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INFUSING INDIGENOUS KNOWLEDGE IN THE LIFE SCIENCES CLASSROOM: DESIGN PRINCIPLES FOR CREATING AN ETHNOBIOLOGICAL MATRIX

Abstract:

A perennial problem facing South African science education is how to better contextualize curriculum content to a diverse student population. South Africa, who is often dubbed the 'rainbow nation' because of its racial and cultural diversity, also has to deal with a large spectrum of students in terms of socio-economic status. In especially rural parts of the country, where indigenous knowledge is thriving, the 'western' science curriculum is not always accessible to all learners. By infusing relevant indigenous knowledge into curriculum themes, students will be able to better understand and appreciate the value of science in everyday life. Despite fundamental differences between the natural sciences and Indigenous Knowledge (IK) (e.g. the holistic nature of IK versus the reductionist nature of science), similarities in the processes also exist, e.g. the empirical, tentative and inferential nature of both. The responsibility thus lies with teacher educators to train teachers on how to effectively infuse IK in the classroom. This paper describes a rigorous method to create science context by means of ethnobiological studies which will be implementable in teacher education and ultimately infused in science classrooms. The research draws on the Matrix Method that was developed by De Beer and Van Wyk in the field of ethnobotany, and in this paper, the authors show how ethnozoology could also be included. The Matrix Method affords students the opportunity to, as scientific sleuths, engage in project-based learning, while also developing more nuanced understandings of the role that science plays in everyday life. Although the context is South African, the heuristic developed has universal application and could be used in any country.

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contextualized teaching and learning, curriculum policy, design principles, ethnobotany, ethnobiology, ethnozoology, indigenous knowledge, Matrix, problem-based learning, project-based learning

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