Chapter I
Criteria for the Implementation of Learning Technologies

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ABSTRACT
The grand narrative of educational policy statements lack clear guidelines on Information Communications Technology (ICT) integration. A review of current academic literature fails to provide consistent strategies for institutions and practitioners determined to adopt ICT in an informed way. This chapter introduces criteria for the successful implementation of ICT-enabled tasks. It argues that the integration of ICT is best supported by a pedagogy that facilitates experiential learning and a development of academic competencies. The context for demonstrating the importance of the informed use of ICT is a research project entitled, “iPod therefore iWrite,” in which multiple-media content was developed by students in Japan and the United Kingdom.

INTRODUCTION
In the past two decades the uptake of Information Communications Technology (ICT) in education has been inconsistent. Some countries, districts, and educational institutes have certainly embraced ICT as a central component of their teaching and learning experiences: Singapore’s Masterplan for IT in Education (Goh, 1997) and one-to-one learning in Maine, USA (Greenstone, 2006) come to mind. There are also a number of excellent research studies of “good practice” in ICT integration (Sandholtz, Ringstaff & Dwyer, 1997) and extensive literature reviews (Sivin-Kachala &
Bialo, 1996; Parr, 2003). Despite the huge financial investments made by nations and individual institutions, however, many practitioners recognize that ICT adoption is not universal in mainstream education. Becker and Ravitz (2001) found that only 25% of secondary English instructors, 17% of science instructors, 13% of social studies instructors, and 11% of maths instructors in the USA made weekly use of computers. Moreover, the computers were not used to develop a deeper understanding of concepts, tackle difficult topics or change the approach to teaching methods. In Japan the uptake of technology in education, “remains comparatively low, and ICT does not appear as a priority in national education policy” (UNESCO, 2007, para 1). Additionally, educators like Stanford University professor Larry Cuban (2002) are unimpressed by attempts to inculcate ICT into mainstream education:

Although promoters of new technologies often spout the rhetoric of fundamental change, few have pursued deep and comprehensive changes in the existing systems of schooling. The introduction of information technologies into schools over the past two decades has achieved neither the transformation of teaching and learning nor the productivity gains that a reform coalition of corporate executives, public officials, parents, academics, and educators have sought. (p. 195)

Cuban’s observation appears to be supported by academic research and agency reports of ICT adoption. For instance, academic literature that considered the effect size of research in the 1990’s portrays a varied picture of some gains in quantitative tests by students in experimental groups (Kulik, 1994; Wood, Underwood & Avis, 1999; Parr, 2003). Kulik (1994) used meta-analysis to aggregate the findings from 254 controlled evaluation studies, and discovered that technology rich classes produced an effect size of 0.3 on quantitative measures of educational performance; considered significant but moderate (Fitz-Gibbon & Morris, 1987). Apologetically, the British Educational Communications and Technology Agency (BECTA) reports that it will take time for empirical evidence of the benefits of ICT integration to emerge (Cox, Abbot, Webb, Blakeley, Beauchamp & Rhodes, 2003). The conclusion is that computer assisted learning is no more effective than other types of intervention (Parr, 2003). Why is this? Selwyn (1997) points to education policy statements and the discourse of promoters of technology which often lack a solid rationale for ICT adoption. In other words, despite the attempts of implementation of technology in schools and universities, there lacks direction about ICT’s integration into course curricula and pedagogical practices. This deficiency is supported by Avriam (2000) who argues that, “the introduction of ICT into education has often been carried out with vague and confused conceptions of the desired model of learning which the new technologies were supposed to enhance and without clear conceptions of any guiding educational values” (p. 332).

A policy example in Asia is Singapore’s first Masterplan for IT in Education (Goh, 1997). Four key statements summarize the Masterplan’s goals:

• Instructors and pupils will communicate and collaborate with other institutions.
• Innovative processes in education will be generated.
• Creative thinking, lifelong learning, and social responsibility will be enhanced.
• Administrative and management excellence in the education system will be promoted.

How these objectives were to be achieved however remained unclear (Deng & Gopinathan, 1999). Towndrow (2001), in an article explaining the human capital construct in the modern Singapore context, considered that without a solid rationale, ICT investment in education is “a leap of faith in the dark” (p. 27). For instance, the
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