



**A critical analysis of existing and potential use of computer based technology to  
deliver and support undergraduate physics education in Australia**

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## Abstract

This study arises out of an interest and involvement in the use of computers in physics education over the period 1965 - 1995. The study has as its aim a description and analysis of existing and potential use of computer based technology to deliver and support undergraduate physics education in Australia. Part of the study involves identification of significant factors influencing, or likely to influence, the level and nature of that use, including both technology and research into physics teaching and learning. This required an examination of research into innovation dissemination and a consideration of the history of use of computer based technology in physics education. Data on contemporary use of computer based technology in undergraduate physics education in Australia was gathered using a questionnaire, from attendance at and the proceedings of two key conferences, OzCUPE1 & 2, and through use of the Internet. While much of existing development could be described as being at the "cottage industry" level, the technology is available to move beyond that level. The most significant barriers to change appear to be existing teaching practice and courses and the infrastructures that support them. A case is advanced that there is a need for change in undergraduate physics education and that computer based technology could be a significant component of an improved student learning environment in this area.

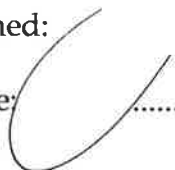
### Statement of originality

This thesis contains no material that has been accepted for the award of any other degree or diploma in any university or other tertiary institution, and to the best of my knowledge and belief, contains no material previously published or written by another person, except where due reference is made in the text of the thesis.

I consent to a copy of the thesis, when deposited in the University library, being made available for loan and photocopying.

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Date:

 18 February, 1996

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