

TEACHERS' INTEREST, SELF-CONFIDENCE, AND ABILITY TO INTEGRATE HISTORICAL SCIENTIFIC INSTRUMENTS INTO THEIR TEACHING

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WORD BANK

INSIGHT: Inquiry-based educational investigations with historical scientific instruments (Erasmus+ funded project, KA220-SH-24-36-256390)

Resources:

<https://insight4schools.eu/>



Historical Scientific Instruments can be understood as material artefacts of past scientific practice, used for observation, measurement, experimentation, demonstration, or teaching, and now studied as evidence of the material culture and heritage of science.



Reconstructing historical scientific instruments using everyday materials involves recreating scientific devices from the past in order to explore their operation, historical use, and the experimental practices associated with them.



THE AIM

This study examines the interest, self-confidence, and ability of primary and secondary school teachers to integrate historical scientific instruments into their teaching practices, after participated in a professional development seminar. The research was conducted within the framework of the European Erasmus project INSIGHT, which promotes the educational use of historical scientific instruments in science education.

THE SEMINAR

The seminar consisted of 4 two-hour face-to-face laboratory workshops and 18 hours of asynchronous distance learning (26hrs in total). The workshops focused on: (a) introducing the educational use of historical scientific instruments, (b) integrating Inquiry-Based Learning (IBL) approaches into teaching, (c) reconstructing historical scientific instruments using simple materials, and (d) reflecting on teaching practices and learning experiences. During the asynchronous component, participants explored project resources, selected a historical instrument for further study, and developed educational materials based on it.

METHODOLOGY

The research sample consisted of 25 primary and secondary education teachers who participated in a professional development seminar. The study took place at the Department of Pedagogy and Primary Education of the National and Kapodistrian University of Athens, Greece, during the period February - March 2026. The study employs a mixed-methods design that combines quantitative and qualitative approaches. The quantitative component is based on a retrospective pre-posttest design, while the qualitative component includes semi-structured interviews. Data were collected through a structured questionnaire containing Likert-scale items, multiple-choice questions, and open-ended questions, as well as through participants' responses in the interviews. However, the present analysis focuses exclusively on the questionnaire data.

FIRST FINDINGS

Initial findings indicate a strong positive impact of the **INSIGHT** project on teachers' interest, confidence, and ability to integrate historical scientific instruments into teaching. Participants reported increased access to educational resources, improved pedagogical skills, and high overall satisfaction. Hands-on activities, historical context, and practical guidance emerged as the most influential aspects of the program.