

Certain you're not sure? An inquiry into pedagogical strategies for teaching children how to manage uncertain knowledge about sustainability challenges

Abstract

The urgent and rapidly changing sustainability challenges facing society today require people to possess the competences necessary to deal with knowledge uncertainty. This inquiry examined teaching strategies for enhancing the development of uncertainty competences, which are defined as the knowledge, skills, strategies, dispositions, and values, as well as the ability to effectively mobilise these attributes to manage knowledge uncertainty. The study's rationale stems from the dearth of research specifically addressing teaching uncertainty competences in primary education, and the existence of even fewer studies that provide teachers with clear guidelines regarding how such competences can be developed by their students. The principal aim of the study was to more deeply understand the strategies and practices of educators who were teaching children about complex and uncertain topics.

This interpretive, multiple case study focused on Scottish children in the final two years of primary school, since these children are increasingly confronted with complex environmental issues, both inside and outside the classroom. Principal data collection involved one observation in each of four classrooms and three observations in one classroom during lessons about complex environmental topics. In total 133 children and five teachers participated. The classroom interactions between teachers and children were captured using audio recordings and field notes, and complemented by focus-group interviews with children and interviews with teachers. Secondary data were derived from children's assignments and teaching resources.

The findings indicate that a combination of complex and controversial topics, specific learning activities, teaching resources, and the employment of 'language of conditionality' – all purposely designed to welcome uncertainty into the classroom – may improve the development of uncertainty competences. Language of conditionality consists of vocabulary, grammar and questions of conditionality. The first two concepts refer to the words, grammatical rules and linguistic devices that allow clear and nuanced communication about the uncertainty and complexity inherent to sustainability challenges. The third refers to a variety of questions that invite uncertainty into the learning process. Teaching the language of conditionality lays a constructive groundwork for learning how to manage sustainability challenges. The study found that the classroom teacher who primarily used language of conditionality created space for the children to explore multiple perspectives, come with creative answers, question the certainty of knowledge, and practice dealing with uncertainty. The teachers were often not aware of the ways in which their use of language of conditionality influenced learning. The research suggests there is value in incorporating this aspect of language choice and the discussion of uncertainty competences in teacher education.