Rethinking Educational Reform - A loosely coupled and complex systems perspective.

Dr Chris Goldspink
Visiting Research Fellow, University of Technology Sydney, Australia.
Chris.goldspink@xtra.co.nz
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Abstract
This paper 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. An approach based on assumptions quite different from those followed to date is then presented. This is illustrated using a recent example of change within the State School sector of South Australia. This example provides 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 organisational management. These concepts, and the South Australian example suggest the potential benefits from using self-organisational properties to improve institutional learning. Unlike the ‘rationalist’ management and market approaches, the alternative model emphasises the need for a focus on people, relationships and learning rather than structures and centrally determined standards for conformance.

Key words: Educational reform, managerialism, new public management, public choice, agency theory, school improvement, complexity theory, loosely coupled systems.

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1 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 neo-classical economic and neo-liberal political thinking has led to increasing calls for budgetary restraint, downsizing, privatisation and deregulation (Wilenski 1986; Self 1993; Davis 1997). Two major sets of ideas have influenced approaches to administration during this time (Aucoin 1990). 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. These two sets of ideas continue to influence educational reform. Each is critically evaluated before an alternative approach is proposed as a basis for future educational improvement.

2 ‘Managerialism’ or the New Public Management.

Figure one 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 such a response is not observed the solution is assumed to be in the manipulation of formal mechanisms such as rules, procedures, structures and rewards; or improved evaluation and regulation.
Figure 1 – Education system as Hierarchy (classical Bureaucracy)

This classical conception has seen some modification under the influence of what is known as ‘managerialism’; in particular, the application of private sector management practices such as planning, budgeting, marketing and human resource management. Management methods are seen as value neutral, instrumental/technical approaches for improving the efficiency and effectiveness of organisations. Pollitt (1990: 60) argues, for example, that managerial theory represents ‘...a concentration on the immediate, concrete, controllable things which go on within one's own organisation and an avoidance of entanglement with wider–value questions’. Such methods are seen as helpful for achieving a shift from a bureaucratic pre-occupation with processes to a focus on results (Keating 1990) while keeping away from value based issues which are seen as the preserve of elected officials.

Discussing the application of managerial methods to educational administration in the UK, Simkins cites Clarke and Newman (1997), arguing that it has initiated a migration from a bureau-professional structure to a technicist management one.

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 ‘industrialised’ (Smith 1999). Power shifts to the school Principal for both educational and managerial responsibilities (Gewitz and Ball 2000; Simkins 2000).

Advocates of both the bureau-professional and managerial approach to administration value task differentiation and place great store in the efficacy of command and control. In both, organisational 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. It has been observed, however, (see for example Evans 2001) that increased demands for 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*. 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.

**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 ‘industrialisation’ 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, un-responsive and un-accountable 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.


Recent approaches to reform of public administration have also been influenced by neo-classical 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 and health are prime examples (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 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.

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 neo classical economists argue they do economic choices; that is, on the basis of self–interest. The theory characterises bureaucrats and politicians as self seeking and budget maximising; 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 has in the past 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. In addition, as Pollitt (1990) notes, professions monopolise the provision of particular services and this ‘restraint of trade’ is 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’.

The position of public choice advocates rests on two critical points; first, that neo–classical economics has something meaningful to say about real economic systems; and second, that political/administrative systems are sufficiently like economies to justify the application of neo–classical approaches to that domain. Significantly, economists have been increasingly criticised for the development of arcane theory with little or no relevance to understanding real economies (Galbraith 1994; Ormorod 1994; Hodgson 1996; Arthur, Durlauf et al. 1997;
Ormorod 1998). Perhaps not surprisingly then, empirical support for the theory of Public Choice has proven difficult to find. Indeed, Uhden (1996: 204) states emphatically that ‘...there is no empirical support for [it]. Nevertheless, the appeal of Public Choice theory to politicians persists. Given that advocates seek to reassert the primacy of the elected politician over the bureaucrat for both budgets and policy (Halligan and Power 1992) Public Choice may represent a politically expedient ideology (Self 1993; Stretton and Orchard 1994; Self 2000). Applied to education the effect is not only to eschew any movement for the increased professionalisation 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, 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. But how might this contestability be achieved? Two additional theories derived from economics have influenced government approaches: Agency theory and Transaction Cost Economics.

Agency theory has had a significant impact on thinking about the organisation of public service provision – including education. 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 conceptualisation 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’.

![Diagram of education configured according to funder/purchaser/provider arrangements with a resulting quasi-market at the point of provision.](image)

Figure 2: Education configured according to Funder/purchaser/provider arrangements with a resulting quasi-market at the point of provision.

This arrangement is at the heart of what are now commonly called funder/purchaser/provider structures for the delivery of Government services. 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’ (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.
Strategists (and policy can be regarded as the strategy of Government - see Stewart 1999) increasingly realise that where there is a high level of environmental uncertainty outputs are likely to be uncertain and unintended consequences are probably guaranteed. Under such conditions there is a need to adopt flexible postures and to change them in response to observed effects rather than to believe that the necessary outputs can be fully specified in advance (Mintzberg 1994; Boisot 1995; Boisot 2000). Such flexibility is difficult to specify in a formal contract. Under these conditions the agent may seek to maximise performance against output; irrespective of and perhaps without regard for, its relevance to the policy outcome. This is known as goal displacement - something which earlier managerial reforms were directed at reducing (Ryan 1993). As a practical example: take a situation where, under the terms of a performance agreement, a school is rewarded with greater funding for its ability to attract students and achieve highly against academic benchmarks. The number of recruits and the scores represent the ‘outputs’. These are not important ends in themselves but intermediate indicators that the school is doing a good job in producing highly performing students with a capacity to contribute economically and socially in the future. For the school there may be an incentive to target high performing students and discourage weaker students from enrolling. In this way it may increase its talent pool and raise its average performance against the output measures for which it is accountable. Some other school will find that it has to deal with a larger proportion of under-performing students. This will lower its apparent performance and hence its funding: a vicious circle may emerge. This may frustrate government concerns for social equity. It can be readily seen that what works in the short term interests of the particular school (micro optimisation) may detract from the wider goals of education (macro sub-optimisation). How to manage this is a key concern of agency theorists.
A key concern of agency theorists is how to manage self-interest. Agency theory incorporates the (neo-classical) assumption that each of the parties will work to maximise their own benefits. If contracts are not well designed, there is the potential for agents to maximise 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). This is particularly concerning given that both public and private sector organisations are increasingly realising 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. The literature on school reform highlights the relevance and need for accountability to increase the likelihood of engagement by schools in the change process. Marks and Louis (1999)
argue that greater autonomy must go with increased accountability if schools are to increase their learning capacity. Accountability without autonomy reduces schools’ felt responsibility for improvement.

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. Both monitoring and/or incentives increase cost and offset any potential efficiency gains. 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. All of these factors substantially increase the transaction costs involved. A concern with transaction costs brings us to yet another economics derived theory relevant to understanding approaches to educational reform. It has, therefore, some relevance to the argument being set out here.
Where complex services are being delivered, transaction costs can add significantly to the overall costs of supply and reduce any benefits that might have been thought possible from a switch from hierarchical to market mechanisms.

Hodgson (1996: 201) suggests three primary sources of transaction costs: search and information, bargaining and decisions and policing and enforcement. He goes on to argue that all of these ultimately collapse to a single source: they all arise due to lack of information. In public sector reform, Hodge (1998) found that such costs have often not been appreciated until new institutional arrangements have been put in place. As a result hoped for savings have not been realised; have been much less than expected; or worse, the ‘reformed’ arrangements cost more than those they replaced.

**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 advocate a narrow, economically derived ideology, based on dubious theoretical foundations with little empirical support. The approaches can be seen 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).

The ‘agencification’ of institutions may work well where transactions are clear and involve concrete ‘goods’. Where they do not, they result in high transaction costs. These factors require higher levels of oversight, or the use of incentives, which themselves can result in goal displacement and diminished program effectiveness. Given that Williamson (1996) has argued that every contract will necessarily be incomplete, there will be uncontrollable risks in contracts, and as a consequence, higher transaction costs. 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 program effectiveness by reducing the institutional capacity for learning. Perhaps most concerning, Christensen and Laegreid (2001: 89) argue, based on their analysis of reform in New Zealand and Norway, is 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.

4 Possibilities for a Better Way Forward
Australia has been very active in undertaking public sector reform. Both managerialism and economic derived approaches have been at the forefront of such change. This has been true for educational reform also. However, from the conclusions drawn above it seems reasonable to argue that there are significant problems with allowing future educational reform to be primarily informed by these ideas and their associated practices.

In this section, an alternative is outlined with reference to a recent educational reform within South Australia. This reform illustrates how drawing on alternative ideas – particularly learning theory, 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 12 months. A
detailed account of the project design and outcomes is beyond the scope of this paper and has
been documented elsewhere (See DECS n.d, [author] 2002, [author] 2003). 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
based 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’¹ 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;

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, Peters et al. 2003a and Le Cornu, Peters et al. 2003b for a more complete discussion of the application of constructivism within this project).
• 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.

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 ([author 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 ([author 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 synthesised their learning and communicated it to others.

(Foster 2001)

The author’s research (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 coherent 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. The key principles drawn from the research are:

- 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-organise 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.
• 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: contrary to ‘managerialist’ and economic assumptions.

• 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 realised.

• 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.

• 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.

• 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.

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

An alternative theory base: Educational Organisations as loosely coupled and complex

Learning to Learn was informed by constructivist learning concepts rather than by ideas drawn from management and economics. For the reasons discussed in the first section of this paper, managerialism and economics can be seen as antithetical and even hostile to constructivist approaches to learning. There are, however, theories of organisation which are
compatible with it. A focus on these theories has arisen as we have worked to better understand the lessons being drawn from the practical reform and to identify theory useful for extending and consolidating it.

Two areas of theory have proven useful; that of Karl Weick who proposed that educational systems be viewed as ‘loosely coupled’; and complex adaptive systems theory.

Loose coupling within education systems has been variously interpreted (Orton and Weick 1990). It is seen by some (Weick included) as a characteristic to be valued and by others as a problem to be addressed. A full discussion of this literature is beyond the scope of this paper. However, consistent with the findings of a great deal of educational reform research, the critical insight is that loosely organised 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 realised and disadvantages minimised.

Figure 3 illustrates a loosely coupled educational system. In contrast to both hierarchical and economic perspectives, it suggests a rich multi-dimensional 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. Weick expressly identifies such systems as more capable of remaining viable in complex and uncertain environments; an area where both management and economic approaches have been identified as deficient. It is immediately apparent also 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.
Figure 3: Education as a loosely coupled system

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 and imply a capacity to remain viable in the face of turbulence. Loose coupling theory suggests that coherence between different parts of the system is not necessary for the system to remain viable. 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”. Again, Learning to Learn provides an example of this approach, with its emphasis on:

- learning as the framework for all change involving players at all levels;
- Provision of multiple interventions and stimuli at multiple points throughout the Department to initiate system-wide transformation;
- Encouraging active experimentation in a context of trust;
• Maintaining a focus on outcomes and core values as a central target and integration point rather than requiring procedural conformity;

• Encouraging and striving for rigour in use of theory and practice while encouraging diversity of opinion and approach;

• Valuing expertise, including practical experience and tacit knowing, but eschewing ‘experts’ as holders of truth;

• Tightening and providing richly connected structures between many stakeholders around curriculum while loosening structures of compliance and administration.

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.

The ‘loosely coupled’ approach has a strong parallel in more recent approaches to viewing organisations as complex systems. Complex systems 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-organisation. 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!). The two observations (that schools seem to lack formal mechanisms for order, yet display remarkable order in many respects) are not, therefore, necessarily in contradiction. Complexity also leads to insights not possible from Weick’s earlier work although to the extent that the two sets of ideas overlap, they are consistent.

Complexity (or non-linear) systems theory has attracted considerable interest among management and organisation theorists (see for example Stacey 1996; Marion 1999; Cilliers 2000; Stacey 2001). It has also begun to attract some interest from educationists. Complexity derives from the natural sciences and so might be assumed to make no or few concessions to constructivist concepts of knowledge and learning. Cilliers (1998) has convincingly argued otherwise.

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). 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-organisation) which can complement or conflict with rational order.
Changed Thinking and Changed Practice

What then are the lessons and implications that can be drawn from the Learning to Learn reform, combined with the theoretical lens of loosely coupled and complex systems?

The insights can be considered under the headings of:

- Build incentive from within
- Evaluate and Reward learning; and
- Loosen structure and build trust to catalyse innovation and learning

Build incentives from within

In loosely coupled systems, centrally driven change initiatives diffuse slowly at best. How then may change be effected in such systems? The economists have provided a key insight – micro order (order arising from local transactions) can lead to socially desirable macro outcomes. This is the rationale for the incentives advocated by agency theorists to align the actions of agents with the desires of the principal. As noted, the problem with this is finding the ‘right’ incentives. From the perspective of agency theory incentives are extrinsic – conceived of and introduced by the principal. This implies that the principal can identify relevant and viable incentives in advance for inclusion in a contract. This has proven difficult if not impossible in practice – but there is another possibility.

It has been argued that much of the craft of teaching is about teachers’ tacit knowing of ‘what works’ in a classroom situation (Evans 2001). Tacit knowing is an emergent product arising from the complex interplay between teachers’ experience, formal theory, culture, leadership style and school structures and possibly community contexts. The use of extrinsic incentives by a central policy agent implies that it is possible for the agent to appreciate the interplay between these factors. In practice, it is unlikely that a central authority can develop, from a
distance, the depth of insight needed. Those best placed to know are those that experience it –
teachers and school staff. 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. Evidence from the
Learning to Learn project suggests strongly that when these conditions are met there is
sufficient power to overcome the intrinsic conservatism of teachers’ own conceptions of ‘how
school works’ and those of the community.

**Evaluate and reward learning**

Managerialism and economic approaches suggest that performance should be evaluated in
terms of tangible results (outputs). However, goal displacement inevitably arises when these
are substituted for the desired longer term social and individual benefits that are the real
concern of the stakeholders of education. This implies that individuals or groups that are
rewarded on the basis of short-term tangible outputs may maximise performance in ways that
reduce the system’s capacity to deliver against these longer-term outcomes. In addition,
Lumley notes that “...*rewarding only quantitative results tends to drive the system back
towards the “fabricative” pole and suppress both creativity and organizational learning*”
(1997: 19). As a result, adopting such approaches can erode the longer-term adaptive capacity
and hence viability of educational institutions. The Learning to Learn approach to evaluation
involves collecting evidence to inform learning that contributes to long-term goals rather than
‘ticking off’ outputs. In addition, schools are encouraged to collect both qualitative and
quantitative evidence about outcomes. At the same time a strong emphasis is placed on
encouraging and focusing teachers’ intrinsic commitment to student wellbeing.
Loosen structure, build trust and catalyse Innovation and learning

Loose coupling suggests the need for arms-length or devolved institutional arrangements. This appears similar to recent advocacy of local school management. However, these have been commonly pursued under the influence of management or principal/agent theory and therefore usually have an outputs focus and emphasise the role of selected individuals (formal leaders) and individual performance; failing to recognise the tacit and distributed or systemic basis for effective performance. Such ‘rule’ or ‘contract’ based systems strive to take personality out of the performance equation focusing on instrumental aspects. This is consistent with the machine view of organisations but comes at a considerable cost. Stacey (2000: 146) argues ‘As a consequence 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-organisation that works to the detriment of the organisation. They emphasise the need to concentrate on the more informal aspects of organisation to effect self-organisation that is advantageous. This includes facilitating self-reinforcing cycles based on deep commitment, open learning, responsible action and trust. Again we see evidence of this in practice with Learning to Learn, and the research makes clear that this ‘informal’ and ‘high touch’ orientation was central to the success of the project.

Recent explorations suggest strongly that the size and number of semi-autonomous units in loosely coupled systems matter. Kauffman & Macready (1995) apply complex systems concepts directly to the problem of improving organisations’ capacity to adapt to change and explore what is required for an organisation to have the greatest capacity for ongoing improvement. The results are at odds with contemporary management and administration theory and practice. They advocate the use of approaches that introduce ‘error’ or ‘deviance’
from short–term optima, in order to sustain innovation and adaptation. Several factors determine the level of stability of such a system; the density of connectivity between ‘patches’ (autonomous units) and the size and number of ‘patches’ are particularly important. As the level of inter–connectivity between organisational units (‘patches’) increases the patch size must decrease to keep the system in the ordered regime. They conclude that if organisations are managed in this way: “...it may be possible to achieve coordination in a complex organisation which is well partitioned, even if no department is paying attention to the overall performance of the entire organisation” (Kauffman and Macready 1995: 40).

This would seem ideally suited to approaches for school management, where there are increasingly devolved responsibilities but within a context of a need for overall conformance to broad policy directions. Moves to impose strict accountability and to circumscribe local action (to prevent error) may limit system adaptive potential and long-term viability. Genuine autonomy means freedom to experiment in response to local needs and room for error but with a clear focus on a central organising principle. This points to an approach to organisation which has at its core some agreed mission, core values or distinctive capability (as with the professions). All of this fits well with education systems and the Learning to Learn project again illustrates how schools and wider aspects of the system can work at identifying an organisational locus and that this can provide coherence. 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. Significantly, several of the case studies conducted for the research into Learning to Learn dealt with schools which engaged at a deep level in searching for and
discovering the individual and collective values informing their practice. These schools report finding such a process fundamentally important to their rethinking of their professional approach and the way in which they worked together and harnessed technologies in the pursuit of improved learning for the community, students and themselves.

Much of the management literature works from the assumption of the need for change to begin from the top. While this is frequently argued as a lesson of history, it is possible that it is also a truism, i.e. it is true within the management structures and organisational environments that result from adoption of this view. Lewin et al (1998: 37) note “…managers have learned that change does not happen simply because they plan or mandate it”. This is only too evident in education reform where real change has been identified as difficult to achieve despite significant top down effort (Sarason 1990; Fullan 1994; Spillane 1999; Evans 2001).

If change is to be grown from the inside out, what is the role of the policy centre in initiating or supporting the diffusion of system wide change? Working from first principles it is clear that a critical factor in choosing an intervention to help precipitate change in a loosely coupled system is to isolate the loci of change, i.e. the parameters to which the system is sensitive. Assuming that these are complex and diffused, such a task is beyond central rational analysis. An appreciation of the potential sensitivity of the system will more likely be gained by active experimentation or may be derived from collective experience of participants in that system, whose varied experience, in effect, constitutes the experiment. Approaches to change based upon Participatory Action Research (see Carr and Kemmis 1986 and Whyte 1991) are consistent with a viable approach as are contemporary approaches to organisational learning. In addition, the approach to analysis proposed by many advocates of the Cultural school (see for example Schein 1985) suggests a useful means for discovering underlying patterns which reflect regulatory mechanisms. Evidence (see Beer et al. 1990)
suggests that culture changes that begin in small areas of an organisation and propagate more organically are more likely to succeed, providing further evidence as to the importance of self-organisation. This is precisely the conclusion Sarason (1990) draws from his work in educational reform and its effectiveness is evident in Learning to Learn.

Shaw (1997), drawing on a complex systems perspective notes that the emphasis for intervention needs to shift from formal systems to informal and from macro level intervention to micro. This reinforces Weick’s observation and the lessons from Learning to Learn, that multiple simultaneous interventions at multiple points throughout the system are necessary and effective at influencing change in loosely coupled systems. Stacey’s (1996a; 1996b) work highlights the importance of the ‘shadow-system’ of organisations. By ‘shadow-system’ he means the informal relationships that overlay the formal. These are fundamental to the operation and dynamics of organisations and present additional nodes for intervention or potential loci for change. They are also the aspects of the organisational system that are inherently self-organising and failure to attend to them means that the most potent organisational dynamics of the system as a whole are ignored or overlooked. Similarly, from their qualitative research into firms which claim to have, or have been identified as having, adopted a complexity based approach to management, Regina and Lewin (Cited in Lewin et al. 1998) contrast ‘command’ based cultures with cultures of ‘care and connection’. They observe that the latter are more prevalent or are distinguishing features of organisations run in order to harness self-organising potential. The education reform literature also identifies a relationship and people focused culture as important to effective school performance and to effective change (Marks and Louis 1999; Evans 2001). The role of the policy centre then is to act as a catalyst and to encourage and support a search for loci of change and to encourage or orchestrate intervention at multiple local points to trigger change. There is a requirement also
to monitor for the inevitable unintended consequences and to use this to refine interventions
to maximise the positive and minimise the negative.

**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 realised 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-organising 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 emphasises 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 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-organising 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 program 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 adopt a holistic orientation to stakeholders. That is they should focus on social and emotional wellbeing 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-organisation 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.

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