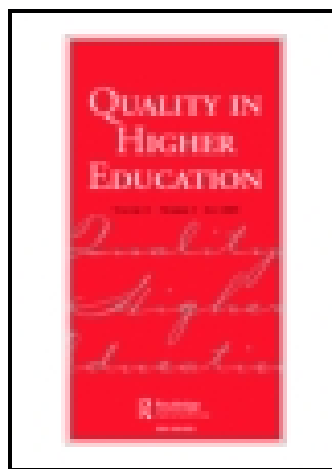


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# A Network Approach to Curriculum Quality Assessment

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**ABSTRACT** *This paper argues for an alternative approach to quality assurance in New Zealand universities that locates evaluation not with external auditors but with members of the teaching team. In the process, aspects of network theories are introduced as the basis for an approach to quality assurance. From this, the concept of networks is extended to curriculum design and implementation by communities of practice and a critically reflective model of curriculum and programme quality assessment situated within communities of practice is proposed. An example of a teaching team in a university science context is provided that highlights the characteristics of communities of practice and the tensions associated with programme quality assessment. It is suggested that the adoption of the proposed quality assurance approach would result in recommendations that are more likely to be positively implemented than current methods and hence lead to quality enhancement more rapidly.*

**Keywords:** quality assurance; network theories; collaboration

## Introduction

Raban (2007) identified tensions between quality assurance and quality enhancement in UK universities. He argued that the accountability culture created by external audits and avoidance of risk leads to a bureaucratisation of quality and a relative neglect of enhancement. This paper outlines a transformative approach to quality assurance (Harvey & Green, 1993), one that focuses on organisational change; on enhancements in curriculum planning delivery and outcomes (Stensaker, 2008). It is based on the premise that quality is enhanced when knowledge networks working as communities of practice have a major role in assuring the quality of curricula. To sustain this argument, the context in which quality assurance in higher education takes place, drawing on the example of New Zealand, is described first. The potential of knowledge management, knowledge networks and communities of practice in quality assurance is then surveyed before examining more closely the nature of curriculum and quality assurance. To conclude, an alternative approach to quality assessment is presented; one in which the assessors are collegial critical friends largely focused on quality enhancement.

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*External Quality Assurance in New Zealand*

Researchers working in comparative education policy analysis have noted similarities in policy frameworks across the Western world (Levin, 1998; Ball, 1998; Daun, 2002). Edwards & Usher (2000) used the term 'policy migration' to describe this phenomenon. One of the similarities noted repeatedly is an emphasis on quality and quality assurance (Zepke & Leach, 2007; Stensaker, 2008; Van Kemenade *et al.*, 2008). Descriptions and critiques of quality assurance processes are remarkably similar across jurisdictions. Generally, institutions are accountable for the quality of their provision to government. After self-review, a central audit agency checks how institutions have maintained published quality standards and makes results of their audit publicly available. Such processes have generated a number of critiques. Among them is that a culture of trust between colleagues is replaced by a public culture based on a formal and unintelligible accountability (O'Neill, 2002); audit systems that are weakly integrated with the educational purposes of institutions (Raban, 2007); and processes that inhibit enhancement through innovations (Findlow, 2008).

Quality assurance processes in New Zealand universities fit this general accountability mould. Since 1989 a comprehensive approach has assured the quality of university programmes using comprehensive approval and auditing processes. The New Zealand Qualifications Authority (NZQA) and the New Zealand Vice Chancellors' Committee (NZVCC) were created to assume responsibility for quality assurance across the post-school sector, the NZVCC assuming responsibility for quality in universities (NZQA, 2006). Reforms begun in 2007 decreed that the quality of a provider's programmes would inform government investment in the institution. The reform promised an evaluative approach with a focus on desired government-determined outcomes. A Tertiary Education Commission was charged with overseeing the investment and quality process. This comprises self-assessment against centrally set criteria with independent external evaluations to validate an institution's self-review (Tertiary Education Commission, 2007). Review functions are delegated to agencies connected with different types of institutions. Universities are served by the New Zealand Universities Academic Audit Unit (NZUAAU), responsible to universities but primed to evaluate them against government priorities. This has drawn criticisms from the university sector. The director of NZUAAU summed this up as follows:

The inevitable conclusion to be drawn is that the Commission is interested in measuring institutional performance and student outputs/outcomes against government priorities, not the quality of institutional research, teaching, learning, community engagement and the student learning experience. (Jennings, 2007, p. 2)

It is the range of critiques of external quality audit noted previously that encouraged the present search for an alternative approach that would be focused on quality enhancement.

**Knowledge networks, activity systems and communities of practice**

Whereas traditional theories of cognition regard knowledge as a static structure within an individual's head, the importance of context is increasingly recognised (Barab & Kirshner, 2001). Knowing is dynamic, arising from the interaction of the individual with their environment and with the activity in which they are situated (Barab & Kirshner, 2001; Barab & Roth, 2006). Groups of individuals with a common interest, who communicate and exchange information and create and transfer knowledge in the process, form knowledge

networks (Nonaka, 1994). Individuals may belong to many networks simultaneously and leave and join networks as they wish, making them flexible with no fixed boundaries.

Managing knowledge generated in knowledge networks is of prime importance in quality assurance processes (Alavi & Leidner, 2001). Nonaka (1994) ascribed both tacit and explicit dimensions to knowledge. Tacit knowledge is undocumented and held internally by individuals and within networks. It is frequently held unconsciously but is often crucial to situated problem identification and solution. Explicit knowledge is held consciously, is documented, official and can be verified. Explicit knowledge is comparatively easy to manage in information storage systems and is consequently amenable to audit by central agencies. Tacit knowledge is not so easily managed. Not generalisable and often deposited in knowledge networks (Alavi & Leidner, 2001), it is not readily accessible to external auditors. Productive scholars on the other hand, frequently work in knowledge networks. This enables them to generate, use and evaluate tacit knowledge (Tschhannen-Moran & Nestor-Baker, 2004) and even make it explicit, giving them an advantage over external auditors.

In a knowledge-based society in which knowledge is regarded as a key strategic asset, organisations have recognised the importance of knowledge networks in creating the knowledge they need to respond to their changing environment (Back *et al.*, 2005). Networks can take shape as formal or informal communities within their specific context addressing real-life issues. Engeström (1999) described communities as activity systems. He recognised such systems as the primary unit of analysis set within a larger network of systems. Activity theory offers a way for analysing roles, responsibilities and resources in relation to an activity. The theory is able to deal with cultural–historical communal systems, such as subject, discipline or organisational groups, that are driven by common motives, while simultaneously being in constant movement and confronted with internal contradictions. Bennett *et al.* (2003, p. 16) summarised Engeström’s version of activity theory:

...as describing social life as a process of ever-moving relationships between technologies, nature, ideas (concepts), persons and communities, in which the focus of action circulates to one person, then another, according to the social and environmental context and the flow of action within this.

Activity theories focus on the connections between situated knowing and doing. Wenger and Snyder (2000) described activity as taking place in communities of practice (CoPs): learning organisations that enable people to be active participants in the practices of social communities and constructing identities in relation to these communities. Wenger’s notion of CoPs and situated learning map tidily onto the idea of concertive action. Members are recognised as competent to contribute to the community and, indeed to lead it. Wenger identified three ways people work together in CoPs. He identified engagement (doing things together); imagination (creating an identity for the community); and alignment (becoming connected through coordinating energies, actions and practices). Members of CoPs actively participate by sharing expertise and learn together by focusing on issues directly related to their work. Members of a CoP are a form of knowledge network in which ‘social knowledge is created by and in the collective actions of a group’ (Alavi & Leidner, 2001, p. 117). It is the coming together of knowledge, particularly tacit knowledge, community networks and concerted action that provides the foundation for the alternative approach to quality assurance presented here.

*Example of a CoP in a University*

A teaching team based in the biological sciences at a university in New Zealand is an example of a knowledge network that doubles as a community of practice. For five years this has had a relatively flat organisational structure, with all members being regarded as equal and a flexible membership that includes academic biologists from other institutes or departments and professional biologists from local industries when appropriate. Leadership is provided by the most interested member for a particular issue: an example of distributive leadership (Zepke, 2007). The networked community is dynamic as it encourages members to communicate and exchange ideas with their other networks, for example, teaching technicians and postgraduate students. Although separate networks exist for research, relevant information is readily shared between teaching and research as some individuals are members of both networks. Hence the networks are overlapping (with shared members) as well as interactive (via communication with members of other networks); both types of interaction contribute to knowledge production, dissemination and application. The teaching team reflects many of the attributes associated with knowledge networks and CoPs in business. However, its power is limited, its decision-making confined to specialist biological sciences teaching and it has no formal role in quality assurance of either the curriculum or the way it is organised. Yet, such networks have the potential to engage with quality assurance and enhancement within a university.

*Curriculum as a Network*

Curriculum refers to the sum of learning experiences in a unit of study (module, paper, course or programme) and encompasses discipline knowledge, teaching and learning activities and the learning environment in a structure that facilitates the desired learning in the individual student. Curriculum can be thought of as a network since the structure links discipline knowledge, teaching, learning activities and the learning environment in order to create a meaningful whole for the student. Several subject networks can interact to form a curriculum network representing a whole programme (for example, BSc microbiology). A key property of a curriculum is coherence, which helps the student to make links between information, skills and processes within and between units of study. A curriculum also needs to be responsive to changes in the discipline, education, the institution and related professions. Hence a curriculum can be viewed as a dynamic network that interacts with and responds to its environment of individual students, groups of students, other curricula, the discipline, other related disciplines, pedagogy, the institution and the wider society, evolving in the process. This view of curriculum is similar to the description of dynamic learning environments in which the interaction of students, teachers, assignments and resources result in continual evolution of the system as a whole (Barab and Kirshner, 2001).

The ability to learn has been identified as a key skill in the knowledge-based society and Jaros and Deakin-Crick (2007) suggested that school and higher education curricula need to focus on the process of learning rather than acquisition of particular knowledge. Similarly, Barab and Roth (2006) suggested that curriculum needs to facilitate the connection of learners into a network of possibilities and help expand their life-world. These authors advocated a curriculum-based ecosystem in which content is contextualised and meaning arises from the dynamic transactions between mind, body and environment. Donald (2000) suggested that a situated curriculum facilitates the formation of learning communities in

which students studying related themes are connected in a democratic rather than a hierarchical way.

### **Curriculum and quality assurance**

In a study of factors that affect the quality of learning experience, Horsburgh (1999) found that the curriculum had the greatest impact. If the purpose of a curriculum is to facilitate desired learning in a student, or group of students, it follows that the quality of a curriculum is determined by how well it achieves this. The desired learning may be described as intended learning outcomes that act as starting points for assessing the quality of a curriculum. However, intended learning outcomes are value-laden and can be difficult to define. They are influenced by the relative power of the stakeholders. For example, a professional body or a group of employers may dictate required outcomes in order for a course to be accredited (Toohey, 1999). In other courses academic staff may be wholly responsible for defining outcomes but they too will be influenced by their own beliefs and what they think the institution and society want. In short, quality assurance mechanisms are not neutral or objective. They are deeply concerned with how well aligned a curriculum is with the expectations of particular authorities such as the discipline, institution, employers or the government. These authorities want a say in both the definition and judgment of curriculum quality. Consequently, institutions of higher education must participate in reviews by external quality assurance agencies, for example, the Qualifications Assurance Agency for Higher Education (QAA) in the UK or the Universities' Academic Audit Unit (NZUAAU) in New Zealand. Several national-level and international external quality assurance agencies can work together in a network fashion with the aim of ensuring that curricula meet similar quality standards. International networks promote good practice among quality assurance agencies, which will aid recognition and international portability of qualifications (Aelterman 2006; Harvey, 2006).

In New Zealand, external quality assurance agencies in higher education aim to improve education by ensuring minimum standards are met and high standards are rewarded (usually by recognition or funding), although new evaluation processes try to get away from such rewards (NZQA, 2007). In some countries in Europe, external quality assurance agencies have defined benchmark standards for various qualifications, together with pass and excellent level indicators, in consultation with stakeholders (QAA, 2002). However, the widespread use of fixed standards is likely to foster homogeneity in institutions rather than diversity and is likely to inhibit innovation (Woodhouse, 1998; O'Neill, 2002). In addition, an outcomes-based focus resembles a reductionist approach to quality that omits to consider the curriculum as a whole. To provide the best quality education, learning experience or curriculum possible requires reflection on whether it could be improved and if so, how? To determine how well a curriculum facilitates learning requires a holistic view of the whole process. As a curriculum interacts with both students and the institution, politics or wider society (which also interact with each other) it is vital that all interactions are considered in an integrative fashion as part of quality assessment of the curriculum as a whole. However, the whole picture is rarely considered in quality assurance processes. Moreover, as Melrose (1998) and Houston (2008) suggested, education requires a transformative concept of quality (Harvey & Knight, 1996). This aspect tends to be neglected in current quality assurance practices, particularly those centred on standards. The use of standards assumes that quality is conformance to specifications or meeting and exceeding consumer expectations. Such ideas have largely been superseded in modern business organisations as



they have adopted network structures for quality assurance and the same would be appropriate in education (Hinchcliff, 1996; Drew, 2008). Quality assurance in education could learn from the experience in business and enhance innovation by also adopting network structures.

This critique of current quality assurance practices extends to the way external quality assurance agencies tend to deal with programmes or institutions in isolation. Developments in the school sector may be appropriate for higher education as well. In the UK, for example, policymakers in the twenty-first century see networks as the answer to improving equity, achievement and relevance by linking teacher training, governments and schools in a 'triple helix' model of innovation (Campbell, 2006; Strathdee, 2007). The aim is to encourage cooperative rather than competitive relationships in schools in the belief that this will improve the quality of education. The recognition that knowledge networks facilitate innovation and the dissemination of good practice and the political desire for closer working between agencies have led policymakers in England to create networks of schools termed 'networked learning communities' (O'Brien *et al.*, 2006). These networked learning communities are described as flat organisational structures with lateral leadership, like knowledge networks in other modern organisations and, for example, the teaching team in biological sciences introduced earlier. These networked learning communities operate at three levels: within a school, between schools and between networks of schools, with the primary aim of sharing best practice to enhance quality (Jackson, 2006). While the networked learning communities provide a sense of community and can act as instruments of system change, possible tensions include issues of trust between schools, possible misuse of networked learning communities by political agencies to introduce whatever policy is operating at a given time and the possibility of domineering leaders or cliques (O'Brien *et al.*, 2006). These issues may be more of a concern for networked learning communities in the UK than other networks because they were imposed on schools from outside, rather than evolving naturally. This imposition may explain the finding that quality assurance in UK schools is associated with significant anxiety among teachers and a lack of ownership of the network and any changes it advocates (O'Brien *et al.*, 2006). Imposition and networking represent different philosophies that are incompatible (O'Brien *et al.*, 2006). Strathdee (2007) noted that networked learning communities focus mainly on teaching, which is only one component in the curriculum. It would be appropriate for higher education in New Zealand to learn from these experiences and be wary of imposing network structures. Encouraging, facilitating and supporting CoPs and networks of practice is likely to contribute more to quality enhancement in the long run than imposing organisational structures or dictating standards.

The relative effects of knowledge and curriculum networks and external quality assurance agencies are illustrated by recent quality assurance processes in the biological sciences in the New Zealand university referred to earlier. In early 2006, the biological science teaching team, a knowledge network and community of practice reviewed a biological sciences major. Practitioners from other universities and prospective employers were invited to join the team and participate in this review. The network/CoP discussed the programme thoroughly, identified gaps and themselves recommended enhancements that were implemented the following year. Without neglecting organisational matters such as resourcing laboratory use and staff workloads, the knowledge network/CoP drilled deeply into learning and teaching. The graduate profile was discussed as was every paper in the major as it related to that profile (Microbiology Teaching Group, 2006). Recommendations were subsequently discussed by the teaching team. While some of the outcomes were questioned in general the team agreed on a number of enhancements and the programme was revised accordingly (Microbiology

Teaching Group, 2006). Later in 2006, the university reviewed the same major. In this case, a panel of academics from other universities was selected and the contribution of the teaching team was confined to an interview, *en masse*, by this panel. The review was conducted in compliance with the university's commitment to external quality reviews and followed the standard terms of reference for such reviews. The panel:

...notes that while many of the Terms of Reference are concerned with process there was a strong mandate given to examine and make recommendations to improve not only process but especially outcomes and outputs at the teaching–research interface. (Qualifications Review, 2006, p. 2)

The panel made 13 fairly procedural recommendations, six about the curriculum, three about publicity and four about resourcing, including one on the teaching research interface. It seems that the external review panel was limited to superficial recommendations on teaching and learning as it had not been provided with any curriculum documentation, nor did it draw on the relevant knowledge network/CoP beyond a group interview. The process was extremely frustrating for all involved. One member of the teaching team commented that 'the experience is no more than a public relations exercise' (Jan Schmid, personal communication). In this example, curriculum review undertaken by the knowledge network/CoP led to the implementation of changes and subsequent enhancements whereas many recommendations from the external review body met with resistance.

### **An alternative approach to assessing quality**

It is suggested that without the full participation of the knowledge network/CoP, the external panel is deprived of necessary tacit knowledge needed to come up with well-founded and balanced recommendations. Moreover, there is tension between external quality assurance agencies and institutions, with institutions and affected staff often regarding the external agencies as intrusive. Aelterman (2006) suggested that openness, communication and mutual respect are required if the aim of educational enhancement is to be met. In the current process described above, external quality assessors are in a position of power and by making recommendations for action, they can be perceived as controlling, which is likely to discourage innovation. An alternative approach is suggested based on dialogue leading to negotiated courses of action for quality enhancement; such an enabling approach would empower curriculum teams and encourage innovation. This may require a change in the mindset of some agencies (for example, accrediting bodies) as inherent in this approach is equality and flexibility of membership (as in modern organisations, discussed earlier) which may not be part of their organisational culture. Dialogue is reported to be the most powerful available means for the facilitation of learning in networks and organisational learning (Beeby & Booth, 2000) and offers a constructive mechanism for sharing best practice and improving curriculum quality through learning in CoPs. Pratt (1998) advocated opening up the evaluation process to make it less anxious for participants by evaluators discussing and negotiating grounds for evaluation; situating assessors in CoPs would enable this.

Individuals or groups of individuals who have been tasked with assessing the quality of a curriculum are usually experienced practitioners. Although these assessors may be appointed by an institution or by an external body, it is suggested that for maximum gain the process requires buy-in from those directly involved in planning, designing, organising



and delivering the curriculum being assessed (that is, the curriculum teaching team). As Nicolaidoo *et al.* (2006) argued, enhancement processes need to be inviting, non-threatening and involve all stakeholders. Ideally, the curriculum team should not just be part of the process but powerful participants. Quality assessment should be undertaken by the team as part of their critical reflective practice. As Melrose (1998) suggested, a transformative learning community participates in dialogue about quality. It should be this team who use their knowledge network/CoP to create innovation and share best practice. The diversity of the team/CoP can be increased by expanding it to include relevant expertise for the review by inviting representatives of accrediting bodies, students or other organisations to join as equal members. It is proposed that as an expert and a trusted member of the CoP a reviewer would be in the best position to judge the quality of a curriculum and should be invited to do so by the curriculum team. This would give ownership of the process and findings to the team who would need to act on the results of the review. The nature of networks enable this to happen (Back *et al.*, 2005).

This article suggests that the responsibility for programme or curriculum review should be a core function of the teaching team/CoP and one that is undertaken continuously in the same manner that a teacher uses reflective practice to assess and enhance their quality of teaching (Brookfield, 2000; Biggs, 2003). Moving the locus of control from the higher education institution to the CoP would increase the likelihood of successful implementation of recommendations to enhance quality. To realise this potential, managerial efforts are required to encourage, develop and integrate CoPs into the higher education institution, as Wenger and Snyder (2000) advocated for business organisations.

However, this article does not claim that all internal and external review processes have contrary outcomes or that the two ways of assuring quality are mutually exclusive. It is certainly not argued that external review processes have no role in quality assurance. Neither is it suggested that CoPs/knowledge networks will always function perfectly. The groupthink literature (Janis, 1972) provides ample grounds for believing that CoPs may ignore creative thinking in order to minimise conflict and achieve a rationalised conformity. Bourdieu's concept of *habitus* similarly leaves open the possibility that groups such as CoPs could regulate themselves in ways that ignore unpalatable innovations (Mutch, 2003).

It is proposed, therefore, that quality assurance be a partnership where external quality assurance agencies network with CoPs to which curriculum teams belong. This networking of external quality assurance with curriculum teams in CoPs, contrasts with the current differentiation model that polarises practitioners into evaluators and those being evaluated, rather than enabling all stakeholders to exercise both functions. This would enhance dialogue and reflection in practice: the keys to enhancement (Drew, 2008). Evaluation by peer review is as important in the scholarship of teaching as it is in research (discovery); the suggested approach would provide this for curriculum design, planning, implementation and evaluation. In this approach the role of external quality assurance agencies could be to facilitate enhancement of network connections (like social network analysis and network health checks used in business as described by Cross *et al.* [2003]), thereby improving the conditions that lead to enhanced quality in education. External quality assurance agencies would be networks of practice with access to a wide range of expertise that could connect with CoPs as required. Networks of practice and CoPs have been shown to be significant in improving literacy in US schools (Wixson & Yochum, 2004). These authors also indicate the need for accountability mechanisms that operate close to the student rather than at national levels, supporting the suggestion that local CoPs assess curriculum.

## Concluding remarks

In this paper an alternative transformative approach to external quality assessment has been sketched. The motivation for looking anew at this issue arose with experiences in the review of a biological science curriculum in higher education in New Zealand and a subsequent search in the international literature. O'Neill (2002) and Raban (2007), for example, regarded the accountability culture created by external audits as leading to a bureaucratisation of quality and a relative neglect of enhancement. The alternative approach presented here values quality assessment as a process that is primarily focused on transformational curriculum enhancement and is conducted as a collaborative exercise by curriculum team members and external experts negotiating quality improvements. It is recognised that this alternative approach is based on one case study in a New Zealand university and a literature review. Consequently this paper is offered more as a vehicle for further discussion and research than as a closed case. However, this alternative approach can be justified by reference to knowledge networks that contain tacit knowledge of curriculum not available to outside experts but accessible by CoPs as found in the curriculum team. It is also suggested that the curriculum can be conceptualised as a network. It is the coming together of knowledge and curriculum networks that provides the foundation for this alternative approach to quality assurance.

## References

- Aelterman, G., 2006, 'Sets of standards for external quality assurance agencies: a comparison', *Quality in Higher Education*, 12(3), pp. 227–33.
- Alavi, M. & Leidner, D. E., 2001, 'Review: knowledge management and knowledge management systems: conceptual foundations and research issues', *MIS Quarterly*, 25(1), pp. 107–36.
- Back, A., von Krogh, G., Seufert, A. & Enkel, E., 2005, *Putting knowledge networks into action: methodology, development, maintenance* (Berlin, Springer-Verlag).
- Ball, S., 1998, 'Big policies/small world: an introduction to international perspectives in education policy', *Comparative Education*, 34(2), pp. 119–30.
- Barab, S. A. & Kirshner, D., 2001, 'Guest editors' introduction: rethinking methodology in the learning sciences', *The Journal of the Learning Sciences*, 10(1–2), pp. 5–15.
- Barab, S. A. & Roth, W., 2006, 'Curriculum-based ecosystems: supporting knowing from an ecological perspective', *Educational Researcher*, 35(5), pp. 3–13.
- Beeby, M. & Booth, C., 2000, 'Networks and inter-organisational learning: a critical review', *The Learning Organisation*, 7(2), pp. 75–88.
- Bennett, N., Wise, C., Woods, P. & Harvey J., 2003, *Distributed leadership. A review of the literature*. National College for School Leadership.
- Biggs, J., 2003, *Teaching for quality learning at university*, 2nd edn. (Buckingham, UK, The Society for Research into Higher Education and Open University Press).
- Brookfield, S., 2000, 'Transformative learning as ideology critique', in Mezirow, J. (Ed.) *Learning as transformation: critical perspectives on a theory in progress* (San Francisco, Jossey Bass).
- Campbell, D. F. J., 2006, 'The university/business research networks in science and technology', in Carayannis, E. G. & Campbell, D. F. J. (Eds.) *Knowledge creation, diffusion and use in innovation networks and knowledge clusters* (Westport, CT, Praeger Publishers).
- Cross, R., Borgatti, S. P. & Parker, A. 2003, 'Making invisible work visible: using social network analysis to support strategic collaboration', in Cross, R., Parker, A. & Sasson, L., (Eds.) *Networks in the knowledge economy* (Oxford, Oxford University Press).
- Daun, H., 2002, 'Globalisation and national education systems', in Daun, H. (Ed.), *Educational restructuring in the context of globalisation and national policy* (New York, RoutledgeFalmer).
- Donald, J., 2000, 'The pedagogue: creating designs for teaching', in Bess, J. (Ed.) *Teaching alone, teaching together* (San Francisco, Jossey Bass).
- Drew, G., 2008, 'An artful learning framework for organisations', *Journal of Management & Organisation*, 14(5), pp. 504–20.

- Edwards, R. & Usher, R., 2000, *Globalisation and pedagogy. Space, place and identity* (London, Routledge Falmer).
- Engeström, Y., 1999, 'Innovative learning in work teams: analysing cycles of knowledge creation in practice', in Engeström, Y., Miettinen, R. & Punamäki, R. (Eds.) *Perspectives on activity theory* (Cambridge, UK, Cambridge University Press).
- Findlow, S., 2008, 'Accountability and innovation in higher education: a disabling tension?', *Studies in Higher Education*, 33(3), pp. 313–29.
- Harvey, L. (Ed.), 2006, 'International network of quality assurance agencies in higher education', *Quality in Higher Education*, 12(3), pp. 221–26.
- Harvey, L. & Green, D., 1993, 'Defining quality', *Assessment & Evaluation in Higher Education*, 18(1), pp. 9–34.
- Harvey, L. & Knight, P. T., 1996, *Transforming higher education* (Buckingham, UK, Society for Research into Higher Education/Open University Press).
- Hinchcliff, J., 1996, 'Quality: an international perspective', *Connections*, 44, pp. 41–7.
- Horsburgh, M., 1999, 'Quality monitoring in higher education: the impact on student learning', *Quality in Higher Education*, 5(1), pp. 9–25.
- Houston, D., 2008, 'Rethinking quality and improvement in higher education', *Quality Assurance in Education*, 16(1), pp. 61–79.
- Jackson, D., 2006, 'The creation of knowledge networks', in Harris, A. & Chrispeels, J. H. (Eds.) *Improving schools and educational systems* (London, Routledge).
- Janis, I., 1972, *Victims of groupthink* (Boston, MA, Houghton Mifflin Company).
- Jaros, M. & Deakin-Crick, R., 2007, 'Personalised learning for the post-mechanical age', *Journal of Curriculum Studies*, 39(4), pp. 423–40.
- Jennings, J., 2007, 'The role of an independent quality assurance body in a climate of accountability: New Zealand at the crossroads', paper presented at the *Asia-Pacific Quality Network meeting*, Kuala Lumpur, 6 February.
- Levin, B., 1998, 'An epidemic of educational policy: (what) can we learn from each other?', *Comparative Education*, 34(2), pp. 131–41.
- Melrose, M., 1998, 'Exploring paradigms of curriculum evaluation and concepts of quality', *Quality in Higher Education*, 4(1), pp. 37–43.
- Microbiology Teaching Group, 2006, *Microbiology major review report*. Internal Review of BSc Microbiology, CSB 06/34 (Palmerston North, New Zealand, Massey University, College of Sciences).
- Mutch, A., 2003, Communities of practice and habitus: a critique. *Organisation Studies*, 24(3), pp. 383–401.
- Nicolaïdoo, M., Sophocleous, A. & Phtiaka, H., 2006, 'Promoting inclusive practices in primary schools in Cyprus: empowering pupils to build supportive networks', *European Journal of Special Needs Education*, 21(3), pp. 251–67.
- Nonaka, I., 1994, 'A dynamic theory of organisational knowledge creation', *Organisation Science*, 5(1), pp. 14–37.
- New Zealand Qualifications Authority (NZQA), 2006, *New Zealand tertiary quality assurance system*. Available online at: <http://www.nzqa.govt.nz/for-international/tertqa.html> (accessed 17 August 2009).
- New Zealand Qualifications Authority (NZQA), 2007, *Principles of an evaluative approach to quality assurance*. Available online at: <http://www.nzqa.govt.nz/for-providers/tertiary/docs/draft-indicators.pdf> (accessed 14 February 2009).
- O'Brien, M., Burton, D., Campbell, A., Qualter, A. & Varga-Atkins, T., 2006, 'Learning networks for schools: keeping up with the times or a leap into the unknown?', *The Curriculum Journal*, 17(4), pp. 397–411.
- O'Neill, O., 2002, 'A question of trust: called to account', Available online at: <http://www.bbc.co.uk/radio4/reith2002/lecture3.shtml> (accessed 15 January 2007).
- Pratt, D., 1998, 'Evaluating teaching', in PRATT, D. (Ed.) *Five perspectives on teaching in adult and higher education* (Malabar, FL, Krieger).
- Quality Assurance Agency for Higher Education (QAA), 2002, *Benchmark statements for biosciences*. Available online at: <http://www.qaa.ac.uk/academicinfrastructure/benchmark/honours/biosciences.pdf> (accessed 27 August 2007).
- Qualifications Review, 2006, *Review of Biochemistry (BSc) Microbiology (BSc) Genetics (BSc)*. External Qualifications Review of Massey University, College of Sciences, AC 06/419 CSB 07/01 (Palmerston North, New Zealand, Massey University).
- Raban, C., 2007, 'Assurance versus enhancement: less is more?', *Journal of Further and Higher Education*, 31(1), pp. 77–85.
- Stensaker, B., 2008, 'Outcomes of quality assurance: a discussion of knowledge, methodology and validity', *Quality in Higher Education*, 14(1), pp. 3–13.

- Strathdee, R., 2007, 'School improvement, pre-service teacher education and the construction of social networks in New Zealand and England', *Journal of Education for Teaching*, 33(1), pp. 19–33.
- Tertiary Education Commission, 2007, *Quality assurance and monitoring system and support for the tertiary reforms*. Cabinet Policy Committee paper. Available online at: <http://www.tec.govt.nz/upload/downloads/cabinet-paper-quality-assurance-october.pdf> (accessed 14 February 2009).
- Toohey, S., 1999, *Designing courses for higher education* (Buckingham, UK, Open University Press).
- Tschhannen-Moran, M. & Nestor-Baker, N., 2004, 'The tacit knowledge of productive scholars in education', *Teachers College Record*, 106(7), pp. 1484–511.
- Van Kemenade, E., Pupius, M. & Hardjono, T., 2008, 'More value to defining quality', *Quality in Higher Education*, 14(2), pp. 175–85.
- Wenger, E. C. & Snyder, W. M., 2000, 'Communities of practice: the organisational frontier', *Harvard Business Review*, 78(1), pp. 139–45.
- Wixson, K. K. & Yochum, N., 2004, 'Research on literacy policy and professional development: national, state, district and teacher contexts', *The Elementary School Journal*, 105, pp. 219–42.
- Woodhouse, D., 1998, 'Quality assurance in higher education: the next 25 years', *Quality in Higher Education*, 4(3), pp. 257–73.
- Zepke, N., 2007, 'Leadership, power and activity systems in a higher education context: will distributive leadership serve in an accountability driven world?', *International Journal of Leadership in Education*, 10(3), pp. 301–14.
- Zepke, N. & Leach, L., 2007, 'Educational quality, institutional accountability and the retention discourse', *Quality in Higher Education*, 13(3), pp. 237–48.