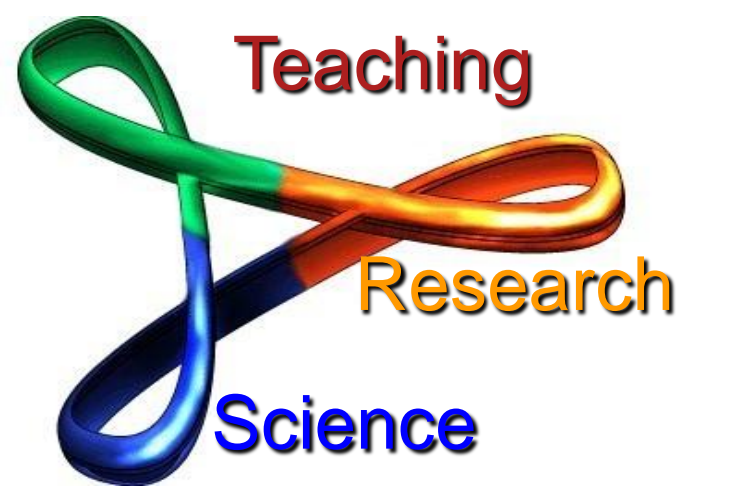




Design and Implementation of Educational Field Trips to University Research Labs

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Introduction

Universities conducting excellent scientific research dot the map of many nations around the world. Surrounding them are high schools where students learn the final results of such research, but few of these students ever get to see how that research was conducted. In order to introduce students to the frontiers of modern scientific research and research methods in the life sciences we designed, implemented and evaluated a novel learning unit focused on field trips to university research labs.



Sample

Biology teachers

- n= 14
- from 8 schools

Grade 11 biology students

- n= 293
- 14 groups from 8 schools

Graduate students/ Guides

- n= 6
- from Hebrew University's Life Science Institute

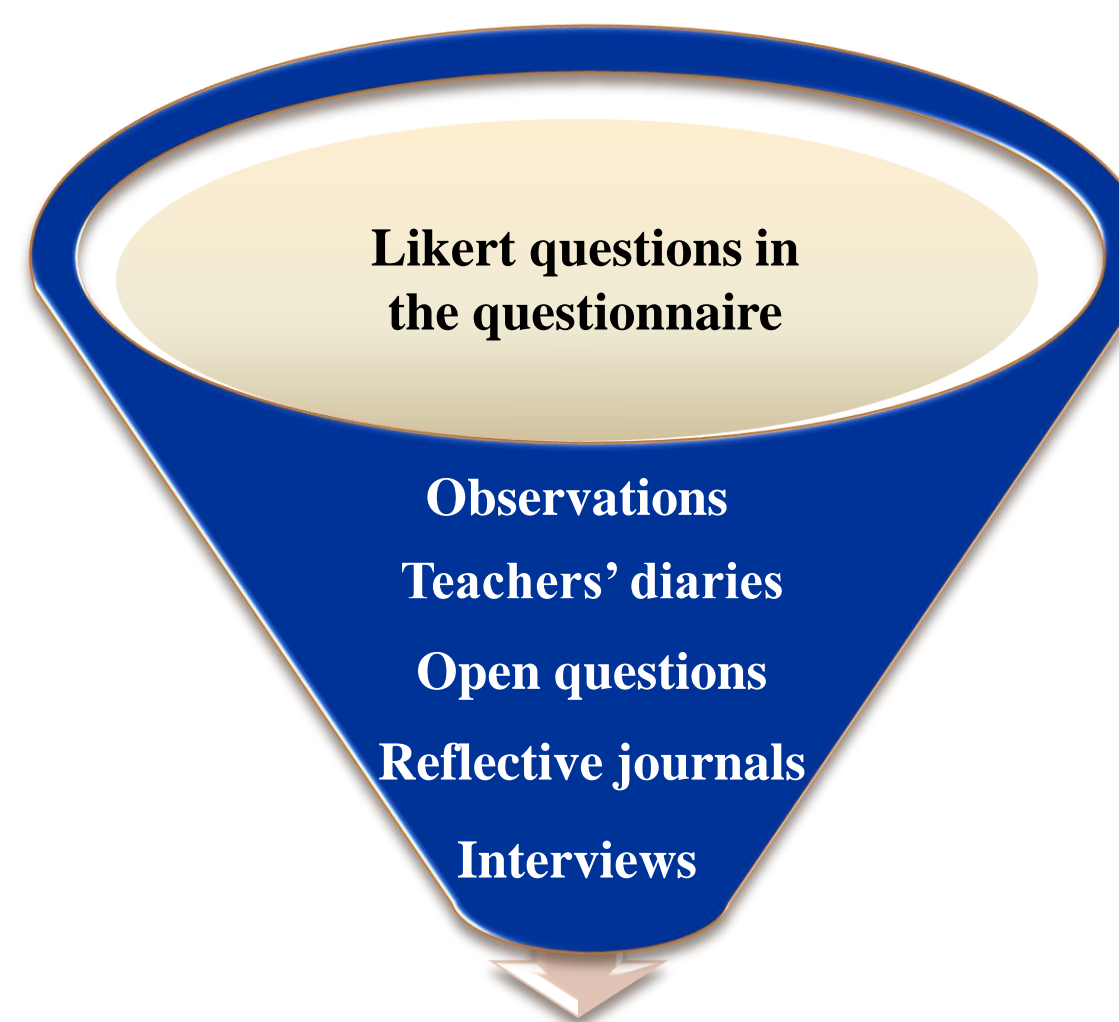
Unit Design

The unit is called "The Students Meet an Authentic Science" and it is based on the Schwabian (1966) *science as inquiry* model, in that it focuses on representing the Nature of Science (NOS) to students by developing student-researcher dialogue during lab visits, as well as by analyzing historical narratives in school. Implementation of the unit follows the tripartite model of Orion (1993) for teaching field and museum trips.



Methodology

The study encompasses data collected from 2008-2012. It uses a quasi-experimental, pre-post control design, which utilizes quantitative and qualitative instruments:



Statistical tests

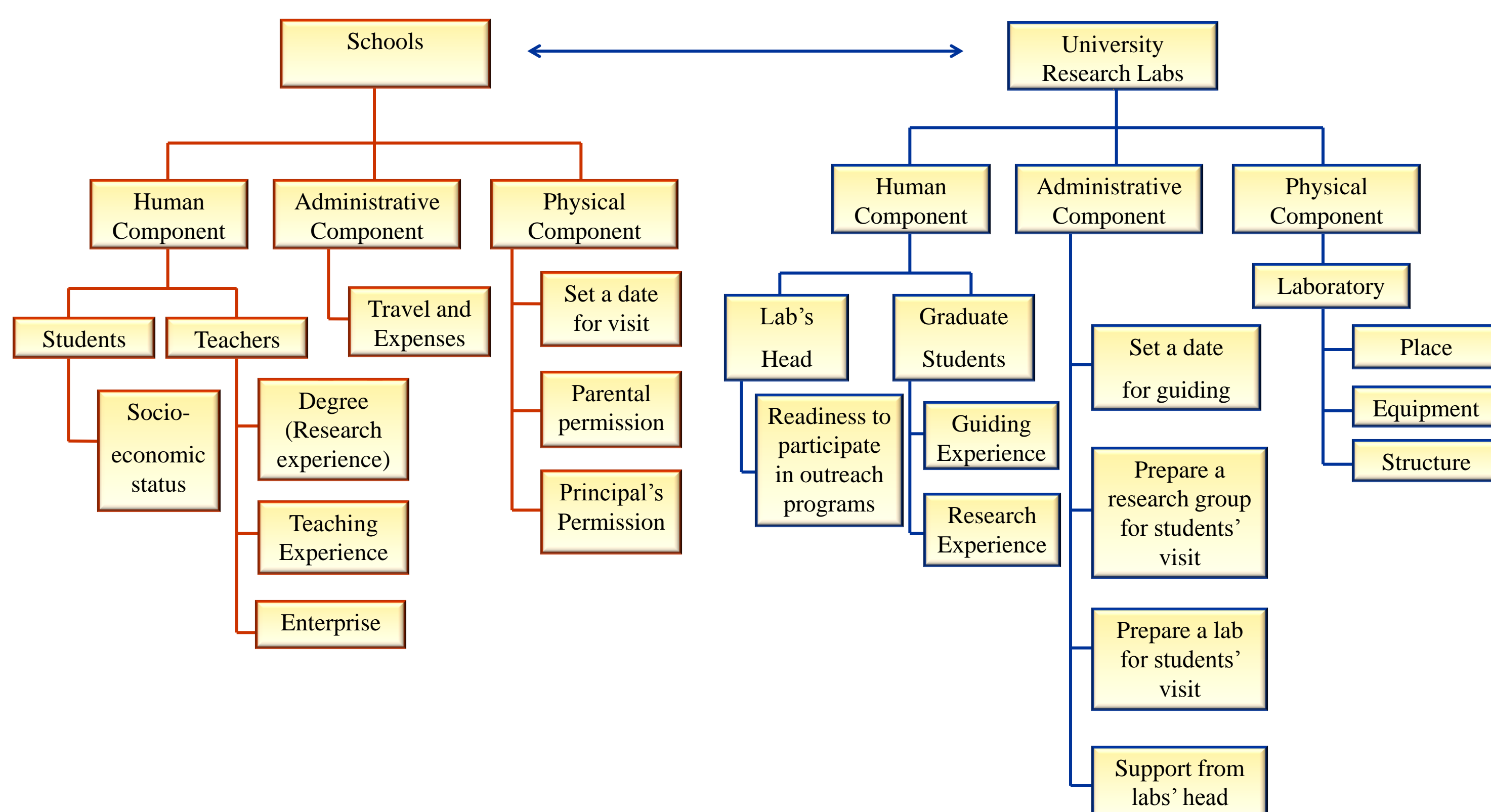
Shkedi's (2004) constructivistic method of qualitative research based on grounded theory



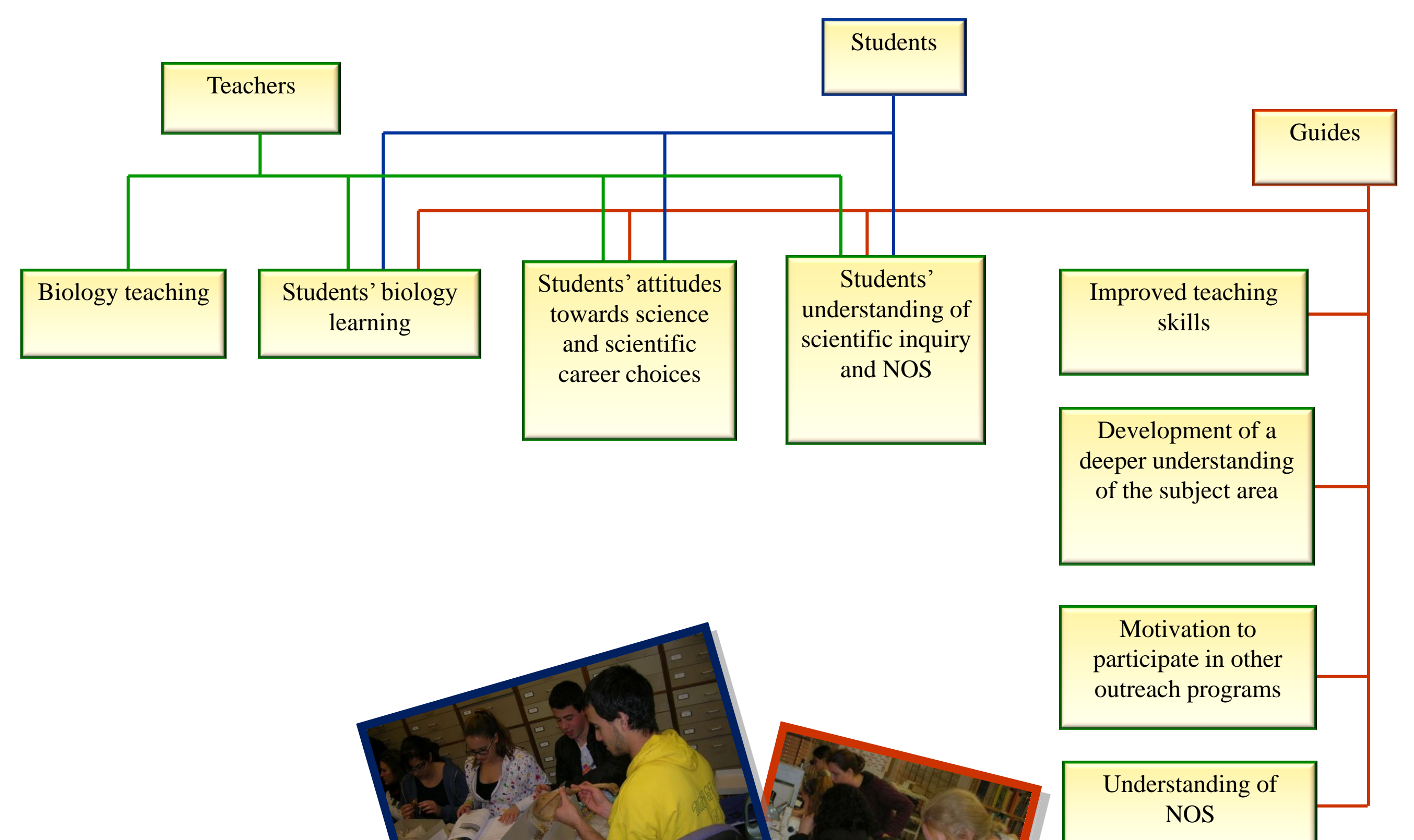
Challenges and benefits of the unit's implementation from the perspective of the students, teachers and guides

Results

Factors that could challenge field trips to labs



Benefits of Field trips to labs



Conclusion

Implementing the lab visit unit is a complex experience, which involved a large set of factors and general organization; nevertheless, there are a large number of potential benefits for students, teachers and graduate student guides as well.