Comparative Analysis of the Presentation of the Nature of Science (NOS) in Korea and US Elementary Science Textbooks

Lee, Young Hee
이영희

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Abstract

The national reform document, Science for All Americans (AAAS, 1990), and the Next Generation Science Standards (NRC, 2012) emphasize the importance of the nature of science in guiding science educators in accurately portraying science to students. Therefore, it is important that textbook materials convey an accurate conception of the nature of science. This study employs content analysis to examine the content of textbooks in US and Korea elementary science textbooks with regard to the four aspects of the nature of science: (a) nature of scientific knowledge; (b) nature of scientific inquiry; (c) nature of scientific thinking; and (d) nature of interactions among science, technology, and society (Chiappetta, Fillman, & Sethna, 2004). Intercoder reliability was determined by calculating Cohen's kappa (Cohen, 1960). Findings show that while US elementary science textbooks are not balanced in presenting the four aspects of the nature of science regardless of the publishing companies, the presentation of the nature of science in Korean elementary science textbooks have better balanced treatment of the four themes across the grade levels. On the other hand, both US and Korean elementary science textbooks are attempting to convey an idea of what science is by emphasizing scientific knowledge and investigation.

Keywords
comparative analysis; nature of science; textbook analysis; elementary science textbook
References


The initial treatment of the concept of function in the selected secondary school mathematics textbooks in the US and China. International Journal of Mathematical Education in Science and Technology, 47(4), 505–530. https://doi.org/10.1080/0020739X.2015.1088084.CrossRefGoogle Scholar. Son, J.-W., & Kim, O.-K. (2016). Curriculum enactment patterns and associated factors from teachers’ perspectives. According to the book: using TIMSS to investigate the translation of policy into practice through the world of textbooks. Dordrecht: Kluwer.CrossRefGoogle Scholar. Valverde, G., & Schmidt, W. H. (2000). Greater expectations: Learning from other nations in the quest for ‘world-class standards’ in US school mathematics and science. Based upon our analysis we found that both 2005 and 2013 Turkish elementary school science curricula ignored some aspects of NOS in terms of explicit approach and did not contain a sufficient level of NOS aspects. It can be suggested that 2013 Turkish elementary school science curricula should be revised and empowered in terms of nature of science to achieve scientific literacy. View. Show abstract. The ubiquitous goals of helping precollege students develop informed conceptions of nature of science (NOS) and experience inquiry learning environments that progressively approximate authentic scientific practice have been long-standing and central aims of science education reforms around the globe. Comparative Analysis of the Presentation of the Nature of Science (NOS) in Korea and US Elementary S May 2014. Young Hee Lee. The national reform document, Science for All Americans (AAAS, 1990), and the Next Generation Science Standards (NRC, 2012) emphasize the importance of the nature of science in guiding science educators in accurately portraying science to students. Findings show that while US elementary science textbooks are not balanced in presenting the four aspects of the nature of science regardless of the publishing companies, the presentation of the nature of science in Korean elementary science textbooks have better balanced treatment of the four themes across the grade levels.