Learning to be a Scientist through Inhabiting a Role

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Although understanding the nature of science is perplexing for young children, developing and inhabiting a role can support them to appreciate and better understand what it means to be a scientist. An international partnership between two universities, one in NZ and one in the UK, explore contrasting drama processes that encourage children to invest in the imaginary world and explore issues that scientists face in the real world. The intent of these approaches is for children to experience opportunities to understand the nature of science through being in role, and witnessing teacher in role. This paper highlights commonalities and differences between the processes, implications and future directions of the project.

Year five and six children in NZ worked in role as atmospheric scientists to design an emissions friendly race track. They were encouraged to investigate speeds that would create less carbon emissions on particular terrains like straight, curved and sloped roads. Once designed, the threat of funding withdrawal required children to reflect on their learning and justify to the chairman of the local council why funding would continue. UK (Year five) children, also in role as a particular scientist like Mattie Knight, designed bags from a range of materials for specific purposes. Having designed an original bag for a particular purpose with the necessary features, they then apply for a patent to a committee consisting of their fellow pupils. The group of children who designed and invented each different kind of bag (were 'hot seated' in front of the committee and) then described how they came to make the bag in the way they did. They also justified which materials and techniques they applied to construct it. This work was led by Teacher in Role as an eminent Victorian scientist and engineer.

Evidence suggests that both processes supported children to develop epistemological understanding of scientific concepts and what scientists do. These processes provide opportunities for students to be aware of ecological sustainability raise awareness of how to care for the environment, take political action and understand the implications of patent and scientific discovery. Implications from the NZ study suggest that in order to build capability in role as scientists, clear scaffolding is required for some aspects of the work, such as understanding the nature of evidence and how to critique it. Implications from the UK are that children are trying out existing science knowledge and developing further understanding about the nature of materials and their properties through this approach.