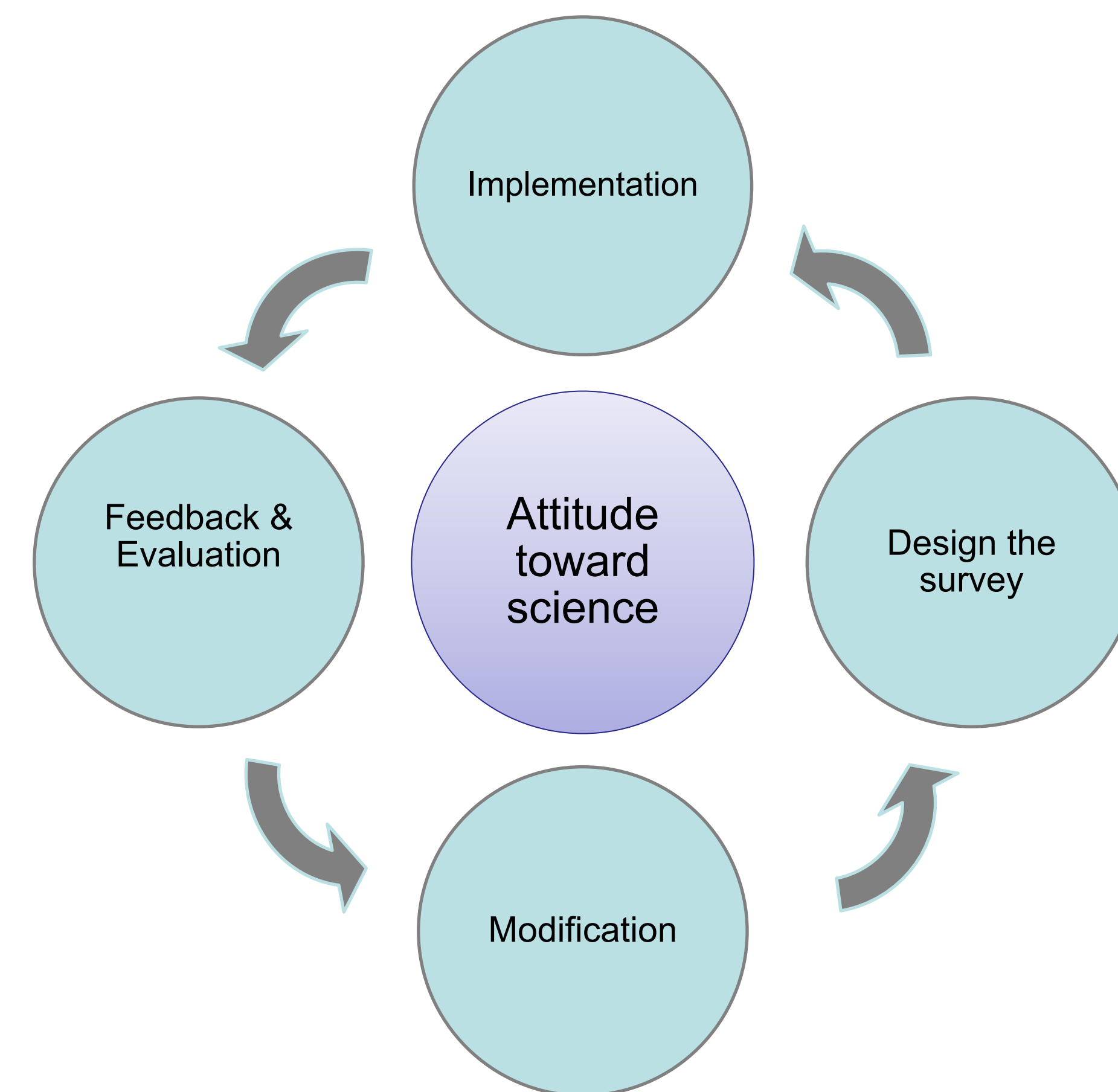
Our research question is whether the tool we have developed is appropriate to capture the changes in students' attitudes when participating in GLOBE.

Introduction

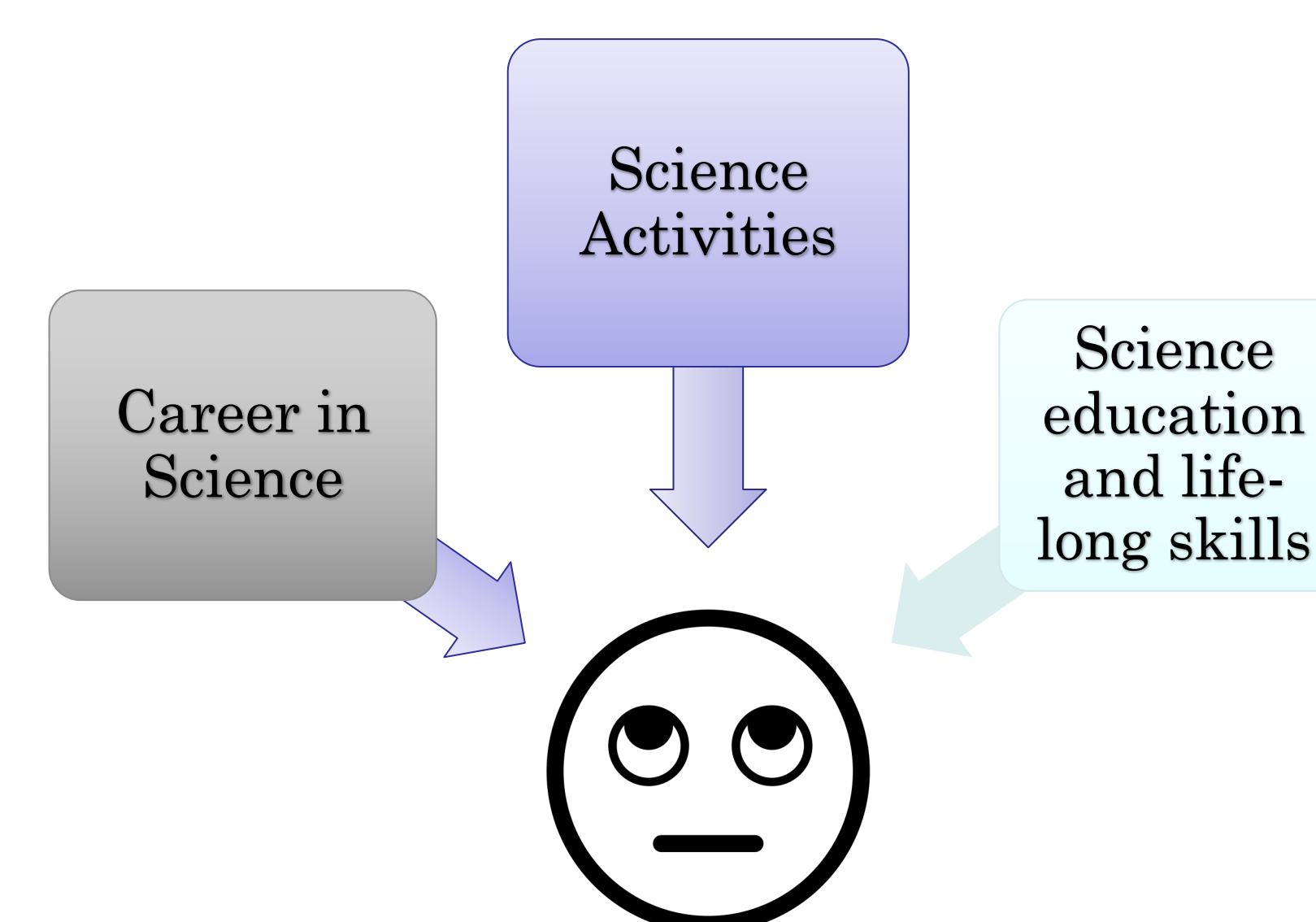
Science plays an important role in our lives and has a direct impact on human well-being and sustainability of the environment. It is very important to familiarize students with science concepts and to provide them with the right background to facilitate their career choices. Attitudes toward science influence the decisions that students make to study science and to pursue a science career. The effect on attitudes has been examined by analyzing the data about gender, grade level, and performance on the basis of activities that are expected to improve students' attitudes toward science (Akpınar, Yıldız et al. 2009; Vainio and Paloniemi 2014; Eren, Bayrak et al. 2015).

Methodology

A survey was developed to understand the changes in student's attitudes towards science, before (pre-test) and after (post-test) their participation in GLOBE related activities. The post-test has some additional questions compared to the pre- test, that are GLOBE tailored. The survey will be implemented by several schools and the feedback from teachers will be collected to evaluate and improve the survey.



The average time required to complete the survey is about 15 minutes for the questions and 15 minutes for the drawing. An effort was made to have a short set of questions so as to keep the students engaged and thus minimize random answers. The questions cover attitude towards science related activities, science education and science related careers.



The students will voluntarily complete the pre-test before participation in the GLOBE related activity. The attitude of are measured using four different scales, as listed in the table below with some example of the survey questions:

A five-point psychometric, Likert scale, which ranges from totally disagree to totally agree.

- I would rather find out why something happens by doing an experiment than being told how it works.
- I would like to have a career in science.
- I like to use data and math to work on real problems.

Dichotomous Scales, with Yes, No and Neutral answer.

- Do you think that science is an interesting subject and you want to study it?
- Do you think that understanding science would be important for you in the future even if you are not a scientist?
- Do you feel that you are good at science?

Categorical answers

- Which subject do you prefer studying at school?
 - a. Math
 - b. Language
 - c. Biology
 - d. Chemistry
 - e. Art
 - f. Music
 - g. History
 - h. Geography
 - i. Physics

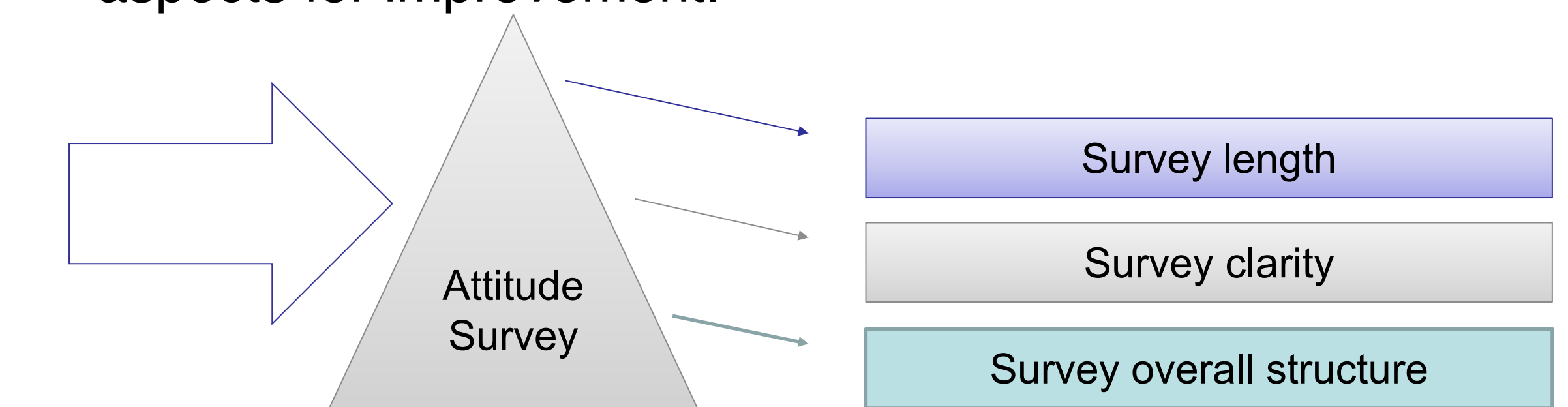
Open answer questions

- How do you think society benefits from science?

The post-test, has two parts. The first part measures the students experience with GLOBE activities using questions with five-points Likert scale. In the second part the students will use art to express their perspective about science, by drawing a scientist.

Results

The next stage of this project is implementing the survey. The feedbacks collected will help to identify the main aspects for improvement.



It will be interesting to see how the results vary from region to region, and even from one county to another, The survey has not considered any regional diversity issues and has focused on the activity only.

Conclusion

This work is an Evaluation Working Group project that aims to facilitate the investigation of GLOBE's effectiveness in changing the attitude toward science, and encourage more student to consider this field as a future career option. It will also help identify the impact of these activities on individual skills.

References

- 1.Akpınar, E., E. Yıldız, N. Tatar and Ö. Ergin (2009). "Students' attitudes toward science and technology: an investigation of gender, grade level, and academic achievement." *Procedia - Social and Behavioral Sciences* **1**(1): 2804-2808.
- 2.Eren, C. D., B. K. Bayrak and E. Benzer (2015). "The Examination of Primary School Students' Attitudes Toward Science Course and Experiments in Terms of Some Variables." *Procedia - Social and Behavioral Sciences* **174**: 1006-1014.
- 3.Vainio, A. and R. Paloniemi (2014). "The complex role of attitudes toward science in pro-environmental consumption in the Nordic countries." *Ecological Economics* **108**: 18-27.