Project name: Evaluating the effectiveness of Long-Term Integrated Research and Conservation Education Program, Azerbaijan

Final report

Introduction

This final report presents the effectiveness of conservation education program on Azerbaijani students' knowledge and skills on monitoring of rare vegetation and its threats within the "buffer zones" (areas between Industry Zone and non-industrial protected area in Gobustan National Park) and responsible environmental behaviour.

The main Objectives of this research were to assess the effectiveness of conservation education program on Azerbaijani students' knowledge about and attitudes towards rare vegetation within the "buffer zones" in Gobustan State National Park and students' behaviour change.

For evaluations of the training course we used Donald Kirkpatrick's levels model: reaction, learning and behaviour.

The workshop for two days conducted in the auditorium of State National University of Architecture and Construction.

The first day was focused on Students' knowledge about and attitudes towards rare vegetation and its threats in Azerbaijan based on the "Rare Vegetation Knowledge Test".
The last two days were focused on Students' skills on rare vegetation identification in areas clearly marked by examiners based on the "Special Topic Questionnaire" and "Remote Sensing Exercises".

Students' knowledge about and attitudes towards rare vegetation will be assessed through making use of "Rare Vegetation Knowledge Test" consisting of 10 multiple-choice items with three-four options (Multiple-choice questions ask respondents to select among several possible answers). These tests have been assessed biodiversity conservation knowledge and asked respondents to identify rare plant species. This part elicited students' opinions about the park and biodiversity conservation by presenting 2-3 statements (e.g. people should be allowed to let their goats graze freely in Gobustan park) and asking students how much they agreed or disagreed with each statement.

In order to examine how the students demonstrate their knowledge about application of GIS and Remote Sensing technologies in environment protection I developed "Special Topic Questionnaire" and "Remote Sensing Exercises". Performing these exercises, students must demonstrate their knowledge in the identification of the "buffer zones".

The first we carried out an evaluation of the students' reaction (Level 1 Kirkpatrick Model). Evaluation on this level measured how participants reacted to the training. It was important for us to get a positive reaction immediately after the training. The results presented in Figure below below show that the participants were pleased with the quality of the training. The level of the Training Course was assessed as "Good".
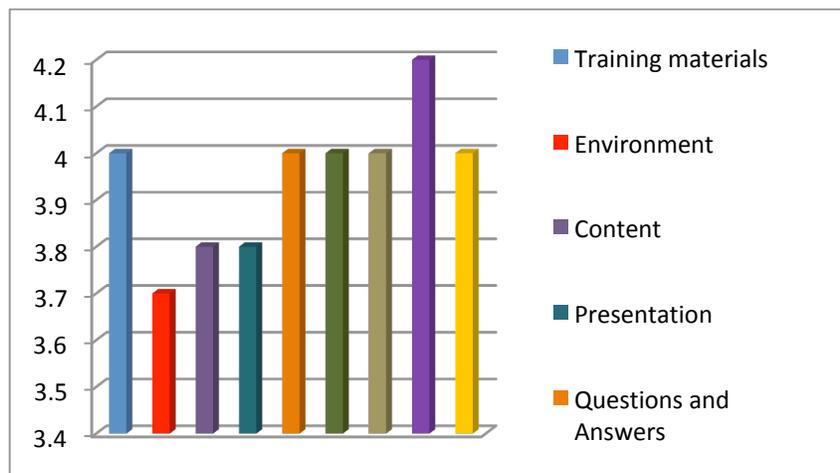

Figure 1). Results of evaluation of the students' reaction. Kirkpatrick Model Level 1: Reaction

Evaluation of student's knowledge, experience and skills they have gained and used in practice (Level 2 Kirkpatrick Model) are presented in this report.

Assessment of students' behaviour change (Level 3 Kirkpatrick Model) also have been presented in this report. It takes one year for participant behaviours to change as a result of the education program. Given this, discerning whether or not behaviour change occurs requires long-term study.

The student questionnaire which designed to measure the intended outcomes of the conservation education program grouped into four categories:

Category: 1 Environmental Attitudes
Category: 2 Rare Vegetation Knowledge Test (Competency test used in writing to test principles, facts and other knowledge-based objectives)
Category: 3 GIS and Remote Sensing Test / Geographic Information Systems (GIS): Knowledge Base - Remote Sensing Exercises (Demonstrations of skills are particularly useful for evaluating technical skills.

Category: 4 Environmental Behaviours. Measuring Behaviour Changes (1.5 year after the training)

Project results

Category: 1. Environmental Attitudes

This part of the survey is designed to determine environmental attitudes.

Students showed their interest in rare vegetation conservation between pre- and post- testing phases: the questionnaire in order to test the students understanding and the relevance of biodiversity to real world issues, explore their interest in taking additional courses related to rare vegetation conservation, getting involved in environmental issues (Figures 2).
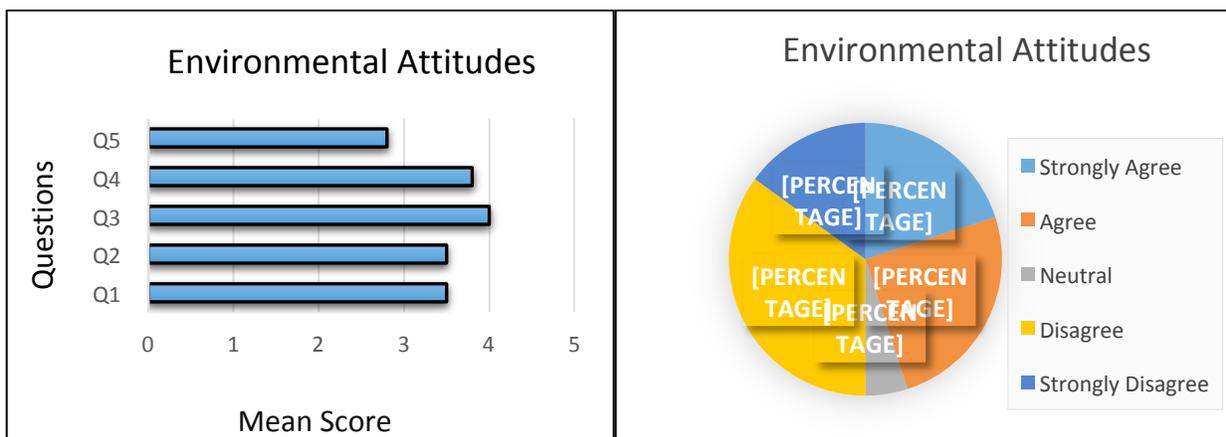
Figure 2. Assessment of student's interest in biodiversity conservation

Competency test used a written Rare Vegetation Knowledge Test, consisting of 10 multiple-choice, to measure changes in students' knowledge of rare vegetation.

Students in the post test phase significantly increased their confidence in Rare vegetation knowledge: defining type of habitat for rare species of vegetation post- testing and type of soil and the degree of salinity for rare vegetation, identifying principal threats, providing examples of which rare types of plant communities have been degraded. Assessment of rare vegetation knowledge presented in Figures 3a), 3b).
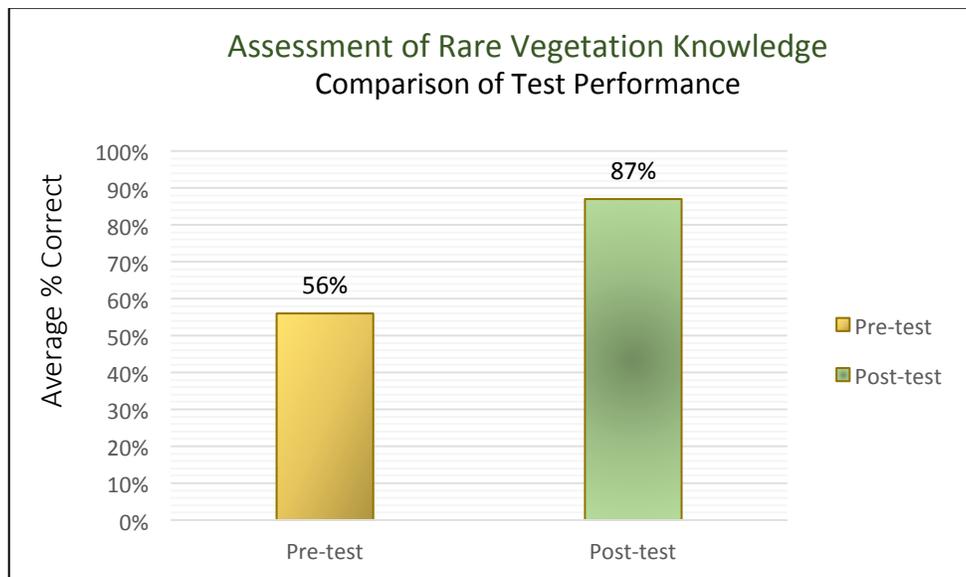
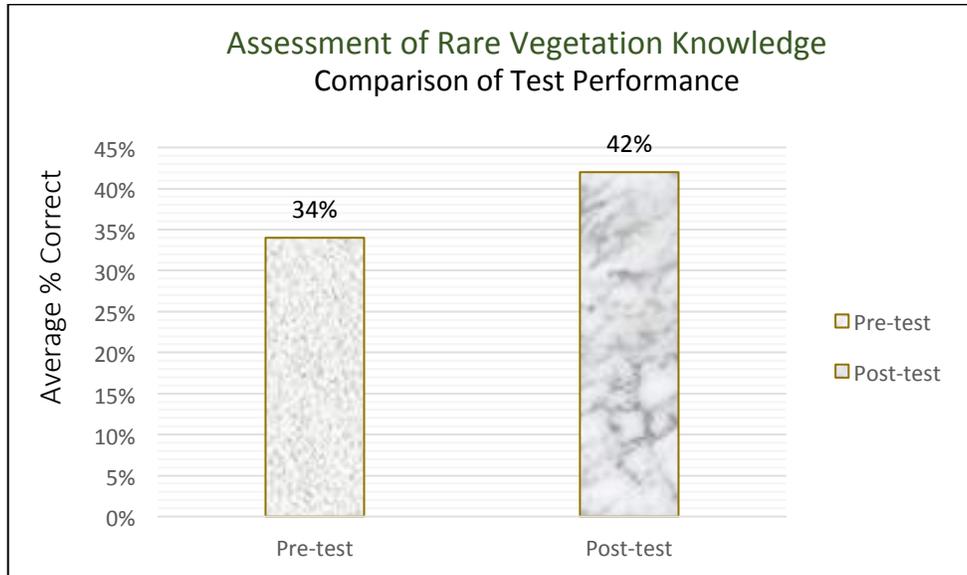Figure 3a). Assessment of rare vegetation knowledge before and after ("experimental group")

Figure 3b). Assessment of rare vegetation knowledge before and after ("control group")

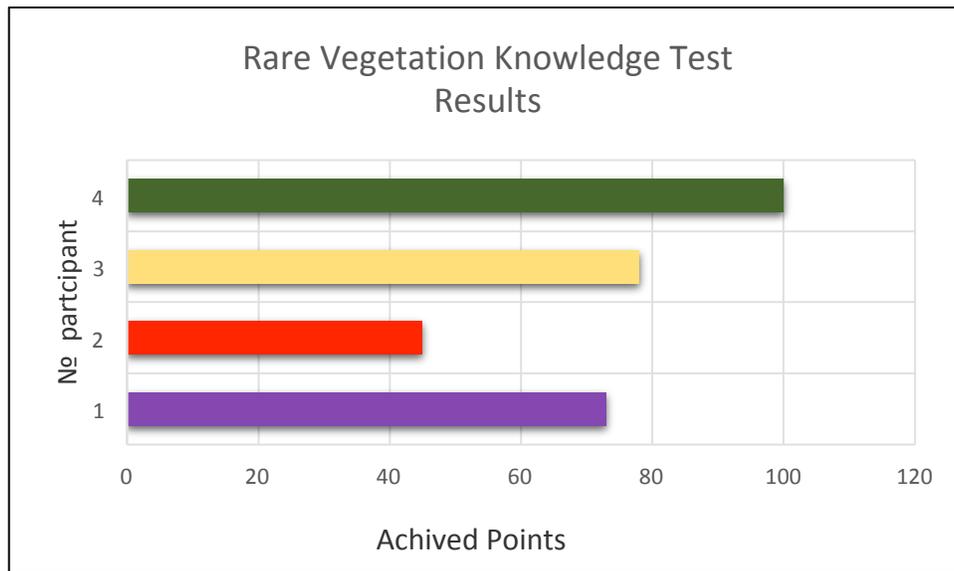Rare Vegetation Knowledge Test Results presented in Figures 3c)

Figure 3c). Assessment of rare vegetation knowledge ("experimental group")

The trainees were asked to demonstrate their skills (using Geographic Information Systems (GIS): Knowledge Base and Remote Sensing (RS) technologies by producing rare vegetation map using the software (special computer program).
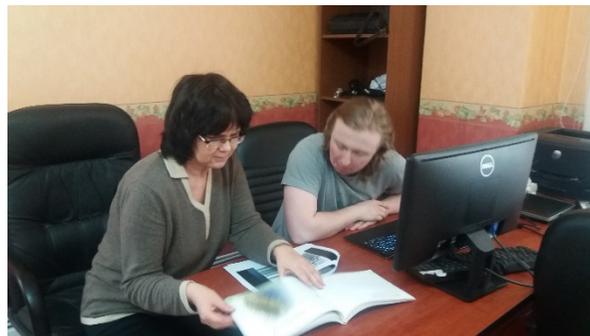
In terms of Demonstrations of skills on rare vegetation identification, students reported significant gains between pre- and post- testing phase in data recording, rare vegetation classification and rare vegetation change detection (Figures 4a),4)b)).
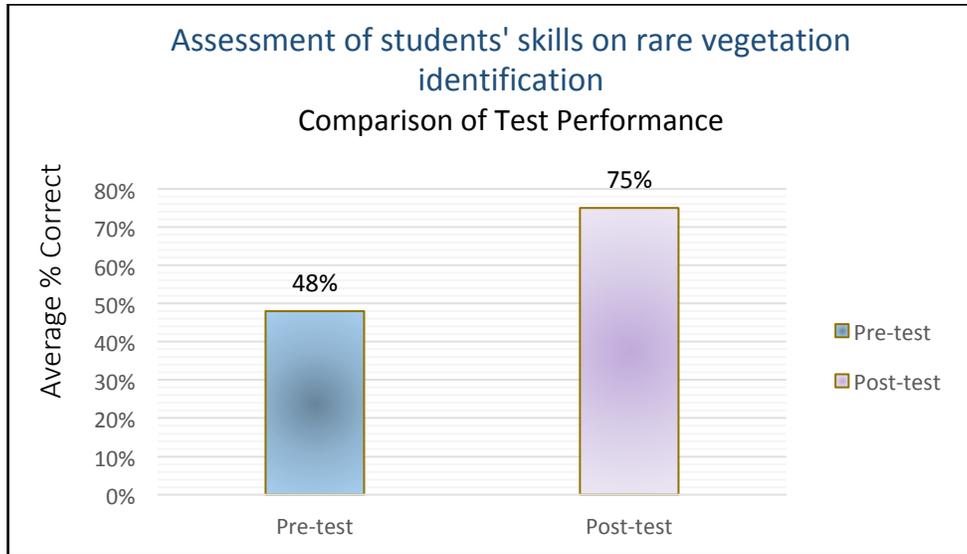
Figure 4a). Assessment of rare vegetation identification skills in confidence before and after ("experimental group")
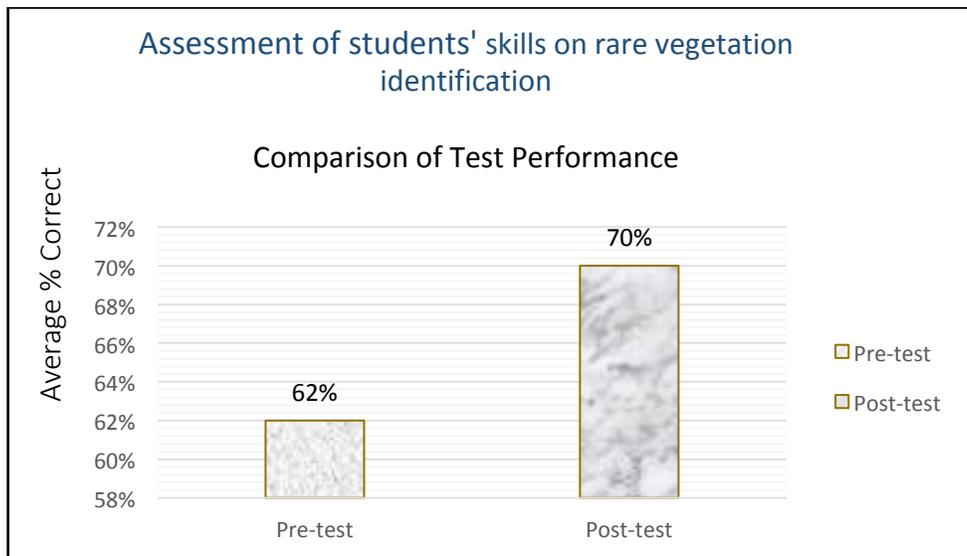

Figure 4b). Assessment of rare vegetation identification skills in confidence - before and after ("control group")

Kirkpatrick Level 3: Behaviour

Evaluation on this level measures whether the knowledge and skills that the training participants have learned in the training are applied to their work.

4.1 Environmental Behaviours

This section of the survey is designed to find out what things students do about the environment.
The trainer asked to mark the answer that is closest to the right answer for the student

Assessment of student's interest in biodiversity conservation presented in Figure 5a)
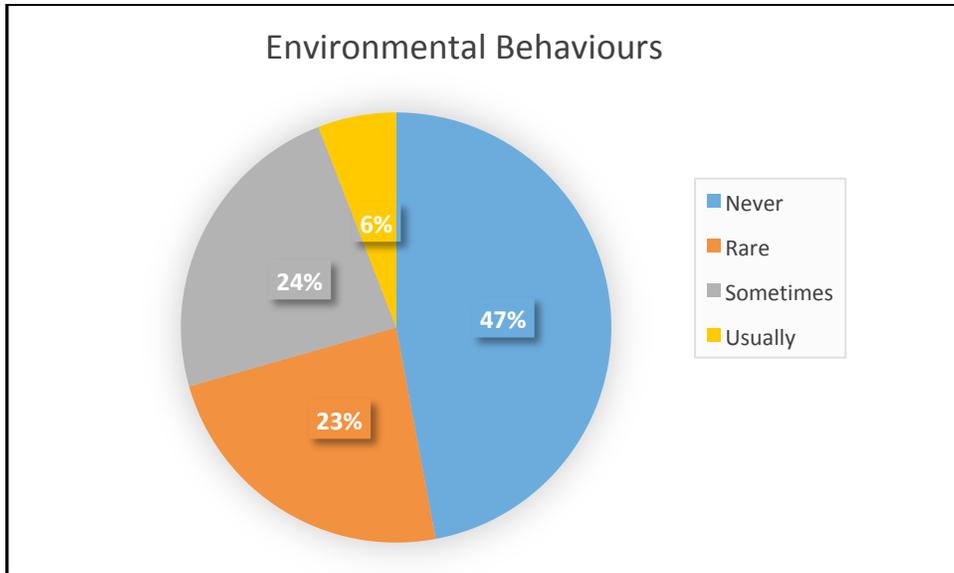
Figure 5a). Assessment of student's interest in biodiversity conservation

4.2 Measuring Behaviour Changes (1.5 year after training)

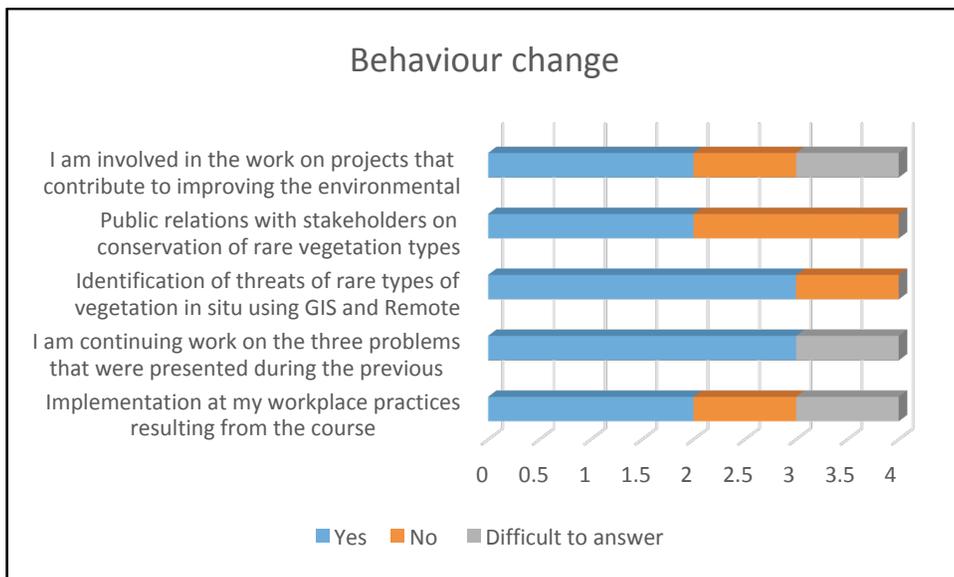Assessment of student's interest in biodiversity conservation presented in Figure 5b)

Figure 5b. Assessment of behaviour change (1.5 year after training)

Conclusion

We examined the effectiveness of the conservation education program ("Rare vegetation conservation in Gobustan National Park") in changing students' knowledge and behaviour by (1) comparing responses of before and after the educational program and (2) comparing responses of the "control group" and "experimental group" after the educational program.

Participants in the educational program significantly increased their Rare vegetation knowledge and Demonstrations of skills on rare vegetation identification became significantly more pro-environmental. The average student who participated in the program answered one more question correctly on the post-test compared to the pre-test, increasing the percent correct by 31% (Rare Vegetation Knowledge Test) and by 27% (Demonstrations of skills on identification of rare vegetation). Attitude and behavioural changes increased in case of "experimental group".

What's the Next Step?

- Experiences Gained, Recommendations and Lessons Learnt from the Project

- Conducting a SWOT Analysis for Program Improvement

- Implementing an Action plan for implementation of Donald Kirkpatrick's Level 4: Results Evaluation_Organizational Performance

Learn more about the program at
https://www.rufford.org/projects/yelena_gambarova_1