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AN EXAMPLE TO THE APPLICATION OF ANALYTIC HIERARCHY PROCESS WHICH IS A MATHEMATICAL ANALYZE AT PHYSICS TEACHING

Nazarı Sezen (Hacettepe Üniversitesi), Sema Çalışır (Hacettepe Üniversitesi)

It is important during the education what will be educated as how will be educated. A teacher lives a decision process while choosing techniques which will be used and ordering to explain the subjects which deal with. In literature, Analytical Hierarchy Process (AHP) is determined as a mathematical method which takes into consideration the priorities of group or individual and access both qualitative and quantitative variables together during the decision process. In this study, will be analyzed process which can help to teacher for subject ordering during educating process at the subject of dipole energy and torque on dipole in an electric field by using Analytical Hierarchy Process (AHP). Specified main and sub-criteria were graded with direction of expert's offers (physic and mathematics fields) for prior rank during the lesson, and then binary matrices were structured. After necessary calculation, we have obtained a ranking to teacher. As a result, the method of AHP, which we often encounter at different areas in literature, by applying to field of education, an example was constituted at the numerical lessions such as physics which has main and subcriterias more than one.

CONTRIBUTIONS TO THE UNDERSTANDING OF THE USE OF SCIENTIFIC AND TECHNOLOGIC CONTEXTS IN PHYSICAL SCIENCES TEACHING

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This study focuses on the integration of scientific and technologic (ST) contexts in physical sciences (PS) classes, framed under the theme of science teaching mediation. Its primary objective is to deepen the understanding about the ways in which ST contexts are used in the classroom. We present evidence obtained in the classes of four PS teachers. As instruments of data collection, we use teacher narrations about the exploration of daily situations in order to develop concepts, laws and principles for improving the quality of learning. Based on the analysis of narrations and in the emerging categories, we propose the general lines of a framework to support teachers.

ENHANCING TEACHERS’ PCK TO SUPPORT INQUIRY TEACHING IN POST-SOVIET SCIENCE CLASS

Klaara Kask (University of Tartu), Mirja Rannikmäe (University of Tartu), Jack Holbrook (University of Tartu)

Teachers need to be life long learners enhancing their professional competence in areas such as teaching using inquiry. A major trend is the development of teachers professionalism described in terms of PCK. This paper explores changes in 9th grade Estonian students' within the cognitive domain following enhancement of the teacher's PCK gained through an intervention course. Estonian context is unique for its independence for just 17 years. The instruments used to determine student gains were: (1) pre- and post questionnaires administered to students, (2) five instructional materials created by the researchers and completed by the students. These additional instructional materials were composed connected to everyday life, involving group and individual work and geared to interdisciplinary, and experimental inquiry-based problem-solving to form combinations little used by teachers in the past. Responses to the questionnaires portrayed students' opinions about the learning environment and the completed students instructional materials described the growth in students' inquiry skills. The study involved 233 students from eight general (non special-interest) schools; with 174 students completing all data. The results indicated that (1) there was a marked change in the learning environment from teacher-centred to student-centred one; (2) the progress based on average inquiry skills in all classes observed.