An Information Systems Design Theory

for E-learning

David Thomas Jones

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Declaration

I certify that this thesis is my own original work. It does not contain any material previously published or written by another person without due reference in the text.

[Signature]

David Jones
Acknowledgments

The work described here has been made possible by thousands of people, literally. A number far too large to personally acknowledge within the space allowed here. Consequently, I start by offering gratitude to all, especially those that I have not mentioned below.

Perhaps most importantly are the tens of thousands of people who made use of the services provided by Webfuse. Thank you for your patience and suggestions. It was your diversity that drove home the importance of emergence and just how inflexible most institutional IT systems actually are.

Thanks also to those who disagreed with the ideas expressed here and embodied by the Webfuse information system. The difficulties you had with understanding these ideas provided the impetus to further understand, refine, and explain the ideas. On reflection, the fact that so many of you filled management or senior information technology positions within the organisation remains somewhat troubling. But this work would not be without you, thank you.

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Abstract

This thesis seeks to offer an answer to the problem of how to design, implement and support information systems that effectively and efficiently support e-learning within universities. This problem is increasingly prevalent and important to the operation of universities. It is also a problem where existing solutions are limited in terms of variety, quality and explicit theoretical guidance. This thesis formulates a specific Information Systems Design Theory (ISDT) – *An Information Systems Design Theory for Emergent University E-learning Systems* – as one answer to this problem.

The ISDT is formulated using an iterative action research cycle that encompasses the design, support and evolution of the Webfuse information system at Central Queensland University (CQU) from 1996 through 2009. The Webfuse system was used by tens of thousands of staff and students. It is the knowledge gained through this experience that, in two separate stages, is used to formulate design theory.

The final ISDT recognises that diversity and rapid on-going change are for a number of reasons, the key characteristics of e-learning within universities. Consequently, the ISDT specifies both process and product models that aim to enable the e-learning information systems to be emergent. In particular the ISDT proposes that emergent e-learning information systems will encourage and enable greater levels of e-learning adoption in terms of quantity, quality and diversity; as well as providing a level of differentiation and competitive advantage for the institution.
This thesis makes two additional contributions. First, the *Ps Framework* is developed and used to analyse the current, dominant practice of providing e-learning information systems within universities. The resulting analysis reveals a significant mismatch between the requirements of e-learning within universities and the characteristics of the product and process models used by the dominant approach to supporting e-learning within universities. It is this mismatch that the ISDT seeks to address. Second, is the formulation of an alternate method for specifying the components of an ISDT. This alternate specification arose from difficulties faced with using existing ISDT specifications.
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