



H.F.R.I.
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Description of the funded research project
1st Call for H.F.R.I. Research Projects to Support Faculty
Members & Researchers and Procure High-Value
Research Equipment

Title of the research project: Investigation and correlation of science teachers' views and practices on inquiry in formal and non-formal learning environments

Principal Investigator: Petros Kariotoglou

Reader-friendly title: Teachers' Views and Practices about Inquiry

Scientific Area: Social Sciences

Institution and Country: University of Western Macedonia, Greece

Host Institution: University of Western Macedonia

Collaborating Institution(s): Aristotle University of Thessaloniki, TSCTM-NOESIS

Project webpage: <https://sti.web.uowm.gr/>



Budget: 148.500 Euros

Duration: 2020-1-20 to 2023-1-20

Research Project Synopsis

Current science curricula adopt inquiry as a basic component in their proposals, namely, as a prominent teaching - learning proposal. At the same time, they place emphasis both on the non formal aspect of education and on mixed education. In this context, we designed a research project to foster inquiry practices among pre and in-service science teachers and museum educators in non-formal science and technology education venues.

This research project will study pre and in-service teachers' views and practices about inquiry in science education. Also, we will attempt to correlate views and practices, namely, to examine whether views guide practices, or vice versa, or whether such a linear relation can be identified or not.

In particular, we will study student teachers' views about the Control of Variables Strategy (CVS) issues prior and after a lab science course, where the CVS will be explicitly taught. Additionally, we will investigate and correlate science teachers' views and practices who participated in a professional development (PD) program some time ago. The aim is to investigate whether the practices gained during the program have been sustained two years after the program ended.

We will also study the views and practices about inquiry of museum educators who design and implement science and technology educational programs in non formal settings, such as NOESIS, the Science Center and Technology Museum in Thessaloniki. The investigation and correlation will enable us recommend proper teaching practices and teaching materials to promote inquiry practices among pre and in-service teachers and museum educators when they teach science.

Project originality

- The combination of explicit and implicit teaching of the inquiry approach is in the heart of the state of the art of Science Education aiming to improve preschool student-teachers' education. This action will enrich the respective literature about schools of education (1st work package).
- The study of in-service teachers' inquiry practices is both institutionally difficult without videotaping them and complicated due to the difficulty to record and code teachers' practices (2nd work package).
- There is lack of literature, at least in the reviewed one, regarding inquiry practices employed by museum educators (3rd work package).
- It is quite hard to correlate views and practices: do views guide practices, or vice versa or do they seem not to be related? This action will attempt to help the comprehension of the correlation between theory (views) and action (practices) (4th work package).

Expected results & Research Project Impact

- The development of both methods and educational materials on pre-service teachers' education and in-service teachers' professional development (PD) is innovative and is expected to contribute to the implementation of such practices by teachers in the future.
- Both the conclusions and the materials that will derive from the research are expected to enrich student teachers' experimental teaching so that future teachers can be properly prepared to employ such practices.
- Additionally, the findings will enrich PD courses of in-service teachers both in formal and non-formal learning settings with empirical data which will facilitate teachers' development.

The importance of this funding

Research projects' funding from foundations such as H.F.R.I. will:

- Help the members of the research team in resolving practical issues (materials and means) which are essential for their research and cannot be provided from their institutions.
- Help the members of the research team, especially the younger ones, to present their work publishing in papers (fees) and participating in international conferences (fees), in order their work to be evaluated and informed about relevant research.
- Contribute to the organization of conferences and seminars regarding the dissemination and even the implementation / evaluation of the research findings.
- Support the researchers financially, especially the younger ones, acknowledging their contribution in novel and innovative research.



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