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How are science teachers integrating information and communication technologies into their teaching?

Essop, Sofia

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ABSTRACT

In this study the teaching methodologies or pedagogy implemented by Science teachers pertaining to ICT integration in two independent schools, where technology resources is ample was explored. One being in Johannesburg, South Africa and referred to in this report as 'The South African School' and the other being in England, the United Kingdom and referred to in this report as 'The England School'. Through the means of lesson observations, a questionnaire and informal conversational interviews with the Science teachers, in a small scale, qualitative study, the data was analysed for possible trends. It was discovered that all ten participant teachers are skilled in the technical use of ICT but not in the pedagogical use of ICT. Teachers are mainly using ICT to enhance their existing traditional pedagogy, and not in the true sense of ICT use for collaboration and project based learning in line with a constructivist learning theory. The two groups of teachers were found to have contrasting barriers i.e. the South African teachers have time to implement ICTs, but the main reason for not implementing ICTs as much as they would like to are due to inadequate equipment in terms of an unreliable internet connection and lack of support. The England teachers, who have no barriers imposing on their use of ICT, have no time in their busy schedules to plan lessons with ICT integration. Conclusions are drawn as to how the Science teachers integrate ICT into their teaching and recommendations are proposed as to how these teachers can be assisted to overcome these hurdles in order to promote a more effective ICT experience. In this report, it is suggested that implementing an intranet into their pedagogy shall prove to be effective in teaching Science. This is a 'virtual learning environment' (VLE) which provides a platform on which collaboration in various ways can take place. It is a set of tools that enable teachers, learners and schools to raise standards through collaboration and communication which is the key to successful ICT integration and implementation.