

**SP - (15774) - PHYSICS TEACHERS' TRAINING WEBINARS FOR TEACHING AND LEARNING INTRODUCTORY THERMODYNAMICS IN UPPER SECONDARY SCHOOL**

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**Short Abstract**

*This study refers to a training program addressing upper secondary school physics teachers for the development of Teaching and Learning Sequences (TLSs) for introductory thermodynamics courses. To accomplish that, we presented essential epistemological and pedagogical elements of thermodynamics and proposed an alternative approach to the relevant lessons. To investigate the status of teachers' knowledge and approach to teaching and learning of this field, we conducted an online survey addressing physics teachers in the educational district of central Athens (Greece). The pre-webinar results (N=42) indicated that teachers were rather disappointed with the traditional approach that the official curriculum promotes, and they agreed on enhancing their respective knowledge and skills to design and implement a TLS that could improve the course and advance the respective educational research. The training program was held through four webinar sessions that lasted two hours each. The participants were 30 in-service physics teachers from different upper secondary schools in Athens. The webinars addressed the teaching and learning of introductory thermodynamics in terms of (a) epistemology, (b) traditional instructional approach, (c) alternative instructional approaches, and (d) design of a TLS. For the evaluation of the training program, we collected qualitative data during the webinars and after the last webinar, using recordings of twelve group discussions and five semi-structured interviews accordingly. Our results indicated that participating teachers were willing to change their traditional instruction toward a research-based TLS.*