Entangled Physics Education Research Method (EPERM) and modern physics in secondary school curriculum> the case of quantum mechanics.

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Content research in physics education deals with producing learning of subject matter. The proposals for vertical paths for conceptual learning requires different kinds of studies for the choice of the founding concepts of each thematic area, for the development of activities, tools and methods, strategies able to produce conceptual change and for the analysis of learning processes and outcomes. The epistemic nature of physics is an integral part of the cultural proposals that are built with the EPREM research methodology. Formative Intervention Modules (FIMs) allow the study of the effectiveness of every aspect of the educational proposals. Modern physics is still an open problem in the curriculum of many countries today. The different perspectives in which to propose modern physics in secondary school will be discussed, illustrating in detail the proposal for quantum mechanics