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Physical Science Textbooks: History and Philosophy of Science

By Mansoor Niaz

Nova Science Publishers Inc. Paperback. Book Condition: new. BRAND NEW, Physical Science Textbooks: History and Philosophy of Science, Mansoor Niaz, Research in science education has recognised the importance of presenting physical science within a history and philosophy of science (HPS) perspective in order to facilitate students' understanding. The objective of this study is to present a framework based on HPS for analysing introductory freshman level general chemistry and physics textbooks published in U.S.A. A review of the relevant literature in science education shows that most textbooks ignore HPS, while presenting the following topics: Atomic structure; Determination of the elementary electrical charge; Laws of definite and multiple proportions; Kinetic theory of gases; Covalent bond; Periodic table; and, Quantum numbers. This research shows that textbooks generally do not present progress in science as it is actually practised by scientists. For most textbooks, doing science means accumulating empirical data with no reference to the interpretation of the data based on the scientist's theoretical framework or presuppositions. The role and importance of presuppositions and guiding assumptions along with the theory-ladenness of observations are the major contributions of the new post-positivist philosophy of science. Given the importance of textbooks in most parts of the world,...



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