

LEADING AND MANAGING THE DEVELOPMENT OF E.LEARNING: A FRAMEWORK FOR ANALYSIS TO SUPPORT STRATEGY DEVELOPMENT

Stephen J. Marshall
The University of New South Wales
Australia

Abstract

In this paper, a new framework for conceptualizing leadership and management of learning and teaching is described. Its value as a tool to identify the leadership and management challenges faced by those with responsibility for developing institutional capacity and capability for e.learning and its capacity to guide strategy development, implementation and review is also examined. Developed from extensive interviews with innovators, leaders, and managers of learning and teaching within Australian universities, the framework describes six critical roles for leaders and managers of learning and teaching, in four broad domains of practice, and in four distinct contexts.

Leading and Managing the Development of e.learning

e.learning¹ was once a new and exciting area of innovation and opportunity in education. It still presents a range of exciting opportunities for both students and teachers alike. However, for many institutions the excitement may be waning, for as Hannon (2009) has observed, the history of e.learning in higher education can be characterized as “a pattern of immense investment, ‘thwarted innovation’ (Zemsky & Massy, 2004), recurring breakdowns, costly failures, and unintended outcomes” (p. 15).

Whether, or how well, innovations like the adoption of e.learning are realized throughout an institution, depends, amongst other things, on the quality and nature of the leadership exercised at all levels of the institution (Fullan, 2003; Marshall et al., 2011). The quality of leadership, in turn, is largely determined by the nature and quality of the analyses undertaken by leaders and managers when developing strategies and making decisions (Bolman & Deal, 2007; Bryson, 1995). When analyses and approaches to change and innovation are too narrowly focused (e.g.,

¹ In this paper, e.learning is used to embrace all forms of learning and teaching that are enabled or supported by ICTs and/or digital media or resources.

too heavily focused on the technological or business process changes required in the development of e.learning) they fail to attend to the myriad of interconnected structural, human, political, cultural, pedagogical, and other changes required to achieve success (Bolman & Deal, 2007).

Current Literature

A review of the literature on the development of e.learning in higher education reveals that many of the strategies adopted by leaders and managers to develop institutional capacity and capability for e.learning have been based on single analytic perspectives. For example, many of the strategies discussed in the literature between 2000 and 2003 appear to have largely focused on two broad issues:

- the identification and development of the appropriate *technological infrastructure* to enable and support learning and teaching (Fritze, 2001); or
- the development and implementation of *professional learning opportunities* for staff aimed at raising their *awareness of the affordances of new technologies* for teaching and learning (Ellis et al., 2002).

Studies published between 2003 and 2007 reveal a broader range of perspectives. These include consideration of:

- the needs and interests of students (Clegg et al., 2003);
- the ways in which technologies can be integrated into curricula to address particular learning and/or teaching needs (Applebee et al., 2004);
- approaches to valuing, recognizing and rewarding research and practice in e.learning as a scholarly activity (Finkelstein, 2004);
- the roles and responses of “early adopters” in efforts to develop and implement institution wide initiatives in e.learning (Hannan, 2005);
- the impact of individual motivation in academics’ decisions to use information and communications technologies in their programs and courses (Hannan, 2005);

- the importance of discipline and faculty context (both culturally and pedagogically) on staff engagement with e.learning (Holt et al., 2005); and
- the management of investment in learning and teaching technologies (Coen & Nicol, 2007).

However, while these studies reveal a broader range of perspectives being utilized in the definition and analysis of the problem of developing e.learning, they also reveal a continuing reliance on a single or limited number of analytical perspectives. Relatively few studies reported during this period provide evidence of the adoption of the multi-perspective approach advocated by Goodyear & Ellis (2008), or indeed, approaches that explore the inherent relationships between various dimensions of the problem (e.g., the social and technical) as advocated by Hannon (2009).

Development of e.learning as Strategic Change

What does distinguish many of the studies from 2005 to the present, however, is a general trend toward reconceptualising the problem of developing e.learning as a whole of institution change process that needs to be strategically led and managed (Steel, 2005). As Salmon (2005) has suggested, the effective development of institutional capacity for e.learning requires that we move beyond supporting the ad hoc, often local, and individual efforts of early adopters, to a more strategic, whole of institution approach. But what does it mean to “take a more strategic, whole of institution approach?”

According to Bryson (1995), strategic thinking and planning requires clarification of an organisation’s *raison d’être* (its mission), its aspirations (or vision for the future), its values and beliefs, and of how it needs to evolve in order to realize its aspirations. Further, organizations must identify the issues and circumstances, both internal and external (their Strengths, Weaknesses, Opportunities, and Threats) that may inhibit or enable the realization of their aspirations, in order to develop and implement coherent interventions or changes to realize these aspirations.

As it is neither possible to know everything that there is to know in advance of a change process, nor for any individual to have the knowledge, skills and capabilities necessary to plan and implement the range of changes required to effectively develop institutional capacity for e.learning, the ongoing involvement of a range of stakeholders, both internal and external to our organizations, is critical (Applebee et al., 2007; Chesterton et al., 2008; Lefoe & Parrish, 2010).

Roles of Key Stakeholders in the Development of e.learning

Senior academic leaders and managers within our institutions (e.g., Vice Chancellors, Deputy Vice Chancellors, Pro Vice Chancellors) have key roles to play in enabling their institution to develop, articulate and embrace a vision for

e.learning that is aligned with their institutions' mission, vision and values (Birch & Burnett, 2009). Leaders at this level must engage their communities in an ongoing debate about the future of learning and teaching and the role, or roles that technology might play in improving the quality of both. What is critical to the success of these debates, according to Reushle (2010), is that they actively challenge current, taken-for-granted, values, beliefs and approaches to learning and teaching, so that future planning and development is based upon a critical analysis of past practice and consideration of a variety of different "futures." The lack of (a) broad institutional engagement in such debates and (b) clear statements of strategic intention in relation to e.learning are cited by many (Applebee, 2007; Birch & Burnett, 2009; Jones, 2008) as a key reason for the failure or slow uptake of e.learning in many institutions.

In addition to these efforts to articulate a vision and direction for the strategic integration of technologies into an institution's academic programs, senior institutional managers assisting Vice Chancellors, Deputy Vice Chancellors and the like (e.g., Directors of HR, Finance, IT, Facilities, Academic Administration) have important roles to play in ensuring alignment between institutional vision, mission and strategy and the organizational arrangements, institutional budgets, technologies, and support infrastructures necessary to bring the vision to reality.

For example, for staff to decide to commit the time involved in planning, developing and implementing e.learning, they need to be confident that in doing so they will not be jeopardizing their chances for positive performance review or promotion. A perceived lack of recognition from institutional leaders and managers of the time required to adopt and integrate technology into teaching and learning (Birch & Burnett, 2009; Browne & Jenkins, 2008), coupled with a perception that there are few rewards for e.learning development (Jones, 2008; Zhou & Xu, 2007), have been identified as key impediments to more widespread adoption of e.learning within higher education. To ensure staff feel confident to assume the potential risks to their careers associated with the adoption of e.learning, Applebee et al. (2007) have argued that senior institutional leaders have a crucial role to play in the development and maintenance of organizational cultures that value innovation aimed at improving the quality of students' learning experiences. Institutional leaders might, for example, engage their Directors of Human Resources in the development and implementation of institutional rituals and artifacts that clearly convey the value that they, and the community, place on innovation in learning and teaching. Such rituals and artifacts might include:

- performance development and review policies (including promotions policies) that make explicit through their underlying principles and the criteria used to evaluate performance, that innovations in learning and teaching, including the integration of technologies into learning and teaching, are highly valued, and

- reward and recognition systems that tangibly recognize significant commitment and contribution to innovation in teaching and learning. For example, awards for excellence in innovation in learning and teaching might be offered along with grants to support research and development in technology enabled learning and teaching, and fellowships or other opportunities for ongoing development and sharing of expertise in the area of e.learning.

Further, institutional leaders may work with their Directors of Finance, Directors of IT, and Directors of Facilities to (a) develop institutional budgetary processes, IT and capital investment strategies that align with institutional goals for e.learning, and (b) make their commitment to, and investment in, e.learning transparent. As Jones (2008) has observed, lack of such alignment is often cited as one of the key obstacles to the adoption of e.learning in higher education.

At faculty and school levels, Deans, Associate Deans, and Heads of School each have important roles to play in developing and implementing faculty/school level responses to institutional strategies for e.learning. Like their institutional counterparts, they must not only be advocates for the institution's strategies and priorities for e.learning, they must also be active interpreters of the institution's strategies for their local communities and be involved in the process of defining their faculty or school's own strategic directions for e.learning (Cook et al. 2007).

Deans and Heads of School have critical roles to play in ensuring that local structures, strategies, resources are deployed in ways that are coherent and complementary to those of their institution. Where there is, or has been, a lack of engagement from Deans and Heads of School with the processes of defining and implementing local faculty or school-based strategies for e.learning, efforts to integrate technologies into learning and teaching have rarely grown beyond those of "early adopters." Lack of engagement on behalf of a Dean or Head of School can, for example, result in inadequate investment in the local infrastructure necessary for effective adoption of e.learning, or workload models being established that leave staff with little, if any, time for curriculum development, let alone, the integration of technologies within the curriculum (Browne & Jenkins, 2008).

One of the key issues associated with the effective adoption of e.learning throughout an institution is the ready availability at the faculty and school level of key staff who can support individuals to design, then develop and implement technology enabled learning and teaching programs and courses. The contributions that Academic Developers, Instructional Designers, and Education Technologists make at the faculty or school level through the provision of mentoring, training, and just-in-time support for staff and students on e.learning cannot be underestimated. However, as Chesterton (2008) has observed, local faculty/school level support alone is inadequate. Central support is necessary to

develop and support those that must provide the advice, guidance and support at the faculty or school levels. Thus, careful consideration of the appropriateness and adequacy of local infrastructure to support e.learning should be an essential dimension of faculty and school leaders' work in relation to the development of e.learning.

Arguably, the most important factor in gaining the engagement of academic staff in the use of technology in their programs and/or courses is the encouragement, mentoring and support that is provided by Program Directors, Course Coordinators, and "early adopters." In a study that examined technology adoption at a large Canadian university ten years after the institution developed a strategic plan aimed at integrating technology into its learning and teaching processes, Zhou and Xu (2007) found that mentoring and professional development provided by faculty or school-based colleagues, that focused on how to design curricula and integrate technology into learning and teaching were more desirable and effective than workshops on how to use the technologies available. This study, along with others (Applebee et al., 2007; Chesterton et al., 2008) not only provides strong evidence of the importance of including a program of capability development for staff at the program and/or course level, but that each faculty or school should look to identifying and developing individuals who can act as local advisors, discipline-based advocates, mentors, and leaders of e.learning. Further, these studies, (particularly Chesterton et al., 2008), highlight the importance of strong institutional capacity to assist faculties to identify and develop such individuals within their central learning and teaching support units.

Summary of Current Thinking on the Development of e.learning

While far from exhaustive, this brief analysis provides clear evidence of the necessity for:

- *a distributed approach to leading and managing the development of e.learning* — one that not only requires the actions of those in formal position of management responsibility at all levels of our organisations, but on a range of other staff who have particular expertise in relation to the development of e.learning.
- *individuals capable of exercising strong leadership, management or both* in relation to the development of e.learning: leaders who are able to engage their communities in the definition and development of a vision for e.learning, who can advocate for the changes required, provide encouragement and assurance, reward and recognition, mentoring and support; managers who can think strategically and develop plans and budgets to support the realization of the goals embedded in their plans; and individuals capable of effecting the educational, organizational, technological, and business

changes required to realize their institution/faculty/school/program/course's plans for integrating technology into learning and teaching.

- *an approach to the development of e.learning that is strongly embedded in institutional mission, vision and strategy.* e.learning development should no longer be approached simply as an exercise in supporting and capitalizing on the work of early adopters. Rather it should be led and managed as any other complex, strategic, whole of institution priority might be.
- *strategies to develop e.learning that address the multiple dimensions of the task.* Leaders and managers of e.learning must not only focus on the development of the *technologies and business processes* surrounding their use, they must also attend to the development of: the *curriculum* and how technology will enable and support learning and teaching; the *staff* who must lead, manage, implement and support e.learning; the *students* who will use the available technologies to enable and support their studies; and the *institutional infrastructure* (organizational, financial, administrative, physical, and technological) upon which the success of their strategies relies.
- approaches to e.learning development that focus on the creation and delivery of *policies, strategies, and organizational cultures that are coherent and mutually support one another* rather than compete, undermine or limit each other's effectiveness.

But how can individuals, not necessarily expert in leadership, management or e.learning, be assisted to develop effective visions, directions, plans, and strategies for e.learning development when it is such a complex, multi-dimensional process?

In the following section, a new analytic framework for leading and managing learning and teaching is described. Based on interviews with leaders and managers of learning and teaching within a range of different Australian universities, the framework offers guidance to those responsible for leading or managing complex educational changes, by identifying many of the critical dimensions (or analytic perspectives) that individuals may need to consider in the development, implementation or review of their strategies.

While not specifically developed from data focused on the development of e.learning, the framework aligns well with the advice from existing literature described above.

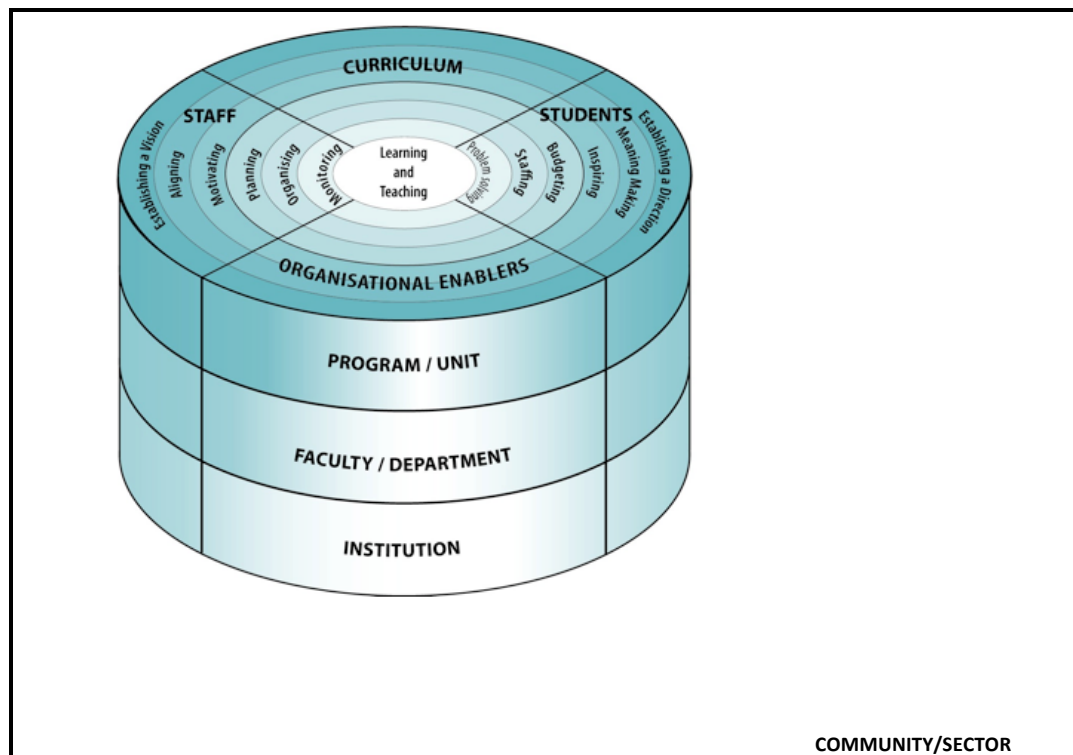
A Framework to Guide Leaders and Managers of Learning and Teaching

The Framework

The framework (see Figure 1) recognizes six critical roles for leaders and managers of learning and teaching:

- *Establishing a vision and direction* for the development of learning and teaching.
- *Aligning stakeholders* with this vision and direction.
- *Motivating and inspiring* others to commit themselves to this vision and direction.
- *Planning and budgeting* to support the changes required to realize the vision.
- *Organizing and staffing* to ensure that the work required to effect the change can be efficiently and effectively transacted.
- *Monitoring and problem-solving* to ensure that efforts to realize the vision remain “on track.”

Figure 1: A Framework for Leading and Managing Learning and Teaching



(Adapted from Marshall, Orrell, Cameron, Bosanquet, & Thomas. (2011))

Key issues to be resolved by leaders and managers of the development of e.learning in relation to *each* of these roles include:

Establishing a Vision and Direction	<ul style="list-style-type: none"> • What role should technology play in learning and teaching in this institution/faculty/program? • How will its adoption help us to realize our institutional mission, vision, and values? • How will teaching, learning and curricula be different?
Aligning Stakeholders	<ul style="list-style-type: none"> • Who are the key individuals who must change their practice for this vision to be realized? • What are their interests? • How can their interests be met through the integration of technology in programs/courses?
Motivating and Inspiring Engagement	<ul style="list-style-type: none"> • How can the institution/faculty/program: <ul style="list-style-type: none"> • raise awareness of the benefits/affordances of using technologies in L&T? • encourage /support staff to adopt e.learning? • recognise, reward, and celebrate engagement and achievement in e.learning?
Planning and Budgeting	<ul style="list-style-type: none"> • What do we need to do to move from the present state to realize our vision for e.learning? • How do we effect these changes? • How much is it going to cost? How will the change be funded? How will future budgets need to be prepared to sustain the change?
Organising and Staffing	<ul style="list-style-type: none"> • How will we need to organize to effect the changes required? • How will our organizational arrangement need to be different to sustain the change? • Do we have individuals with the appropriate knowledge, skills and dispositions to effect and sustain the change? If not, how do we develop/change our staffing profile to ensure that we do?
Monitoring and Problem-Solving	<ul style="list-style-type: none"> • How will we monitor our progress towards our goals for e.learning? • What should the indicators of progress/achievement be? What would be the appropriate metrics for each of these indicators? • How should we collect, analyse, report, use these data to monitor and assure progress towards and achievement of our goals for e.learning?

Four Critical Domains of Practice

Strategies must be developed and implemented in four critical domains of practice:

- *curriculum* development,
- *staff* development and support,
- *student* learning support, and
- *institutional enablers* (infrastructure) for learning and teaching (organizational, physical and technological).

Key issues for leaders and managers of e.learning to resolve in each of these domains of practice are:

Curriculum Development	<ul style="list-style-type: none"> • How might the use of technology improve students' experience of their programs/courses and teaching? • What role might technologies play in: accessing information; the dissemination and representation of information; engaging students in learning; enabling interaction between students and staff; scaffolding learning; assessing learning and providing feedback; evaluating the quality of teaching and/or the curriculum?
Staff Development	<ul style="list-style-type: none"> • What are the learning needs of staff in relation to (a) the design of curricula which integrates the use of technologies to support learning and/or teaching?; (b) teaching using different technologies?; (c) supporting students to use technology in their learning? • How can we develop leadership and management capabilities of staff in relation to e.learning? • How might these various learning needs be addressed? <ul style="list-style-type: none"> • What kinds of learning opportunities/activities will most effectively and efficiently support staff development in these areas? • What role(s) should the institution/faculty/school play in the delivery of these programs?
Student Learning Development	<ul style="list-style-type: none"> • What do students need to learn in relation to using technologies to support their learning? • How can the institution/faculty/school/program most effectively support students to access and use technology to support their learning? • What types of programs/resources might the institution/faculty/school/program provide to support students to use technologies in their learning? • How can we monitor students' experience of learning with and through the use of technologies in their programs and/or courses?
Institutional Enablers (Infrastructure) for Learning and Teaching)	<ul style="list-style-type: none"> • How might our institution/faculty/school/program's organizational arrangements need to change to enable staff /students to engage in e.learning? • Do we have an appropriate combination of roles with appropriately qualified staff to effectively enable and support e.learning? • How might our administrative policies and procedures need to change to effectively enable and support e.learning? • How will our IT and physical infrastructures need to change to effectively enable and support e.learning? • How will current business practices need to change to ensure that we can effectively enable and support e.learning development? • How can we build an institutional culture that values, recognizes and rewards e.learning?

Four Specific Contexts

Developments need to occur in four specific contexts:

- program/course/unit
- faculty/school/department
- institution
- community/sector

As indicated in the tables and discussion above, leaders and managers of e.learning have particular roles to play in a number of different contexts within our higher education institutions. Whether they occupy formal positions of management responsibility at the institutional level, faculty/school level or

program/course level, or whether they occupy informal leadership and management roles due to their technical, pedagogical or other expertise, they each face having to resolve a range of issues associated with curriculum, staff, student and infrastructure development in their efforts to develop and/or implement e.learning. What is crucial if these efforts are to be effective is that whatever decisions are made, or whatever strategies developed and implemented, they be integrated and coherent and aligned with institutional strategy and values. Failure to implement an effective governance structure to monitor and oversee the development and implementation of e.learning at all levels within our organizations inevitably results in costly, inefficient and ineffective strategies, policies and practices. At best such a failure results in a reduction of the rate at which e.learning is adopted, at worst it results in staff and/or students abandoning e.learning altogether (Marshall, 2004; Zemsky & Massy, 2004).

Implications for the Development of Leaders and Managers of e.learning

To avoid such difficulties institutions must develop the capabilities of their staff in relation to leading and managing the development of e.learning. However, traditional models of leadership and management development (those that target individuals in or about to assume formal leadership and management responsibilities) will on their own be inadequate. As Applebee et al. (2007), Chesterton et al. (2008), and Schneider et al. (2008) have suggested the development of leadership and management capacity for e.learning requires individuals, relative to their roles and responsibilities in relation to e.learning, to be provided with opportunities to develop knowledge skills and expertise in organizational analysis, leadership, management, pedagogy, curriculum, and evaluation. These opportunities should enable individuals to establish networks of individuals with similar roles and responsibilities who might continue to support each other in their work and development beyond the end of any formal program used to establish them. Deliberate efforts to identify and develop individuals within each faculty, school and program will assist in this process while ensuring that capacity is developed throughout an institution.

Conclusions

The development of institutional capacity for e.learning is a complex process, involving many individuals, in a range of formal and informal leadership and management roles, at multiple levels throughout our institutions. It is a multi-dimensional task requiring action in four key domains of practice related to the development of curriculum, staff, students and organizational infrastructure for learning and teaching. Critical to the success of efforts to develop institutional capacity for e.learning are: (a) the development of an appropriate governance

structure to assure the integration and coherence of institutional, faculty, school and program level policies and strategies with overarching institutional goals, values and priorities; and (b) ongoing, appropriately targeted, development of individuals who might, or have assumed, leadership and/or management responsibilities in relation to the development of e.learning.

References

- Applebee, A., Ellis, R., & Sheely, S. (2004, December). Developing a blended learning community at the University of Sydney: Broadening the comfort zone. In R. Atkinson, C. McBeath, D. Jonas-Dwyer, & R. Phillips (Eds.), *Beyond the comfort zone: Proceedings of the 21st ASCILITE Conference* (pp. 58–66). Perth.
- Applebee, A., Flowers, K., Schneider, A., & Kazlauskas, A. (2007, June). Investing in future leaders: How one university is embedding capacity for ongoing change in online teaching and learning. *ASCILITE Newsletter*. Retrieved February 18, 2011, from http://www.ascilite.org.au/index.php?p=newsletter_june_2007
- Birch, D., & Burnett, B. (2009). Bringing academics on board: Encouraging institution wide diffusion of e-learning environments. *Australasian Journal of Educational Technology*, 25(1), 117–134.
- Bolman, L., & Deal, T. (2007). *Reframing organizations: Artistry, choice and leadership* (3rd ed.). San Francisco, CA: Jossey-Bass.
- Browne, T., & Jenkins, M. (2008). Achieving academic engagement? The landscape for educational technology support in two UK institutions. In *Hello! Where are you in the landscape of educational technology? Proceedings of the 25th ASCILITE Conference* (pp. 89–94). Melbourne.
- Bryson, J. M. (1995). *Strategic planning for public and non-profit organizations: A guide to strengthening and sustaining organizational achievement* (rev. ed.). San Francisco, CA: Jossey-Bass.
- Chesterton, P., Duignan, P., Felton, E., Flowers, K., Gibbons, P., Horne, M., et al. (2008). *Development of distributed institutional leadership capacity in online learning and teaching project*. Leadership for Excellence in Learning and Teaching Project. Sydney: The Carrick Institute for Learning and Teaching in Higher Education.
- Clegg, S., Hudson, A., & Steel, J. (2003). The Emperor's New Clothes: Globalisation and e-learning in higher education. *British Journal of Sociology of Education*, 24(1), 39–53.
- Coen, M., & Nicol, D. (2007). Managing investment in teaching and learning technologies. *Perspectives: Policy and Practice in Higher Education*, 11(1), 25–28.
- Cook, J., Holley, D., & Andrew, D. (2007). A stakeholder approach to implementing e-learning in a university. *British Journal of Educational Technology*, 38(5), 784–794.
- Ellis, A., Markham, S., Munro, J., & Sheard, J. (2002). Disseminating innovation and best practice in ICT education: The ICT-Ed Database. In *Winds of*

- change in the sea of learning. Charting the course of digital education. The Proceedings of the 19th ASCILITE Conference* (pp. 195–202). Auckland.
- Finkelstein, J. (2004). Developing policy to support a new generation of e-learning. In *Beyond the comfort zone: Proceedings of the 21st ASCILITE Conference* (p. 303). Perth.
- Fritze, P. (2001). An institutional system for developing flexible online learning and teaching environments. In *Meeting at the crossroads. The Proceedings of the 18th ASCILITE Conference* (pp. 65–68). Melbourne.
- Fullan, M. G. (2003). *Change forces with a vengeance*. London: Routledge Falmer.
- Goodyear, P., & Ellis, R. (2008). University students' approaches to learning: Rethinking the place of technology. *Distance Education*, 29(2), 141–152.
- Hannan, A. (2005). Innovating in higher education: Contexts for change in learning technology. *British Journal of Educational Technology*, 36(6), 975–985.
- Hannon, J. (2009). Breaking down online teaching: Innovation and resistance. *Australasian Journal of Educational Technology*, 25(1), 14–29.
- Holt, D., Borland, R., Farmer, J., & Rice, M. (2005). Casing out teaching and learning online: Enhancing fidelity into the mainstream. In *Balance, fidelity, mobility: Maintaining the momentum? Proceedings of the 22nd ASCILITE Conference* (pp. 261–270). Brisbane.
- Jones, H. (2008). Pestering staff into online learning: An integrated plan for implementation. In *Hello! Where are you in the landscape of educational technology? Proceedings 25th ASCILITE Conference* (pp. 456–462). Melbourne.
- Lefoe, G., & Parrish, D. (2010). Strategic leadership capacity development for ICT: Moving beyond learning on the job. In *Curriculum, technology & transformation for an unknown future. Proceedings of 27th ASCILITE Conference* (pp. 542–547). Sydney.
- Marshall, S. J. (2004). Leading and managing the development of e-learning environments: An issue of comfort or discomfort? In *Beyond the comfort zone. Proceedings of the 21st ASCILITE Conference* (pp. 1–19). Perth.
- Marshall, S. J., Orrell, J., Cameron, A., Bosanquet, A., & Thomas, S. (2011). Leading and managing learning and teaching in higher education. *Higher Education Research and Development*, 30(2), 87–103.
- Reushle, S. (2010). Preparing for the future: Meeting the needs of tertiary education through the edgeless university. In *Curriculum, technology & transformation for an unknown future. Proceedings of 27th ASCILITE Conference* (pp. 798–802). Sydney.
- Salmon, G. (2005). Flying not flapping: A strategic framework for e-learning and pedagogical innovation in higher education institutions. *Research in Learning Technology*, 13(3), 201–218.
- Steel, C. (2005). Game for change? Balancing an enterprise-level LMS implementation. In *Balance, fidelity, mobility: Maintaining the momentum? Proceedings of the 22nd ASCILITE Conference* (pp. 637–646). Brisbane.

- Zemsky, R., & Massy, W. (2004). *Thwarted innovation: What happened to e.learning and why*. A final report for the Weatherstation Project of the Learning Alliance at the University of Pennsylvania in cooperation with the Thomson Corporation. Retrieved July 26, 2008, from <http://www.irhe.upenn.edu/Docs/Jun2004/ThwartedInnovation.pdf>
- Zhou, G., & Xu, J. (2007). Adoption of educational technology ten years after setting strategic goals: A Canadian university case. *Australasian Journal of Educational Technology*, 23(4), 508–528.