THE ‘MIDDLE WAY’ TO OPTIMAL PROFESSIONAL LEARNING AND DEVELOPMENT: EVERY LIFELONG LEARNER A FUTURE PROBLEM-SOLVER, DECISION-MAKER, AND KNOWLEDGE-BUILDER?

Cameron Richards & Azhari Salleh
SUSTiP Research Group
UTM Kuala Lumpur Campus
cameronkrichards@utm.my

Abstract

The growing stresses and complex problems of an increasingly globalized and fast-changing world have made it clear to employers around the world that more effective and not just new methods of ‘human capital’ preparation and ongoing professional development as well as lifelong learning are needed. Universities are being regularly criticized for their failures to produce graduates with the range of generic skills and knowledge needed for not only the new world of work but also of diverse social, technological, and environmental challenges. Also those already in the workforce may need to be ‘re-trained’ and supported to better deal with a range of external challenges and internal imperatives of change. What is at stake is more than a matter of encouraging professionals of the future to participate in or pursue continuing education and training of various kinds. An optimally effective approach to achieving a range of desired outcomes is needed which also goes beyond the corresponding weaknesses also of corporate and related ‘one day workshop’ training models. This is especially so in relation to preparing or re-training graduates to either be or to support ‘optimal policy-builders of the future’ grappling with global as well as local complex issues and challenges in both the public and private sectors – that is, effective future problem-solvers, decision-makers, and knowledge-builders. Thus this paper explores the learning design requirements and elements of what might be called a middle way to achieve optimal learning for future knowledge workers and researchers. This is the convergent approach which adopts the flexibility, innovation, and convenience or feel-good emphases of corporate training approaches on one hand, yet also the educational integrity, neutrality, and longer-term sustainability of what is often referred to as academic as distinct from competency, technical, and/or vocational modes of learning.

Keywords: optimal learning; future universities; professional/workplace/continuing education and training; linking vocational and academic education; organizational leadership and learning

Introduction: Professional learning and development in a fast-changing world – survival of the fittest?

Unfreezing is often missed in training programs....People are simply sent to courses. They don’t see any need to change and so unfreezing has not occurred. They are not receptive to learning. Someone else is simply telling them that they should change their ways and they don’t see any need to do so... What’s refreezing? We have to do something to the system or the organization so that change becomes a permanent part of its operation [or culture].
This step is [also] usually missed in management training programs. We teach people skills; we hope they will use them back on the job but we don’t build the use of these skills into the standard operating procedures of the organization - Kent (2001), Installing Change

Resilience will be the defining concept of 21st Century security, as crucial for your fast-changing job as it is for nations... think of resilience as a measure of how much change a system can absorb before it... snaps – Ramo (2009), The Age of the Unthinkable.

Various societies, industries and governments increasingly complain that schools and universities do not produce the ideal 21st graduate able to proactively adjust to a fast-changing globalized world and knowledge economy (e.g. Hargreaves & Smith, 2006; Keeling & Hersch, 2012). The accreditation purposes of a typically exam-based curriculum tends to belie recurring rhetorical aims to produce graduates with various generic skills of ‘knowledge work’ such as effective information literacy, communication, problem-solving, critical thinking, and design solutions. Critics also often complain that private/corporate trainers are also much stronger on rhetoric than substance. This is also in the context that public education is increasingly ‘privatized’ and that private providers are often criticized for also not providing quality responses to growing demands for education, workplace training, continuing professional development, and other related notions of lifelong learning (Scales, Pickering, Senior & Headley, 2011). The worlds of human work or enterprise, social relationships, and even collective as well as individual physical survival are becoming faster, more complex, and inevitably fragile (Visser, 2008; Altbach, P., Reisberg, L. & Rumbley, 2009). This means that people increasingly need to be able to adapt to changing economic and cultural as well as natural environments (Hargreaves & Smith, 2006).

The very same corporate leaders who tend to criticize universities for not preparing new graduates able to deal with challenges of increasing change, complexity and uncertainty often themselves fail to encourage corresponding deep modes of organizational learning and knowledge management (Senge, 1990). As Agyris and Schon (1996) influentially identified, merely following the rules, imitating skills or reproducing information are modes of single-loop learning which compare with the ‘double-loop’ mode of changing rules or mindsets. Going beyond a surface level or single-loop of learning provides the key to recognizing the importance of change as an opportunity and not just a crisis to be feared. In his related independent work Schon (1983) has suggested that professional who are learning to be or practicing as ‘reflective practitioners’ are those that are able to effectively link their thinking and doing corresponding to domains of theory and practice. However to sustain this requires what has been called ‘triple-loop’ learning – that is, ‘learning to learn’ as a process of emergent capacity in the face of change (e.g. Peschl, 2007). This corresponds also to what Dweck (2012) has called an intelligent ‘growth’ as distinct from ‘fixed’ mindset’. Such related modes of non-formal learning correspond to the educational distinction between the surface learning acquisition of mere information and skills and the deep learning understanding and effective application of knowledge (e.g. Weigel, 2004; Biggs & Tang, 2011). The most effective formal learning has likewise been represented by Kolb (1984) as a process and cycle of activity and reflection driven by the related human capacities for experimentation and self-evaluation.
In other words, as Kent (2001) suggests, Lewin's *unfreezing-refreezing* model of organizational and social learning needs to be adapted to changing times and associated new challenges for any governmental, corporate or community organization. As Ramos (2009) further puts it, "what we need is a framework for the sort of change that fits our world – and that lays a foundation for the widespread personal involvement of millions of people that will make such change useful, durable, and sustainable". In discussing how technology will influence future jobs globally, Rifkin (2004) and others have usefully outlined how the world is now dealing with a new kind of industrial revolution in which high-tech innovations will need to be balanced by similarly new conceptions of the social and cultural purposes as well as economic imperatives of work and other human activity. In the past the reinforcement of fixed mindsets reinforced by surface or single-loop modes of learning may have been enough to ensure long-term employment and future success. But increasingly the innovative and sustainable aspects of ‘learning to learn’ provide the key to effective adaptation to an increasingly complex, fast-changing world. In this way the ‘survival of the fittest’ will not necessarily involve the biggest and strongest but rather those who learn to proactively adjust in terms of ‘thriving not just surviving’ in relation to endless change or complex environments.

As a companion piece to a related paper (Richards, in press) which describes a practical example of optimal learning curriculum design, this paper is developed in three sections. The first section explores how there is arguably a convergent foundation for training/educating the professional learner or knowledge worker of the future which builds on the respective strengths of university academic learning, technical or vocational learning on one hand, and on the other the corporate (and related executive) training model of innovative practice as well as professional reflective learning. The second section builds on this ‘middle way’ suggestion to identify an anatomy of *optimal learning design* applicable to the divergent trajectories as well as convergent overlap in particular between traditional academic and new corporate training models of professional learning. In contrast to the university-based executive training models in particular, the third section develops a related leadership-learning model for assisting all learners to hopefully become more effective future problem-solvers, decision-makers, and knowledge-builders.

**Part 1. The ‘middle way’ to training/educating the knowledge worker of the future**

Castell's (e.g. 2010) influential notion of a future global network society focused on work and activity linked to often privileged information flows and ‘knowledge work’. Yet all learners are increasingly being required to and also have innate potential to practice a range of generic skills which together constitute a mode of active and innovative rather than merely reproductive and passive learning (Engestrom, 2001; Trilling & Fadel, 2009). The growing ubiquity of the internet, mobile phones and related communication technologies – and their enthusiastic embrace across the developed-developing country divide - reinforces this point (e.g. Spence, 2011). As indicated above, the concept of triple-loop organisational learning corresponds to the deep learning mode of understanding, application, and the constantly emerging as well as converging process of ‘learning to learn’ (Brown & Duguid, 2002) This contrasts with surface and past tendencies to inflexibly and unquestioningly always ‘follow the rules’. As we discuss below deep and active modes of learning reflect a ‘middle way’ to achieve in various related ways the most effective formal as well as non-formal learning (Gray &
Herr, 1997). As usefully outlined by the philosopher Mario Bunge (2004) as well as others, the ‘middle way’ of a convergent approach to knowledge building might be appreciated as an antidote to a fixed mind-set of ‘either-or’ thinking which dominates modern education.

As reflected by Dweck’s concept of a growth rather than fixed mind-set, such an approach provisionally reconciles opposite or conflicting perspectives in terms of a dialogical or emergent process which applies deep learning principles to each new situation, context and challenge. In educational theory there are a range of related of oppositional perspectives about the learning process. There are those who see it is a basically a social process whereas others project emphasise the psychological and cognitive dimensions. The basic skills camp focus on learning as an acquisition of basic, practical and also vocational competencies whereas others emphasise the more conceptual, content-related and academic modes of curriculum knowledge. Just as there are related oppositions such as teacher vs. learner-centred pedagogies also in terms of learning (e.g. naïve or creative vs. critical modes) and assessment (e.g. formative vs. summative assessment). Bloom’s taxonomy of learning objective does distinguish between cognitive and psycho-motor domains of learning but does tend to take a descriptive approach to resulting hierarchies. Kolb’s projection of the most effective learning as an activity-reflection cycle or process perhaps more effectively recognises and also encourages active learning as an on-going cycle or process integrating aspects seen as oppositional in isolation (activity vs. reflection, design/experimentation vs. evaluation, etc.).

For our present purposes we are particularly interested in how an optimal learning model of the professional learner and knowledge worker involves generic skills which cut across not only the academic vs. vocational divide on one, but also opposing critical vs. creative perspectives on the other. Whereas the ‘optimal’ justification for academic learning is that it promotes disciplined as well as critical thinking, contrasting corporate and professional models of training (e.g. workshop intensives) are often rhetorically described in contrast in terms rather of innovation and efficiency outcomes (e.g. Powell & Ryzhov, 2012). However instead of an ‘either-or’ framework of the contrasting terms in Figure 1, we propose a middle way convergence between the respective strengths of distinct learning models. At the same time such a convergent ‘middle way’ might aim to overcome and avoid the alternate ‘weaknesses’ that academic study tends to be too theoretical or merely content-focused whilst the corporate/professional model tends to either rhetorical talk or de-contextualisation (Light & Cox, 2002).
As Figure 1 outlines we project the concept of a middle way to frame to sustainably optimise the learning process in terms of the blurred edges between formal learning and a range of related non-formal modes such as lifelong learning, workplace training, and continuing professional education (Gray & Herr, 1997). Such a convergence is achieved at a deep rather than surface level of the learning process encouraging active rather than passive engagements with the content (i.e. information or skills) as well as process of knowledge building. Such a convergence is encouraged then by variations of the perhaps three central modes of active or constructivist learning (i.e. problem-based/inquiry-based/project-based education). Although the typical durations of academic and corporate/professional delivery are very different we argue that convergent integrity can be found in terms of an optimal learning structure or anatomy which might be applied as readily to short courses or workshops as to various curricula units (lessons, subjects, etc.) of formal academic courses. In any kind of educational format, the interplay of pedagogy, curriculum, and assessment inevitably involves both macro and micro learning outcomes which should be integrated ultimately in any achieved understanding, application or performance.

In earlier decades academic education used to be contrasted with competency based learning and vocational training outcomes (Bailey, Hughes & Moore, 2003). Whilst this often still applies, the growing professionalization as well as corporativisation of much work around the world has emphasised the divergence between academic education and corporate training models of workplace learning and continuing professional development. It is useful to consider how this replicates the similarly conflicting positions of the gap identified long ago by John Dewey between traditional and progressive models of formal education – a gap which still regularly inform schools and universities around the world in terms of a not always consistent set of terms. For instance, the concept of ‘outcomes-based learning’ is often used to refer to either and sometimes both traditional and progressive models simultaneously (e.g. Spady, 1993). As we discuss further in a related paper, the passive content or skills focus and tendency of what many refer to as an exam-based curriculum might be contrasted with the active and deep learning imperatives and models (Richards, 2012b).
Figure 2. Optimal learning at the intersection between formal academic study and corporate/professional learning

As Figure 2 indicates, we have projected that an effective middle way convergence between the respective strengths of academic and corporate models of learning is one which might provide the basis for achieving the most effective ‘optimal’ learning. For workplace, continuing professional, or lifelong learners this might also include academic strengths just as for school and university academic learners the weakness of education mainly consisting of content or theory acquisition lies in developing and applying convergent skills and knowledge in terms of engaging with authentic or practical examples. This is arguably the way that outcome-based learning was meant to be but not so commonly practiced. Many experienced professionals, especially those interested in management positions, remain interested in developing their career profile or options in terms of upgrading their professional credentials with academic diplomas or even Masters degrees as well as regular short courses. They are therefore coming from a different trajectory and rather need to focus on the process and generic skills of improving their knowledge base. Thus as the diagram suggests we locate the core curriculum of the middle way to optimal learning at the common intersection between formal academic study and corporate/professional learning. This model was conceived as part of assisting with the design of new faculty Master’s degree and PhD programs to be able to achieve relevant outcomes for professionals as well as continuing graduates (‘Richards, in press b).

If this approach has substance then we should be able to propose and discuss a common ‘anatomy of optimal learning’ design applicable to different lengths (shorter vs. longer) as well as modes (formal vs. non-formal) of learning including aspects of teaching and assessment as well as curriculum design. Figure 3 outlines a framework for this which particularly lends itself to the related ‘active learning’ modes and processes of problem-solving, decision-making, and knowledge-building. It distinguishes between distinct macro and micro domains of learning which in practice should normally be integrated as: (a) interdependent aspects of thinking and doing or professional reflective practice in the manner suggested by Schon, and (b) in terms of the emergent and deep-level knowledge foundations which inform Dweck’s notion of a growth mind-set and the related concept of ‘triple-loop learning’ based on the work of Argyris & Schon. Likewise it provides a basis for re-framing the implied hierarchy of Bloom’s taxonomy of learning to better recognise the inter-related connections between psycho-motor or practical...
Figure 3. The anatomy of an ‘optimal learning design – from short training workshops through to formal courses or ‘units of work’

Figure 4 outlines reflects how problem-based learning, inquiry-based learning, project based learning and related models of active and deep learning design for effective outcomes alignment (e.g. Biggs & Tan, 2011) present and frame a ‘corridor of emergence’ linking thinking and doing, engaging with authentic or imaginary problems, and integrating the various aspects which make up learning as a knowledge-building process. This is in contrast to the passive skill or content acquisitions model of competency-based or exam-based (i.e. surface knowledge) curricula. Such a scheme is relevant to various units of learning extending from specific activities, lessons and short courses through to longer units, subjects and courses. In this way specific activities or units of learning should recapitulate, inform, and support any overriding outcomes as well as conventional learning aims and objectives (Richards, 2012b). The distinction made between macro and micro learning outcomes highlights how effective learning in any context should link particular skills, specific content and either activities or units of learning to both larger outcome purposes and associated generic skills, themes, and objectives.

An initial framing of any particular outcome purposes should thus guide different related components or aspects of knowledge in perhaps quite distinct activities, units and assessment also. However all should inform and support the achievement as well as emergence of those related or interdependent outcomes. The thinking-doing connection is crucial because it provides the basis for transforming skills, outcomes into applied and transferable knowledge. This connection is also the key to engage the process of change and sustainably change ‘mind-sets’ from surface and passive to deep and active knowledge for problem-solving, decision-making and capacity-building. It is a model thus just as relevant to trying to make academic learning more relevant, applied, and
innovative as it is also for conversely making corporate as well as competency training more disciplined and critically rigorous (e.g. Paul & Elder, 2002).

Part 2. Encouraging the ‘reflective practitioner’ learner and/or professional in the digital age of the knowledge society and global economy

As reflected in the historical positioning of universities in relation to technical colleges, there has long been a hierarchical privileging of academic qualifications over the competencies of technical education or training. However things are changing quickly with the how the forces of economic as well as cultural globalization are having dramatic impacts on the future of work (Rifkin, 2004; Spence, 2011). In developed countries academic degrees no longer reliably predict jobs, and in developing or emerging countries (where wages are often lower) corporate as well as technical training also increasingly compete with the residual attraction of academic qualifications. Whilst qualifications are still important, employability across the global divide of the emerging knowledge society and economy is also increasingly linked to the capacity to apply a range of generic skills (communication, information literacy, collaboration, design, critical thinking, and so on) which involve active rather than passive modes of learning. In this way there has been a growing link between the wider concept of lifelong learning to depict innate human capacity to actively engage a fast-changing world on one hand, and on the other the more specific term ‘continuing professional development’ to describe the similarly growing link between employability and capacity to achieve a ‘change and improvement’ in mindset (Scales, Pickering, Senior & Hadley, 2011).

Such a development also reflects the move away from the traditional industrial-urban model of repetitive tasks, specialized knowledge and rational efficiency (e.g. Fordism and Taylorism) towards integrated systems and related ‘innovation’ models of organizational learning and planning. This is typified for instance by Nonaka’s knowledge management and spiral learning modes of tacit as well as explicit modes of linking communication to action (e.g. Nonaka & Toyama, 2003). The World Bank has recently adapted a similar model to emphasise the point that every authentic and practical policy challenge faced should be approach as also a dialogical ‘spiral of learning’ which is framed before and applied after particular events or meetings of planners, stakeholders, and others, (Blindenbacher, 2010). Lave and Wenger’s (2001) notion of situated learning similarly emphasises how learning is also a social as well as cognitive process when it involves the co-construction of knowledge by particular ‘communities of practice’ in specific contexts of application. As Johnson (2005) points out, this may include the non-formal learning of sophisticated mind-body coordination also through the virtual modes of video games which he argues have evolved in new and productive ways.

The major difference between Nonaka’s useful model of improved individual as well as ongoing organizational learning and Donald Schon’s related model of various kinds of macro learning systems (society, government, businesses, and so on) lies in Schon’s notion of linking enhanced practical capacity for ‘action’ with that of thinking as a mode of ‘self-dialogue’ quite distinct from ‘dialogue with others’. Likewise the thinking of professional reflective practitioners as a basis for knowledge change and improvement corresponds to Agyris and Schon’s related notion of double (and triple) loop learning and the innate human ability to ‘learn to learn’. In terms of the transition from a
mechanical to more organic ‘systems’ view of scientific management, knowledge management and related models, a distinction needs to be made between a simple systems view of integrated factors, aspects and stakeholders – and rather the emergent and convergent capacity of self-organising systems to intelligently adapt with effective thinking, organization, and leadership to new, changing and complex environments in the ‘future now’ without past precedent (Mitleton-Kelly, 2003).

Figure 4. From formal education to life-long learning – continuing professional development/education and the link between 'thinking' and 'doing'

As Figure 4 depicts, Schon’s notions of reflection in and on ‘action’ represents a convergent and emergent ‘middle way’ capacity which lies at the intersection between ‘doing without thinking’ and ‘thinking without doing’ – that is, the traditional divide also between technical and academic modes of learning. In terms of how reflective practice is useful for all kinds of problem-solving across the related intersection of practical and conceptual problems, this is reflected by the upward facing triangle. It also depicts Schon’s contention that academic or vocational modes of learning can only provide basic preparation but that professional practice (or perhaps by extension, case studies or simulations) represents a key to better linking thinking and doing. The inter-penetrating triangle represents the framing of this as a learning process of going from passive content (i.e. information or skill transmission) to active transformation as applied and transferable knowledge. Like Nonaka’s model of spiral learning, Schon’s related concepts of reflective practice and organizational learning both reflect an active internal capacity for adapting to changing as well as complex environments. As we discuss further below, active modes of human thinking grounded in practice or action provide a solid foundation for complex as well as simple problem-solving (Richards, in press c).

The ‘optimal agency’ link between the learning process and both community and organizational capacity-building is suggested by the corresponding diagrams within Figure 5. They are linked by a related notion of how the most productive knowledge building links personal (as well as cognitive) and social aspects of relevance across a ‘threshold of change’ which transforms in relation to particular outcomes the earlier-described ‘corridor of emergence’. The constructivist principle of ‘learning to learn’ is
linked to a related notion of capacity-building as ultimately a knowledge foundation for how communities and inter-dependent but also cumulative notions and network models of society share common purposes in terms of collective adaptations to changing but also linked social, economic and physical environments (Lave & Wenger, 1999). Again the diagram assists to recognize a middle way which links the related intersections of formal and non-formal learning on one hand, and on the other the potential for convergence and not just divergence between notions of community development and market-focused innovations in various domains of human knowledge – including science and technology but also specific cultural and knowledge management.

**Figure 5. The ‘optimal agency’ link between the learning process and both community and organizational capacity-building**

Integrated modes of thinking and doing tend to reflect several key stages of a ‘thread’ which can or should be linked to projected, targeted or merely desired outcomes. Naïve, critical, and dialogical phases of ‘thinking-doing’ can and should be better integrated in social contexts of communication as well as individual or personal contexts of reflective practice. Social or community-based modes of learning inevitably involve an emergent macro process which integrates various micro aspects and details. This includes and builds upon the cognitive processes of individual learns. In this interactive way, wider notions of social or community-based capacity development also proceed as a mode of knowledge-building. As typified by the sustainability challenge of Western aid or development programs (e.g. Easterly, 1006), assistance with capacity development from external agencies also requires a sufficient ‘internal’ or self-organising process for outcome achievement in on an ongoing or long-term basis. As Biggs & Tan (2011) similarly point out in relation to formal education, the expectation of appropriate and reasonable outcomes should be constructively aligned to the learning process. Such an approach has also been influential in corporate training contexts as exemplified by the GROW (i.e. Goal-Reality- Options/Obstacles-Way forward) model of getting practitioners to more effectively achieve goals and solve problems by working back from and to align with visualized outcomes – a model adapted from the Inner Game model of sports coaching (Gallwey, 2001).
We have elsewhere discussed the use of activity-reflection digital portfolios as the exemplary learning-assessment tool as well as framework for full course as well as subject contexts that might also be extended for professional learning and profile purposes (Richards, 2005). As suggested also, new social media tools lend themselves to a learning-professional e-portfolio model. The activity-reflection digital portfolio model represents a convergent tool and framework for also integrating and reconciling both surface and deep (also content and process) modes of learning. But perhaps its most powerful function is to similarly integrate and link both formative and summative notions of evaluation or assessment to support the full cycle and stages of the most effective learning. Just as this is exemplified in formal education contexts by Kolb’s four-stage model of experiential learning it is also similarly reflected in Lewins’ related spiral model of social action and research in particular communities of practice and thus also corporate contexts of both training and organizational change. Thus Figure 7 maps out how the middle way to optimal learning is crucially linked to how (as a more specific notion of lifelong learning) the globally emerging concept of continuing professional education reflects not just a blurring between but rather an integration of distinct formal and non-formal modes of learning – and thus the very distinction itself between education and work.

**Figure 7. Encouraging the ‘reflective practitioner’ learner and/or professional in the digital age**

![Diagram](Adapted from Richards 2012b)

Mention was made earlier to how problem-based learning, inquiry-based learning and project-based learning arguably represent the three basic pillars of a systems model of not just ‘active learning’ but also ‘optimal learning’. This is was on the basis of how pivotal concept of human problem-solving might be most effectively optimized as thread of inquiry (involving an organising issue or question) which can and should always be approached as an emergent process which might framed in either simple or complex terms as ‘project development’. The concept of project development represents perhaps the most useful interaction between academic and related technical, corporate and work-based learning models of continuing professional education.
Figure 6. Professional/learning e-portfolios and the reflective practitioner

Figure 8 below depicts a model of how reflective practice and inquiry for complex problem-solving especially should also aim to integrate and converge often diverse expertise or knowledge specialization. This is why we argue elsewhere that an interdisciplinary framework of complex problem-solving represent the key to sustainable solutions in academic collaboration with industries, governments and communities for purposes of research as well as education (Richards & Padfield, in press, Padfield & Richards, in press). Not only is some kind of ‘needs analysis’ always important at the outset but should always involve a vision of possibility linked to appropriate or relevant as well as reasonable outcomes. Figure 8 thus adapts other key concepts of innovative, sustainable and relevant knowledge-building outlined above (thread of inquiry, threshold of change, corridor of emergence, etc.). It represents a process as well as related stages of integrating distinct activity and reflection domains also involving often diverse stakeholders and interests. Therefore the most effective collaborative project development should integrate the related functions of reflection and activity or intervention. On one hand just as deep level interpretive analysis is required to understand and address the gap between what people say and do in human-centred research involving surveys or questionnaires so too in term of similarly attempting to understand and address the gap between intrinsic patterns of meaning in nature and those extrinsically imposed in terms of social or theoretical preconceptions, assumptions, and expectations. On the other hand any formal academic or practical problem-solving should always recognize the importance of local context especially where this involves self-organising systems or processes.
In section three we will distinguish between the ‘upwards and forwards’ or emergent as well as convergent rather than the either-or rational vs. ad hoc ‘downwards and backwards’ approaches to knowledge-building linking related processes of decision-making and problem-solving. This not just a matter of a related and convergent outcomes-based approach to education and research. As Figure 8 suggests it is an approach which recognizes that the most effective knowledge-building does not simply arise from the passive accumulation of data and information in a vacuum. Rather active learning and focused inquiry approaches with a problem-solving perspective represented keys to the most effective and productive knowledge and understanding. In this we characterize the most productive knowledge-building as a constructive and on-going process where useful questions, proposals and interventions might assist with linking an emergent process or system of ‘data-building’ with that of relevant thinking. In this way we might also discuss how the so-called data-information-knowledge-wisdom pyramid (Fricke, 2009) represents a systems view of human knowledge which involves both external and internal axes of meaning which perhaps need to be ‘constructively aligned’ for the most effective or optimal knowledge-building. In other words, the meanglessness of merely accumulating and describing data or information is redeemed as it were by how relevant questions and problems involve knowledge and understanding.

Thus Figure 9 suggests a wider, convergent notion of scientific knowledge building in terms of how an outcomes-based approach can complement the conventional inductive vs. deductive linking of empirical knowledge to formal logical structures. In this way a convergent approach also recognizes how the related either/or delineations between theory and practice (and also traditional and modern knowledge systems) are transformed in practice in terms of a progressive and ‘ecological’ process of knowledge building. This is a naturally systemic way of linking the local and global in an open-ended but contextually grounded way. The key to this is the notion of how a problem-solving inquiry approach provides a means of linking and converging distinct cause-effect (i.e. linear or temporal) and descriptive (i.e. hierarchical and spatial) transformations of data and information into applied knowledge and understanding.
Figure 9. Towards a ‘wider’ convergent framework of scientific knowledge-building

Adapted from Richards, 2012a

In their discussion about the emerging academic professional in the 21st Century university Light & Fox (2002) also recognize the continuing importance of research in specific areas by specialists. However they foreshadow that the foundation of a future university more relevantly engaged with its wider society as well as its students should involve a sufficient number of academic professionals with the interdisciplinary capacity to be able to also traverse the intersection or gap between research and scholarship on one hand, and on the other the functions of teaching and learning. This convergent view of knowledge-building thus recognizes that various practices of research also constitute learning systems in a complementary relation to both formal and no-formal modes of education. Such a view corresponds also with how both pure and applied modes of research inquiry represent alternately reflective and applied modes of learning. Thus the most effective research and learning arguably converge in terms of the emergent and convergent process of problem-solving. Likewise Figure 10 outlines how the convergent process of academic knowledge building represents a middle way intersection between research inquiry and the learning process.
Part 3. Optimal policy-builders of the future: Leadership, learning and resilience in the face of constant change

As Ramo (2006, p.253) argues, the main paradigm shift required in the professional learning of decision-makers, planner and various kinds of problem-solver is from an entirely direct to a predominantly indirect approach which veers away from ‘top-down or ad hoc ‘classic instinct to herd power and tightly control policy. This is in the context that Ramo views the 21st Century as a globalised world of increasing unpredictability and crisis where traditional methods clearly do not encourage the levels of sustainability, innovation and social relevance needed. In this new world, Ramo suggests that the optimal education and training of policy builders of the future should involve a central focus on effective ‘crisis management’ skills, knowledge and leadership. In this way as indicated above he proposes that the main priority of policy-building should be to instill a general or generic resilience in individuals as well as particular industries, organizations or other local contexts as well as the global community to develop or evolve in the face of the unexpected.
As outlined in Figure 11 there are natural *corridors of policy-building* in terms of how the process of policy design, development and implementation represents a dialogue between not just top-down and bottom-up contexts and actors but also the *internal* or *external* aspects of the related processes of human decision-making, planning and problem-solving. The *internal* aspects of a policy initiative or strategy reflect the generic aspects of policy and a particular implicit ‘thread’ linking not just the design and implementation process but the innovative and sustainable connection in time between a context of ‘social relevance’ and specific outcomes sought or aimed for. Correspondingly the *external* aspects of policy refer not only to the unique and changing *environments* (social, historical, physical, etc.) and associated expectations which help to mold a specific policy implementation and emergence but also to the particular *interventions* which either as ‘carrot’ or ‘stick’ (e.g. incentives or rules) may expedite the process of implementation - the emergence or unfolding of a policy initiative or strategy. A constructive and emergent view of the interplay of internal and external factors in knowledge as a process of ‘necessity-sufficiency’ rather than as a ‘negative’ conflict or opposition of necessity vs. contingency or accident.

*Policies* not only have a lot in common with *theories* and *laws* but might be usefully located as an intermediate concept. This may be important for addressing the various missing links between knowledge and action (also reflection and practice) which provide the rationale for all forms of leadership and learning. Like human laws and rules, *policies* are concerned with directing people’s actions in terms of guiding principles or strategies rather than the arbitrary prescriptions of the law making process. Such principles or strategies are invariably set in local social contexts or particular cultural value-systems. Thus there is a natural tension between the making of laws and rules to either represent a universal view of nature and culture or to assist with policy initiatives or strategies. In contrast *theories* represent particular knowledge perspectives, projections or explanations which reinforce a larger socially constructed and shared worldview of underlying or overall meaning. The area of economics provides one of the best examples of how top-down theories can dictate policy formation (e.g. Evans, 2004). This is in contrast also to the concept of natural or scientific *laws* which purport to represent unchanging universal or transferable
principles. Although in principle laws are often meant to be a guide for human actions, in bureaucratic or formal contexts laws tend to be interpreted ‘forward’ in a literal fixed way to apply to future human actions as well as retrospectively to the past. Thus in either the big or small sense, policy does not just lie between theory and law but in between the ever-present human negotiation of the past and future.

Figure 12. Policy studies and research at the knowledge-building intersection between theories and laws

![Diagram showing the intersection between theories and laws](image)

The search for universal laws of transferable knowledge which contrast with prescriptive laws of human action are very much associated with scientific inquiry. Conversely, policies represent decisions or strategies which like human theory-building are inherently provisional or falsifiable as ongoing efforts to improve explanations of the physical and also social worlds of human experience. ‘Big’ theories or paradigms stand in relation to ‘big’ policies in similar fashion to how every individual and social group develop the local ecologies of the perspectives, projections and explanations which constitute ‘small’ theories. As Figure 11 depicts, the concept of policy therefore lies in between related human concepts of theory and law. This is as well as between the domains of knowledge and activity and also of society and the individual. As will be discussed below, whether formally or informally made in a range of human activities outside public policy, ‘small policies’ may represent the foundation or even provisional interventions which make up constructive ‘big polices’ in the same way that ‘small theories’ together constitute and reflect larger paradigms or ‘big theories’. Like theories and laws, various notions of policy also ultimately refer to an underlying contexts of social values and legitimation.

The process of “policy-building” should be about a sustainably deep and integrative rather than superficially descriptive or ad hoc relation between ‘evidence’ on one hand, and the actual process of strategic decision-making on the other. In some similar respects to Kahnemann’s (2010) notion of convergent thinking, Figure 14 outlines how there can be both a slow and fast way of doing this. We distinguish between an ultimately negative cycle of ‘downwards and backwards’ policy-building and a rather positive ‘upwards and forwards’ version which can also be based on a slow academic accumulation of data and information but rather works back from reasonable outcomes to achieve design solutions which local application and global transferability. This second version anticipates future obstacles and implementation issues as a basis for an optimal rather than the ad hoc or muddling view of adapting to a changing environment in time and space. Such a convergent model of policy-building also optimizes the
process of decision-making within the gap of uncertainty and how there is never any precedent for a present or future context (i.e. all policies fail in time and should not be basis for a fixed approach anytime or anywhere). The inset bos depicts how a convergent approach represents a positive policy-building cycle which compare with how the alternate and negative top-down vs. ad hoc cycle tends to inevitably result in decision-making and problem-solving paralysis.

Figure 14 Fast vs. slow ways to achieve convergent and optimal policy-building

As already suggested in terms of the distinction between but also inter-dependent linking of big and small policies, there is a related distinction to be made between the macro and micro aspects of the policy building process which are also applicable in policy research, study and education. That is, the macro focus of a policy expresses its general strategic and outcome focus, whilst the micro focus of a policy are the particular elements, cycles and interventions at work. The macro focus might be seen as ultimately a function of leadership in the most integrated and constructive sense of the term. Likewise - as will be discussed further below - the micro focus relates to how the process of policy design, development and implementation is ever a learning process in unique contexts and in relation to the ultimately interdependent and inter-changeable relation of all policy ‘actors’. The link between the functions of leadership and a systems view of learning as well as knowledge construction inform how Table 1 outlines a profile of an optimal problem-solver, decision maker and knowledge builder. As with the learning process, the most effective leader is one who avoids the negative cycle of top-down or rational vs. ad hoc interventions to oversee the delicate macro-micro balance in time as a process of convergence as well as emergence to achieve outcomes. In this view the process of decision-making follows the outcomes-based trajectory exemplified by the GROW model – thus reflecting the kind of constructive alignment between internal and external factors achieved by the greatest sportspeople in terms of disciplined composure.
Table 1. Profile of an optimal problem-solver, decision-maker, and knowledge-builder?

- **Calm, focused and principled** – develops a basic integrity and disposition to deal with crisis and adversity in terms of strategic rather than top-down vs. ad-hoc decision-making and planning
- **Accountability, feedback and resilience** – leadership based on being open to learn from various sources of feedback, learning likewise open to new and future possibilities, and resilience born of principle and/or experience
- **Order out of chaos, crisis and accident** (innovation) – not only conceives a sustainable ‘vision of possibility’ but proceeds to design, to organize and to achieve viable plans
- Establishes a **solid knowledge-building foundation** for innovation and optimal performance
- **Appropriate actions, impeccable timing, and decisive application of strategy** – makes decisions and take action when and where appropriate (by balancing macro & micro levels)
- **Patient encouragement of the process** – recognises and encourages the unfolding of a self-organising macro-micro process towards sustainable, desired, and/or reasonable outcomes

A third key implication of the model is that its crucial factoring in of the process of policy implementation recognizes that this a process, dialogue and function which links the past and future in what should be an open-ended, emergent and transformational way. Thus Figure 12 below identifies how like any effective learning, capacity development or other form of knowledge-building, the ultimate challenge and test of ‘policy-building’ is what might be referred to as the threshold of change – where past, present and future converge in terms of activating any or all of the three constructive pillars of policy innovation, sustainability and social relevance. This provides an exemplary focus for ultimately distinguishing between a negative and constructive policy cycle. The ultimate stage of ‘policy paralysis’ in the negative (i.e. downwards and backwards) version of the cycle is illustrated by how this threshold might be referred to as one of ‘temporary vs. perpetual threshold of frustration, confusion and uncertainty’ (Richards, 2012c). What is externally perceived as a world of perpetual change in the 21st Century remains a provisional threshold in the emergent transformation of any self-organizing system or emergent process - including the policy process. Policy failure and policy-making paralysis represent either particular or general efforts which do not successfully navigate change as stage rather than condition of the positive policy cycle.

Figure 12 also outlines the inevitable interplay of macro and micro aspects and elements in the design, management, and implementation of any policy direction and strategy. There is a corresponding knowledge-building pyramid in which ‘policy managers and implementers’ naturally mediate (i.e. as the ‘meat in the sandwich’) between the top-down positioning of ‘policy designers and decision-makers’ (leaders, politicians, CEO’s, etc.) and the bottom-up interests and contexts of ‘policy stakeholders’ (i.e. the public at large in local or global contexts of community and organization). In the transition from a hierarchical framework of the past to a future networked society model (e.g. Castells, 2002), this inevitable interplay is also the basis for anticipating, recognizing and accounting for the **interdependent** and also **interchangeable** nature of the intrinsic relation between these macro and micro aspects and elements, between...
functions of leadership and learning, and between policy designers and decision-makers and policy stakeholders. In the network society model, each individual and group are not only inextricably and interdependently linked but retain their relative autonomy or agency and thus ‘interchangeable’ responsibility for feedback, accountability and global as well as local resilience (e.g. Rutland & Aylett, 2008). In this model also, growth and (dynamic) equilibrium are not an either/or choice of external circumstances in relation to a passive internal condition. Dynamic equilibrium is the required external condition which in frameworks of policy as well as nature and society provide the corridor of ‘internal’ growth or emergence at the intersection of time and space.

Figure 13. Policy knowledge-building: design, development, and implementation

![Policy knowledge-building](image)

Adapted from Richards 2012c

In his last book Donald Schon (Schon & Rein, 1994) turned his attention to the problem of how to resolve ‘intractable policy controversies’ or what the Socratic tradition of thinking calls ostensibly impossible problems (aporia). Schon & Rein's use of the term particularly refers to situations or examples where there is a clear gap between selective evidence and contested policy decisions. But the model is equally useful to address those endless individual and social dilemmas (from small through to big ‘policy’) where such a gap is confused or muddled. As discussed above this is perhaps ultimately an intrinsic condition of the policy-building process and more obviously so in 21st Century contexts of a developing sense of global crisis, cultural relativity and social instability. In terms of both big and small policy contexts in various organizational as well as governmental or public policy contexts, Schon & Rein thus focus on the potentially dialogic or negotiated connection between the different frames or perspective of all the ‘policy actors’ involved. It is no accident then that the last chapter of the book focuses on the implications for policy research and education simultaneously. This refinement of Schon’s long-established model of public and organizational learning systems corresponds to Kurt Lewin’s idea that a distinction can be made between the positive or negative condition of the inevitable macro and micro ‘interdependence’ of actors within any group at either local or global levels. In this way Lewin identified social change in terms of a force field of push-pull factors. Both frameworks are consistent also with Easterly’s (2006) insight that accountability
(grounded leadership) and feedback (the learning process) are the crucial keys to sustainable policy building. In other words, the concept of leadership and also that of accountability within a group or organization might be more productively seen as a function of constructive development or emergence rather than just a fixed and top-down or ad hoc position.

As well as its policy research implications, Schon & Rein's model has particular linking to the learning of policy actors. This is in both the formal sense of education or training for those working in policy design or analysis in one hand or in the various 'small' contexts of policy implementation on the other. As indicated above, a similar framework has been adapted by the World Bank to operate both at the organizational and policy actor levels. It also represents a combination of professional reflective practitioner and collaborative organizational models in the initial training and ongoing ‘continuing professional development’ of workers at every level of organization in similar terms to related models of design research and constructivist learning. Like the integrated assumptions of Schon's various concepts, the World Bank's adaptation of a 'blackbox of governmental learning' model (Blindenbacher, 2010) builds does not just emphasize organizational learning, knowledge sharing and new approaches to training. It also recognizes that every aspect of policy building ranging from the 'small' to 'big' involves interdependent and in principle interchangeable policy actors. It further recognizes that every new authentic work situation in a policy building context is a learning opportunity and process – as well as being part of a process of knowledge sharing and acquisition (p.32). In this way policy building is a convergent function of knowledge building and strategic action.

Figure 13 sketches out a possible representation of the leadership and learning nexus in a 21st Century context. This context recognizes the growing and increasing policy interdependence of government, society and the commercial sector of corporate organization and private enterprise. Conversely, it similarly recognizes the global push for the active learner across public, personal and both professional and technical contexts of learning. This is reflected on one hand by an emerging learner-centred framework within formal and non-formal (or life-long) contexts of learning, and on the other by a 'continuing professional education' convergence between the accreditation functions of formal educational institutions and the professional or technical needs and purposes of the future workplace. In contrast to other related adaptations of a distributed network society model (e.g. Castells, 2000; Rutland & Aylett, 2008) it rather identifies the complementary function of 'optimal agency' which links to the active problem-solving orientation of both leadership and learning basis which lies at the intersections of accountability and feedback in the systemic view – the 'interchangeable' basis of distributed yet ever localized potential agency (beyond the function of identity in the Castells model) as well as resilience within any or all nodes of the human global network.
In the 21st Century we believe that policy studies, policy research, and policy education will become increasingly important aspects of formal as well as non-formal human knowledge building. A useful case in point lies in various areas of applied science which in universities have traditionally stood in a devalued or inferior relation to fundamental research. Applied research tends to be for commercial or development purposes, whereas fundamental research generate principles and theories of more sustainable and transferable importance. But the ‘new marriage’ of policy studies and applied science (Richards, 2012c) offers many opportunities for scientists to publish and disseminate their work in terms of the policy implications on one hand, and also on the other to seek research funding opportunities in terms of negotiation new policy priorities and anticipating future trends. As variations of constructive policy building in either the preparatory or design solution stages, the general concept of policy research will not only be increasingly important in a future world where people want concrete and strategic solutions not just ideas and theories. In this way also it might be argued that upwards and forwards policy research represents a problem-solving convergence between basic and applied research. Likewise, if we link policy studies and a design research paradigm we get a constructive design research framework.

Conclusion

The paper has argued that the growing 21st Century convergence around the world between the worlds of education, work, and other domains of human activity require more integrated notions of formal and non-formal learning. In terms of the growing professionalization of work in the emerging global knowledge society and economy it has addressed the need for a ‘middle way’ to better prepare present or future professionals to become problem-solvers, decision-makers and knowledge builders able to adapt to a complex, uncertain and changing world. This could potentially involve a learner at any stage of lifelong learning but for our present purposes we have particularly focused on the emerging domain of continuing professional development. Such a term usefully includes both the formal higher education preparation and accreditation of graduates with more ‘employable’ generic skills and also the domains of organizational change and learning epitomized especially by popular, often expensive but not necessarily sustainable models of corporate or executive training.

On this basis the paper has outlined a framework of an integrated systems model of optimal learning which converges the disciplinary strengths of academic inquiry and learning with the more innovative, sustainable and resilient qualities of some of the most effective models of a corporate or executive ‘approach’. The optimal learning
approach to organizational change and leadership as well formal learning outlined above is one more interested in the challenge of aligning knowledge and action instead of conventional either-or delineations of theory vs. practice, content vs. process, and thinking vs. doing. The paper has thus explored how such a model usefully links convergent models of surface vs. deep learning in formal education developed by Kolb, Biggs, and related models in organizational learning theory such as Agyris and Schon’s distinction between single-loop and double-loop (or ‘triple-loop’) learning. It has pointed out a common approach to preparing resiliently active rather than merely passive learners able to engage and transform forces of change, complexity and uncertainty with a fundamental problem-solving perspective.

In this way the paper has taken up the related ideas of Donald Schon, Kurt Lewin and others that the convergent capacities of problem-solving, decision-making and knowledge building represent an emerging and convergent new ‘policy’ paradigm of interdisciplinary learning, applied research and human resource ‘continuing professional development’. We have argued that the related optimal learning design is usefully applicable to whole range of contexts – both shorter and longer forms of formal academic education on one hand, and on the other various modes of workplace learning or training, professional development, executive training and various other modes of ‘life-long learning’. In this way also, a related move to an ‘upwards and forwards’ framework appropriate to the change, uncertainty and ever-growing crises of the 21st Century also reflects the paradigm shift from hierarchical thinking and social organization to a new networked society model where individual and groups might converge local and global agency.

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