



Environmental Pedagogical Content Knowledge: Implication for Science Teacher Education

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Abstract:

Although environmental issues we face have changed over time, the need for environmental education has only intensified. Unfortunately, most schools do not offer a stand-alone environmental course. Subject teachers, particularly science teachers, have the responsibility to integrate environmental education in their daily teaching. Responding to the wide call for environmental education, teacher education programs usually offer a series of workshops or an elective course to develop teachers' knowledge and skills in environmental education. However, given its hybrid nature, the environment-related pedagogical content knowledge cannot be effectively developed through such a quick-fix approach. The author proposes a conceptual framework to promote the relevant discussion among researchers and educators: Environmental Pedagogical Content Knowledge (EPACK). EPACK requires teachers to be able to answer what environmental issues, why such issues and how to teach these issues in school classes. To address the need of teacher development in EPACK, teacher education programs need to consider an integration approach. Such approach calls for the integration of environmental issues with teacher education courses besides a possible standalone environmental education course. For example, science methods courses provide a meaningful context where learning to teach environmental issues can be pedagogically situated in the teaching of subject matters.

Environmental Pedagogical Content Knowledge

This paper will draw evidence from the literature and, as well, from the author's teaching and research experience to advocate a blended model of teacher development for environmental education proficiency, which ensures that environmental education becomes one of the fundamental components for the design of teacher education curriculum.

Keywords: science teacher education; environmental education; environmental pedagogical content knowledge

Biographical Note

George Zhou is a full professor in the Faculty of Education, University of Windsor. He received a PhD from the University of Alberta in science education. Before moving to Windsor, Zhou taught at the City University of New York. His research interests cover science education, teacher education, and comparative and international education.