Rethinking Educational Reform
A Loosely Coupled and Complex Systems Perspective

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ABSTRACT
This article critically examines two sets of ideas that have influenced educational reform in the recent past: managerialism and market approaches. It is argued that while each can be demonstrated to have led to useful change, neither provides a basis for future improvement in education. A recent example of change within the State School sector of South Australia is used to provide a grounding point for the development of a set of principles to guide future reform. These principles draw on a well-established set of ideas: that of educational systems as ‘loosely coupled’ and recent advances in the application of complex systems concepts to organizational management. These concepts, and the South Australian example, suggest the potential benefits from using self-organizational properties to improve institutional learning. Unlike the ‘rationalist’ management and market approaches, the alternative model emphasizes the need for a focus on people, relationships and learning rather than structures and centrally determined standards for conformance.

KEYWORDS agency theory, complexity theory, educational reform, loosely coupled systems, managerialism, new public management, public choice, school improvement

Introduction
A political reality in western democracies during the post-war period has been the need to do ‘more with less’ (Wilenski, 1986; Keating, 1988). In addition, the influence of neoclassical economic and neoliberal political thinking led to increasing calls for budgetary restraint, downsizing, privatization and deregulation (Wilenski, 1986; Osborne and Gaebler, 1993; Self, 1993; Davis, 1997). Two major sets of ideas influenced approaches to administration during this time (Aucoin, 1990; Self, 2000). These are managerialism, also called the ‘new public management’, which is an application of business management principles to public institutions; and public choice theory, also known as the ‘economic theory of politics’, which is an extension of the logic of economic markets to administrative and political exchange (Stretton and Orchard, 1994; Udehn, 1996). These two sets of ideas provide the primary basis for recent educational reform in
OECD countries and have had a significant influence in other countries also; indeed, it has been described by Jones and Kettl (2003) as an international phenomenon.

This article evaluates the effect and relevance of these two sets of ideas for educational improvement. Research into a recent successful reform in South Australia is then outlined. The findings of this research are demonstrated to be in conflict with the prescriptions that flow from managerial and economic approaches. An alternative to these two theories is then proposed as a guide for the future.

'Managerialism' or the New Public Management

Figure 1 illustrates the classical bureaucratic/hierarchical model of educational administration. Within this model there is an assumption that there is a tight coupling between education policy (e.g. curriculum) and how teachers teach. Where improved performance is sought it is pursued through the manipulation of formal mechanisms such as rules, procedures, structures, rewards or changed evaluation. Bureaucratic hierarchies have however been increasingly criticized for being non-responsive and inefficient means for organizing public administration (Osborne and Gaebler, 1993). With respect to education, they have certainly proven resistant to change as the general failure of attempts at their reform attest (Louis and Miles, 1990; Fullan and Hargreaves, 1991; Fullan, 1994).

As a consequence, over the past two decades in many developed countries, including Australia (O'Brein and Down, 2002), New Zealand (Tooley, 2000), the
UK (Simkins, 2000) and Canada (Hughes, 1999), under the banner of ‘managerialism’ or the New Public Management (NPM), private sector management practices and market-type mechanisms have increasingly been applied to public administration, including school education.

Management methods are seen as value neutral, instrumental/technical approaches for improving the efficiency and effectiveness of organizations (Wilenski, 1986; Considine, 1990; Fitzsimons, 2004). Pollitt (1990: 60) argues, for example, that management represents ‘. . . a concentration on the immediate, concrete, controllable things which go on within one’s own organization and an avoidance of entanglement with wider-value questions’. Managerial methods were seen as helpful for achieving a shift from a bureaucratic pre-occupation with processes to a focus on results (Keating, 1990).

The advocates of both the bureau-professional and managerial approaches value task differentiation and place great store in the efficacy of formal command and control mechanisms. In both, organizational performance is assumed to be a direct product of rational control from above. Tight linkage between teachers, schools and the centre is seen as both desirable and achievable. However, under the influence of ‘managerialism’ there will be changes to some practices compared to that of the professional bureaucracy. These include devolution of responsibility to middle managers for budgetary and administrative functions and a change from process conformity to output delivery for accountability.

In the UK, Simkins citing Clarke and Newman (1997) noted that the change from the bureau-professional structure to a management one implied a significant shift whereby:

Bureau-professionalism gives primacy to the roles of the professional and the public service bureaucrat; managerialism, in contrast, justifies and legitimates managerial power and challenges the values and power bases embodied in the traditional bureau-professional settlement. (2000: 321)

Under the bureau-professional model there is some scope for independent action between teacher and school principal in responding to the needs of students. Other than this, power rests at the principal nodes of the hierarchy. Under the influence of ‘managerialism’, the role of the teacher is arguably ‘industrialized’ (Smith, 1999). Power shifts to the school principal for both educational and managerial responsibilities (Gewitz and Ball, 2000; Simkins, 2000; Jones and Kettl, 2003) but with strong accountability strings attached.

It has been observed, however (see for example, Evans, 2001), that these increased demands for administration, planning and reporting upwards may unintentionally diminish school leaders' capacity to attend to more strategic matters of educational leadership within the school. This may reduce rather than enhance the quality of education.

Gewitz and Ball (2000) have observed that under the influence of ‘managerialism’ there is a shift away from a ‘learner needs perspective’ to an ‘institutional
needs perspective’. This is echoed by Morley and Rassool who state that under this influence:

Professional meaning and purpose have been framed by the performance culture. . . There are few indications of the nature of educational development beyond concerns about performativity. A positivistic view of educational change and development relies predominantly on quantitative data as a basis for policy. (2000: 181)

In short, a discourse on and about education and its concern with social purpose is displaced with a much narrower debate about instrumental means (Beckmann and Cooper, 2004). Given that managerialists had a desire to move a process-orientated bureaucracy towards an outcome focus, this would seem to be an unintended consequence of some significance. This unintended consequence can undermine the very thing that governments claim to be looking to schools for (Wright, 2001): a capacity to support and build social as well as economic capital. This is a consequence which some argue is now in evidence at least in New Zealand (Tooley, 2000), the UK (Beckmann and Cooper, 2004), Australia (Bates, 2000; Cranston, 2000) and Canada (Dei, 1999).

Conclusions on Managerialism

Overall, the assumption that educational systems are or should be approached as formal command and control hierarchies and that they can be expected to be responsive to purely technical and administrative interventions has been shown to be unrealistic. The importation of private sector management thinking and practice has not profoundly changed the way in which education is administered when compared to more traditional bureaucratic approaches. It has resulted in the uptake of more contemporary practices and these may, in some instances, have yielded improvements in operational efficiency. To the extent that change has focused on formal and instrumental means, there has been a tendency to load staff with additional administrative responsibilities, drive them to an inward looking perspective, reduce the focus on learning outcomes and thus diminish their morale. This has been particularly strongly influenced by the perceived ‘industrialization’ of teaching that has resulted from the attendant power shifts. Placing greater administrative responsibilities on principals has raised concerns that this is at the cost of educational leadership. Finally, it can be readily observed that with very few exceptions, management theory is quintessentially modernist in its assumptions (Burrell and Morgan, 1994). This places it philosophically at odds with post-modern thinking about learning.

Advocates of ‘managerialism’ argue that it has replaced a rigid, unresponsive and unaccountable bureaucracy. Its critics reply that a bureau-professional administration with strong concern for public interest and ethical commitments to citizen welfare has been undermined. However, despite claims that
the bureau-professional system embraced a public ethic, there is little evidence that teachers used their relative freedom to drive improvements in the overall approach to education. In their defence, their scope of action was seriously circumscribed by the bureaucratic structures that overlaid the classroom. Nevertheless, the professional scope, which some argue has been diminished, did not provide a potential for wider systemic learning: very little changed over decades. Managerialism may have its problems but so too did that which preceded it.

**Markets for Education Delivery?—Public Choice, Agency Theory and Institutional Economics**

Recent approaches to reform of public administration have also been influenced by neoclassical economic thinking. This is linked to managerialism in a shared assumption that the private sector is superior due to the discipline provided by markets.

It is widely accepted that markets are not efficient at allocating resources for public and merit goods of which education is a prime example (Wolf, 1993; Bailey, 1995). This suggests that ‘free’ markets alone are inappropriate for school-based education delivery. Since the benefits of merit goods, such as education, accrue to the whole community, not only those directly receiving the service, economic theory suggests (and practice bears out) that markets will under-allocate resources for such services. This under-allocation will accrue inequitably in the community. This observation has been used as an argument for the continued active involvement of governments in direct provision of education. A countervailing argument has, however, emerged. Advocates of this argument assert that political processes also are subject to ‘failure’ and can be expected to be as ineffective as markets. The main theoretical contribution for this case comes from Public Choice theory.

**Public Choice**

Known also as the ‘economic theory of politics’ (Udehn, 1996), public choice theory is concerned with the relationship between the administrative and political arms of government and between voters and elected representatives. The theory provides support to an ideology advocating small government and free markets. The political arena is approached as a ‘market-place’ in which individuals make political choices on the same basis as neoclassical economists argue they do economic choices; that is, on the basis of self-interest. The theory characterizes bureaucrats and politicians as self-seeking and budget maximizing; concerned to act for themselves rather than for citizens (Brennan, 1996; Udehn, 1996).

Government instrumentalities are, often by necessity, monopolies. Further, in the Westminster system, political neutrality had been pursued by giving
public servants life tenure thereby protecting administrative ranks from the influence of political appointment and dismissal. For the advocates of Public Choice this created a privileged labour monopoly with little incentive to perform and as Pollitt (1990) notes was predicted to lead to higher labour costs due to the absence of labour market competition. Public choice advocates are, therefore, very unsympathetic to teachers’ claims of a lost sense of professionalism under the influence of ‘managerialism’.

Applied to education, advocates not only eschew any movement for the increased professionalization of teachers, favouring further industrial de-powering and tighter accountability; but also to argue for the creation of ‘markets’ for the provision of educational services. To the extent that education is seen to have an important role in building social capital (OECD, 2001), Public Choice theory must be viewed as hostile. The self-interested atomism of Public Choice cannot entertain ideas of social capital as, from this perspective, as Margaret Thatcher once asserted (Glover, 2002), ‘there is no such thing as society’.

Both ‘managerialism’ and Public Choice have contributed to the push for public agencies to be subjected to ‘contestability’—competition with or comparison to similar private agencies as a means to find efficiencies, and an additional economics derived theory—Agency Theory—has informed thinking in this area.

**Agency Theory**

De Laine (1997) suggests that Agency Theory ‘... derives from the idea that political life can best be represented as a series of contracts between parties ...’ From this perspective education is cast as a chain of exchanges mediated by contract between a principal (government) and agents (i.e. schools, both public and private). This conceptualization facilitates a separation between the policy aspect of education, regarded as necessarily a core role for government (‘steering not rowing’, Osborne and Gaebler, 1993), and the provision of education services. Government decides what will be provided and to whom while the agent delivers the actual service. Agents may be non-government and should operate within a real or quasi-market. By such means, the monopoly concerns of Public Choice are addressed as is the ‘discipline of the market’ advocated by ‘managerialists’ (Figure 2).

This arrangement is at the heart of what are now commonly called funder/purchaser/provider structures for the delivery of government services (Department of Finance, 1995). These have seen wide application in Australia, New Zealand and the UK. The relationship between the principal (which purchases the services) and agents (which are the providers of the service) is typically mediated by formal service agreements or contracts that specify ‘outputs’ rather than policy ‘outcomes’ (Department of Treasury and Finance, 1997). An ‘output’ is a tangible intermediate deliverable pursuant to some broader
policy intent. Being tangible it is easy to ascertain if it has been delivered: it is measurable. The development of outputs relevant to policy is assumed to improve accountability but in practice, particularly in government, the relationship between output and outcome is often unclear. The relationship between any ‘output’ and desired ‘outcome’ is a hypothesis to be tested rather than a given. The focus on what is measurable (outputs) rather than what is important (outcome) can lead to goal displacement—something which earlier managerial reforms were directed at reducing (Ryan, 1993).

A key concern of agency theorists is how to manage self-interest. Agency Theory incorporates the (neoclassical) assumption that each of the parties will work to maximize their own benefits. If contracts are not well designed, there is the potential for agents to maximize their benefit contrary to the interest of the principal. This is referred to as the ‘principal's problem’ (Hendry, 2002). Controlling activity by contract is limited not only by the problem of agent opportunism but by the principal's difficulties in precisely specifying goals (given uncertain futures) and by agent's honest incompetence. Better information and/or oversight of agent activities can reduce the principal's problem. However, the more complex the environment and type of service, the harder it is for the principal to evaluate agent compliance. In addition, structuring contracts on the basis of assumed opportunism and subjecting the agent to close scrutiny signals lack of trust. Assuming self-interest may diminish a felt sense of responsibility and professionalism on the part of agents and make opportunism more likely.

Christensen and Laegreid (2001: 89), based on their analysis of reform in New Zealand and Norway, argue that such approaches have:
... replaced a system based on mutual trust among civil servants on different levels, and between politicians and administrators, with a system which potentially furthers distrust. The main idea of NPM [new public management] is that if only the external incentives are right, good governance is guaranteed whatever the character of the individuals. It is however, difficult to construct workable democratic administrative institutions in a civil service where the bureaucrats are driven solely by external incentives and private benefits.

This is particularly concerning given that both public and private sector organizations are increasingly realizing that where complex services are to be delivered high trust is an essential characteristic of the relationship (Hardy and Wistow, 1998).

Incentives are an alternative to oversight and should act to regulate agent behaviour without the need for close monitoring. Incentives must be designed in such a way that the agent is compelled, in striving for its own interest, to act in ways also consistent with the principal’s. However, getting the incentives right is critical. As the recent abuses of corporate authority by CEOs in the USA (Enron, Worldcom) and in Australia (HIH Insurance, OneTel) have shown, the consequences of getting the incentives wrong can be catastrophic.

In government, an accountability framework is often seen as a basis for providing incentive to perform. What schools are held accountable for, then, is of the most fundamental importance, not only for generating change but also for ensuring that the change achieved is in the right areas. Given the broad and idealistic goals identified for education (see for example, OECD, 1999; Delors, 2000), accountability will imply the need for a rich set of information and will not lend itself to a handful of intermediate ‘output’ measures. It is no surprise then that teachers commonly report dissatisfaction (Commonwealth, 2000) with many of the frameworks for accountability introduced as a part of the move towards principal/agent arrangements and the associated output orientation. In the context of devolution, performance information can be used to ‘control’ and ‘police’ rather than to improve local learning. This is indicative of a commitment to the practices of command management and offsets the potential benefits of decentralisation, sending messages of mistrust.

Due to uncertainty and complexity, there are as many limits to being able to effectively control agent behaviour using contracts as there are for achieving control using rules and regulations in bureaucracies; but usually fewer ways to detect non-compliance. Trying to control compliance through contracts means increasingly complex instruments as administrators (and their legal advisers) try to cover all possible contingencies much as drafters of bureaucratic regulations did before them. Both monitoring and/or incentives increase transaction cost and offset any potential efficiency gains anticipated from such changes.
Conclusion on Economic Approaches to Education

From what has been set out above it might be concluded that the influence of economic thinking on educational reform has been to embrace goals which are intrinsically hostile to any ideas of social development and social capital other than those which result from market competition and the contention of alternative individual interests: yet such goals are prominent in contemporary statements of intent for education (OECD, 1999; Delors, 2000).

Furthermore, these aspirational goals or outcomes for education are difficult to measure and tend to be replaced in contracts with short-term ‘outputs’ with a high potential for goal displacement.

In the public context, where the relationship between policy and outcomes is unclear, the separation of policy from delivery limits the possibility for harvesting institutional intelligence about ‘what works’ and may lead to a reduction in the quality of policy and programme effectiveness by reducing the institutional capacity for learning. Perhaps most concerning is its negative potential impact on trust, and, as a consequence, teacher commitment and morale.

The South Australian Learning to Learn Experience

In this section, an alternative to managerial and economic approaches to improving education is outlined with reference to a recent reform within South Australia. This reform illustrates how drawing on alternative ideas—particularly learning and systems theories, takes change in very different directions to that of bureaucratic, managerial or economic thinking. The key aspects of the South Australian reform are first outlined and then the theory base found to be most helpful in advancing those reforms is discussed and linkages to the prior critique are drawn.

Learning as a Basis for Educational Improvement

Between 1999 and 2002 the South Australian Department of Education and Children’s Services (DECS) introduced an innovation to improve schooling. The author has been involved with researching the basis and impact of the change for the past four years. A detailed account of the project design and outcomes is beyond the scope of this article and has been documented elsewhere (see Goldspink, 2002, 2003; Department of Education and Children’s Services, 2004). The broad principles of its design and implementation are most relevant to the discussion here.

Known as ‘Learning to Learn’, the change project was managed by an administrator with considerable teaching and district experience and hence with a sound appreciation of school practices, constraints and culture as well as the attitudes and values of teachers. The project grew out of dissatisfaction with past approaches to reform which did not assist with:
The generation of new thinking and understandings about the learning process—knowledge generation [and] the translation of this knowledge and learning outwards to the system as a whole. (Foster et al., 2000: 5)

The following key precepts were identified by the project manager as having informed the design of the project:

- transformation rather than incremental improvement was needed;
- meta-learning skills are increasingly important to society and business as a basis for knowledge and should be a focal point for education;
- increasingly education is expected to be future orientated;
- a catalyst or leader is needed to trigger the development of partnerships between stakeholders as a basis for achieving a change in how learning is approached through schooling;
- complex problems need complex solutions and these can come from those who are confronting them at a local level;
- a sense of vocation constitutes a motivational resource for teachers in the context of education;
- learning comes through trust and acceptance of risk;
- reflection on deeply held worldviews and a questioning of identity, not just administrative change, is needed for sustainable benefit;
- change and uncertainty are ubiquitous and form the backdrop for transformation;
- sustainable change would come only through responsibility taken at a local level, not through imposition (adapted from Foster, 2001).

This project drew on and promoted ‘constructivism’ as a theory appropriate to rethinking learning processes and promoting meta-learning. Significantly, this guiding theoretical position was seen as relevant to learning not only at the teacher/student level but teacher/teacher, interschool, school/administration and school/policy levels. Systems theory was also influential in the design of the project. The distancing from more extreme ‘ultra-rationalist’ management and economic theory was sometimes explicit. The project was influenced, for example, by Mintzberg’s (1994) emphasis on emergent strategy rather than the prevailing planning-based model common within the Department of Education and Children’s Services. The approach avoided:

- excessive formalism and quantification;
- seeing planning as a useful activity in itself;
- an institutional view of ‘human resources’ focusing rather on people and reinforcing professionalism;
- seeing leadership as about authority, focusing instead on quality relationships;
- centralist control typical of bureaucratic and managerial thinking.
In this list it is possible to discern tensions between the ideas informing this change and, if not the managerial rhetoric which prevailed at the time, then at least its practice within Australian administration.

The constructivism informing the approach meant embracing a diversity of perspectives and valuing alternative knowledge bases. As much emphasis was placed on practitioner experience as on central research: balancing theory and practice (praxis). This compelled the need to approach change as co-developmental rather than top-down. It implied that no one ‘knowledge’ base or position would or could grasp the complexity of the task of education within the diverse communities in which it was enacted. The emphasis was, therefore, on providing an environment in which all parties (administrators, teachers, parents and children) could ‘learn their way forward’ (Foster, 2001). Rather than assuming ‘one best way’, multiple stimuli that encouraged active experimentation in a context of trust were provided. The intent was to re-engage teachers’ intrinsic concern for student learning in order to focus on student and social outcomes of education rather than short-term achievement. This implied identification of core values to act as a point of integration. It increasingly led to the development of richly connected structures around curriculum (interpreted in an enactive sense) while loosening structures of compliance and administration.

In contrast to managerially inspired reforms (one of which operated concurrently with this initiative), the response by the teachers involved was overwhelmingly positive (Goldspink, 2003). Many reported having become excited about their role for the first time in many years. The process generated a strong self-driven element and a wide range of creative responses to transforming teaching practice (Goldspink, 2002, 2003).

The strategies used were apparently simple in concept. They comprised minimum prescription, instead providing funding support in exchange for a minimal set of commitments from schools. The latter were captured in a service agreement and reviewed annually. A support framework was established and this involved:

- provision of a core learning framework to expose teachers to new ideas relevant to their profession;
- learning circles to deepen understanding initiated by the core-learning framework, particularly among leaders;
- formation of a project colleague network that extended the reach of participants to the work of other key institutions and/or professionals;
- practicums, where schools synthesized their learning and communicated it to others (Foster, 2001)

The author’s research (Goldspink, 2002) reveals that it was not only these specific support processes and resources that were critical to the project’s success. Rather, it was the way in which they were consistently supported and
underpinned by a congruent change in assumptions, values and behaviours between sites and the policy centre and, most importantly, the trust that this established. While the approach began with a focus on school change, it has since been adopted by senior management within the department as a foundation for whole system change. However, whether the congruence essential to establishment of trust can be maintained at this level remains to be seen.

The key principles drawn from the research are:

1. Appealing to teachers and administrators intrinsic motivation is a key to both preventing resistance and ameliorating de-motivating factors present in the general environment. Motivated people will self-organize to bring about substantial change in practice. Focusing on administrative mechanisms and assuming self-interest has been shown by prior research to be de-motivating to teachers.

2. Pursuing change with high levels of flexibility and a learning and risk tolerant approach to accountability can lead to rigorous approaches to change and a focus on results.

3. Maintaining a high level of congruence to the principles and values informing the change is vital. This included the need to establish and maintain trust as the basis for the relationships. Provided this is established, substantial benefit in terms of teacher commitment and productivity can be realized.

4. A ‘non-deficit’ approach to reform (i.e. avoiding the assumption that the current system is dysfunctional because of the individuals within it) opens up possibilities for institution-wide learning and such learning can grow from the local area out.

5. Evaluation, which is pursued as an opportunity for learning rather than to attribute fault or blame, maintains a focus on outcomes and adds substantial value to the policy development process, ensuring practice can be improved in complex and unpredictable environments.

6. Tight hierarchical/administrative control is not necessary to achieve a very high level of strategic coherence. Indeed, emergent insights into possibilities for strategic improvement arise in systems that encourage diversity and pluralism of perspective.

7. Reciprocal obligations based around trust can be effective in maintaining a high level of compliance to principles and in protecting and balancing stakeholder interests.

If we examine how each of these principles relate to the principles of the managerialist and economic approach to reform we would note the following.

1. From the perspective of principal 1 above it can be seen that the very assumptions upon which managerialism and public choice is based will interfere with the establishment of a desire to change and a willingness
to commit to change by teachers. This principle is contrary to the opportunism assumed by advocates of public choice. Where administrators operate from an assumption of opportunism, based on the South Australian findings, they will simply not open up sufficient scope for self-organization to happen around issues of concern.

(2) This principle is directly contrary to the assumptions that underpin managerial and public choice which argue that without tight structures and systems of oversight malingering and or agent opportunism will result.

(3) This principle is consistent with contemporary recognition within management theory of the importance of agreement on values and the need for trust but conflicts with economic theories which argue that trust cannot be assumed and hence institutions should be managed on the assumption of risk of opportunism.

(4) While there is not an explicit theoretical conflict here, there is one with common approaches to accountability interpreted as ‘a process of assigning blame and punishing wrong-doing’ (Canada Treasury Board, n.d).

(5) While the earlier reforms in many countries placed a clear emphasis on outcomes, the increased influence of economic approaches and in particular the use of purchaser/provider and contractual links has shifted the focus to outputs (Department of Treasury and Finance, 1997), reintroducing a potential for goal displacement (Bohte and Meier, 2000) which conflicts with teachers sense of commitment to student long-term interests (outcomes). This has been one of the sources of resistance by many teachers to these reforms (O’Brein and Down, 2002).

(6) This principal is in direct conflict with managerial assumptions.

(7) This principal conflicts with both managerial and economic assumptions.

In short, what the research revealed as the basis for success in South Australia can be seen to conflict in almost all respects with what would have been done where managerial and economic principles to have been used as the theoretical base for designing and implementing the change process. It is difficult to avoid concluding that these sets of ideas are of little value, at least when applied to educational reform. This raises the questions as to whether their might be an alternative theory base which would be more helpful.

An Alternative Theory Base to Guide Change

Learning to Learn was informed by constructivist learning concepts rather than by ideas drawn from management and economics. Perhaps then it should be no surprise that an organizational change process based on this essentially
A post-modern way of understanding learning should conflict with the prescriptions of modernist theory such as that of management and neoclassical economics and its derivatives. There are, however, theories of organization which are compatible including the ‘loosely coupled’ systems view of educational systems proposed by Karl Weick and complex adaptive systems theory.

**Loosely Coupled Systems**

Loose coupling within education systems has been seen by some (Weick included) as a characteristic to be valued and by others (managerialists in particular) as a problem to be addressed (Orton and Weick, 1990). A full discussion of this literature is beyond the scope of this article. However, consistent with the findings of a great deal of research on educational reform, the critical insight is that loosely organized systems do not lend themselves to formal or bureaucratic control. Rather they need a different form of management if their distinctive advantages are to be realized and disadvantages minimized.

Figure 3 illustrates a loosely coupled educational system. In contrast to both hierarchical and economic perspectives, it suggests a rich multidimensional coupling between the many ‘agents’ which make up the system. Agents may be individuals (teachers, principals) or institutional units (schools, regions). The coupling may include formal and informal, rational and emotional interactions. It is immediately apparent that the Learning to Learn Project approached educational improvement from a perspective much more in keeping with a loose-coupled perspective than a hierarchical one. This is evident in the introduction of mechanisms (such as learning circles and practicums) which supported the enrichment of both formal and informal relationships between schools and between schools and the policy centre.

Weick’s theory is founded on a constructivist epistemology, making it more compatible with contemporary theories of learning and therefore educational reform which draws on or embraces constructivism. From Weick’s perspective, each of the agents which comprise the system makes sense of their role and contribution to the whole in different ways. In contrast to the managerialist view, this is not seen as a problem but an opportunity (Weick, 2001).

Claimed benefits of loosely coupled systems include; ‘persistence’, ‘buffering’, ‘adaptability’, ‘satisfaction’ and ‘effectiveness’ (Orton and Weick, 1990: 217). These benefits are a product of the system’s capacity for experimentation and learning at a range of levels.

However, local adaptations will not always assist with generating efficient responses to system-wide challenges. Loose coupling implies slow diffusion of central initiatives. As a consequence, Weick (1982: 675) argues:

> ... the administrator has to start projects earlier, start more projects, start projects in a greater variety of places, talk more frequently about those projects that have
been started, and articulate a general direction in terms of which individual members of the system can make their own improvisations.

The perspective of educational systems as 'loosely coupled' seems to be weak at explaining one clear fact upon which most commentators of education agree; approaches to schooling have remained remarkably uniform across geography and time. If education systems are loosely coupled it is to be expected that differing practices would emerge in response to differing local needs and differing ideas about education. In other words, the autonomy enjoyed by actors at local levels can be expected to lead to very different approaches at different sites. The uniformity observed, therefore, needs some explanation.

Ingersoll (1993) points to deeply embedded assumptions about schooling and education and these may act to compel uniformity. Similarly Evans (2001) has argued that everyone has a view about education and thinks they know what it is and how it should work. These views operate as taken for granted facts, and influence teachers, parents, students and policy-makers alike. The evident consistency then may be a product of deeply embedded assumptions within the community as well as within the education system itself. Changing education requires changing these assumptions. Hierarchic reform has failed to have much of an impact in this area through ‘top-down’ or ‘outside in’ approaches.

**Complex Systems Theory**

The 'loosely coupled' approach has a strong parallel in more recent approaches to viewing organizations as complex systems which has attracted considerable interest among management and organizational theorists (see for example,
Stacey, 1996; Marion, 1999; Cilliers, 2000; Stacey, 2001) and increasingly educational specialists (Bower, 2004; Wells, 2004). Complexity derives from the natural sciences and so might be assumed to make no or few concessions to constructivist concepts of knowledge and learning. Paul Cilliers (1998), however, has convincingly argued otherwise. Complexity provides insights not possible from Weick’s work although to the extent that the two sets of ideas overlap, they are broadly consistent (Marion, 1999).

Complex systems, defined as systems comprising large numbers of agents in highly connected webs, can display both high levels of order and disorder. Importantly, order in complex systems is usually a result of micro-structuring processes that provide for robust self-organization. This form of order is not dependent on hierarchical control but is distributed and local in its operation; it can lead to macro- or system-wide stability (or instability!) (Stacey et al., 2000; Stacey, 2001).

The focus of complexity theory is on understanding the implications of systemic non-linearity. This challenges the Newtonian foundations of much contemporary management and economic theory (Ormorod, 1994) and the assumption that order in social systems arises primarily from rational control (McKelvey, 1997; Marion, 1999). It is not that rationality is eschewed, rather that in the face of the intrinsic uncertainty that can result from non-linear interactions in complex systems, it is somewhat diminished in importance. In addition, non-linear interactions give rise to other order producing mechanisms (self-organization) which can complement or conflict with rational order (Kauffman, 1993; Arrow et al., 2000).

**Changed Thinking and Changed Practice**

Returning again to the principles derived from Learning to Learn, the following observations may be made about the applicability of loosely coupled and complex systems theory.

**Appealing to teachers and administrators intrinsic motivation is a key**

Provided educators are expected to focus on, and are given rich information about, progress towards desired social and individual outcomes, then their well-documented *intrinsic* concern for student learning (Dinham and Scott, 2000) furnishes a powerful incentive to use that information for system improvement. Fostering actors desire to use their agency to make local change is fundamental to any possibility of local experimentation with change and for self-organization (Arrow et al., 2000).

**Pursuing change with high levels of flexibility and a learning and risk tolerant approach to accountability can lead to rigorous approaches to change and a focus on results**

Promoting local initiative informed by research but eschewing ‘experts’ and ‘best practice’ and the associated assumptions of there being a ‘best way’,
maintains an emphasis on flexibility and responsiveness to emergent and un-
anticipated (and unanticipatable) aspects of the complex environments in
which education takes place. This is consistent with a complex systems
approach (Marion, 1999; Stacey, 2001).

**Maintaining a high level of congruence to the principles and values informing the change is vital**

A central set of agreed and internalized principles or values provides a set of
reference points upon which rules of interaction and engagement can be built.
Unlike externally imposed rules, these are under the control of the actors who
generate them and are, therefore, subject to revision as more is learned about
how to make change. The potential of such processes are also highlighted by
Badenhorst (1995: 14) when he states:

> Complexity theory suggests that it would be better, in planning an education system
to let it emerge from a few simple rules rather than attempting to plan and design
it in detail from the top.

He identifies ‘values’ as a suitable rule base from which an educational culture
and set of practices may emerge.

**A ‘non-deficit’ approach to reform**

Loose coupling suggests the existence of arms-length or devolved institutional
arrangements. This appears similar to recent advocacy of local school manage-
ment. However, these have been commonly pursued under the influence of
management or principal/agent theory and therefore usually have an outputs
focus and emphasize the role of selected individuals (formal leaders) and indi-
vidual performance. Such ‘rule’ or ‘contract’ based systems strive to take
personality out of the performance equation focusing on instrumental aspects.
This comes at a considerable cost. Stacey (2000: 146) argues: ‘As a conse-
quence of being compelled to obey rules . . . employees lose the capacity for
independent thought, resulting in trained incapacity.’ This is probably the best
of it; more likely employees’ creative talents are turned to alternative focuses:
possibly ones detrimental to the interests of the employer. Kelly and Allison
(1998) argue that high command/low trust systems generate self-organization
that works to the detriment of the organization. They emphasize the need to
concentrate on the more informal aspects of organization to effect self-
organization that is advantageous. This includes facilitating self-reinforcing
cycles based on deep commitment, open learning, responsible action and trust.
Evaluation, which is pursued as an opportunity for learning rather than to attribute fault or blame, maintains a focus on outcomes and adds substantial value to the policy development process, ensuring practice can be improved in complex and unpredictable environments.

Lumley arguing from a complex systems viewpoint states that ‘... rewarding only quantitative results tends to drive the system back towards the “fabricative” pole and suppress both creativity and organizational learning’ (1997: 19), reducing the capacity for ongoing improvement.

Tight hierarchical/administrative control is not necessary to achieve a very high level of strategic coherence

While the procedural conformity of classical bureaucracy was the target of early advocates of managerial change, the goal displacement which it represented has returned in recent reforms, particularly as a result of the ‘contractualism’ advocated by economic inspired theories of organization. In particular, the focus on outputs rather than outcomes, presupposes a clear link between the two. Complexity theory leads to the assumption that intermediate stages of change (outputs) have a highly contingent relationship to outcomes. Boisot (1995) argues, consistent with a complex systems viewpoint, that as uncertainty increases there is a concomitant need to focus on ‘strategic intent’ or long-term vision and to continually innovate to find ways move towards it. Such an approach allows for individual innovation and does not require compliance to one way. In this it allows for a heuristic search and is consistent with Stuart Kaufmann’s observations of strategies necessary to avoid becoming stranded on sub-optimum ‘fitness peaks’ (Kaufman, 1987; Kauffman and Macready, 1995).

Reciprocal obligations based around trust can be effective in maintaining a high level of compliance to principles and in protecting and balancing stakeholder interests

A culture of care is necessary to support self-organization (Lewin et al., 1998) and this position is also supported by the wider empirical educational reform literature about what works (Marks and Louis, 1999; Evans, 2001).

Conclusions

Educational systems demonstrate considerable robustness and resilience in the face of both environmental and intended change. Despite many attempts to reform educational systems to make them more effective and efficient, little change has been realized in over a century. Classical bureaucratic, managerial and economics based approaches to reform have proven to be limited in effect. In part this is attributable to inappropriate assumptions about the nature and origins of order in educational systems. The assumptions that lead to stability of educational systems are deeply embedded in the intersecting structures that
comprise the system and indeed, within the social environment in which they operate. It is essential to understand the micro-structural ‘rules’ that shape the macro-behaviour of the system if change efforts are to be rewarded. Understanding the origins of the dynamics of educational systems opens up a fresh perspective for thinking about and managing these systems.

The experience of the Learning to Learn Project within South Australia is consistent with much other research into what works in educational reform. These suggest that the following observations are helpful to guide effective change in educational contexts:

(1) Learning theory and practice may be the primary focus for institutional building and change as well as the basis for policy-forming and strategy development. Learning processes should involve stakeholders in coalitions for change.

(2) The centre acts as a catalyst for change—providing and supporting multiple stimuli for change at multiple sites at the same time. This is necessary to overcome the slow diffusion potential of loosely coupled systems and to provide multiple sources of active experimentation as a foundation for innovation and transformation. Some of these stimuli may be directed at disrupting or questioning existing self-organizing processes that prevent change.

(3) Change comes from the ‘inside out’ as active experimentation is encouraged and supported in a principles based framework based on trust. This emphasizes that micro-(site/group based) intervention is to be preferred to macro-(system wide-prescription).

(4) It is advantageous for all involved in change to focus on long term social and individual benefits (i.e. the orientation of policy) as a central target for improvement rather than short-term quantitative outputs.

(5) It is helpful for stakeholders to work to establish a set of core values/principles as an integration and reference point for decisions.

(6) Leaders should encourage rigour in an environment endorsing pluralism. This can be advanced by increasing information about ‘difference’ and examining it for sources of opportunity to improve practice (i.e. as taking the opportunity to learn more rather than striving for consensus or conformity).

(7) It is important to value expertise (including practical experience) but eschew ‘experts’ as holders of universal truths. In other words encourage a constructivist or critical realist orientation to knowledge and one which values praxis—both theory and practice—or knowledge as process/enaction.

(8) The adoption of structures that support temporary coalition-building around curriculum and instruction while relaxing conformance and
control—in other words building self-organizing heterarchies and loosening controlling hierarchies will support change.

(9) Providing rich information to all actors in the system about the impact of their action on the long-term goals that matter to them and to other stakeholders, encourages and deepens learning. Policy advocates and programme evaluators should avoid substituting the simplicity of tangible outputs for the richness and complexity of issues of deeper relevance and concern to stakeholders. In this way the collective intelligence of the system is used to develop viable responses to the more perennially difficult aspects of administration.

(10) Initiators of change can usefully ‘patch’ the system into small groupings of committed people. They can establish opportunities for these groups to interact, share (ideas and members) and ensure groups address diverse focal points to widen the search for fresh insights upon which to base action for improvement.

(11) Those promoting change should focus on social and emotional well-being rather than instrumental factors only and on relationship-building, integrity and trust.

A theoretical foundation relevant to understanding why these orientations are important and effective can be derived from a loosely-coupled/complex systems perspective. This provides a theory base for future development of policy, practice and research better suited to understanding educational reform issues. This approach advocates working with and harnessing the robust self-organization possible in such systems while also revealing the basis for strategic intervention and change. This includes having those involved find ways to build intrinsic motivation and innovate at a local level to find solutions to wider institutional problems. A key to this is a focus on relationships and the building of congruent behaviour based around trust. The results achievable are in sharp distinction to the failures of decades of reform based on more conventional managerial and economic derived theories and ideologies. Such a theory base is also compatible with recent post-modern influences on, and advances to, our understanding of learning. In this way it is more intrinsically compatible with contemporary learning practices than are either conventional management approaches and/or economic derived theory bases.

**Note**

1. This was somewhat ill-defined but should be interpreted in this context as implying recognition of a pluralism of needs and a degree of epistemological relativism. See Le Cornu et al. (2003a, 2003b) for a more complete discussion of the application of constructivism within this project.

**References**


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Biographical note

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