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**THE KNIGHT'S MOVE:
ITS RELEVANCE FOR EDUCATIONAL RESEARCH AND DEVELOPMENT**

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Abstract: *This paper utilises the ‘knight’s move’ in chess as an analogy for broadening our repertoire of research epistemologies, methodologies and relationships. It explores the imperatives for moving on from a simple reliance on ‘straight line’ thinking in educational inquiry and pedagogical practice in order to utilize and enhance our epistemological agility and thereby mobilize a more nuanced ‘second generation’ of educational research. It is argued that the strategic deployment of ‘knight’s move’ methodologies is more in keeping with contemporary forms of cultural production but will better serve inquiry into the very complex problems that need successful resolution in this century, and the sorts of relationships we will need to develop with other non-traditional players.*

Introduction

Barak Obama has been inaugurated as the first African-American president of the USA. Financial meltdown is crippling industrial and commercial enterprise. Failed states are becoming a feature of global politics. Medical science is curing long-term diseases at the same time that new diseases are proliferating. The threat of terrorism continues to haunt nation-states world-wide. Global warming is threatening an unsustainable planet. Technology is creating virtual communities and de-stabilising traditional communities. An English speaking thirteen year old in Zaire with internet connection can find out the current temperature in Shanghai, or closing price of IBM stock or name of the company that first employed Lee Kuan Yew as quickly as the head librarian at Harvard university.

What difference does this make to educational research? What difference should it make?

As Singapore’s Minister for Trade and Industry George Yeo made clear in his 2004 speech at the Singapore Business Awards (Yeo, 2004), some things should remain immutable in the face of profound global change. For educators, they are the foundational tenets which have stood since they were affirmed by John Dewey and like-minded school reformers over a century ago. Education is still both a process of living and a preparation for future living. Schools are still called to represent present life – life that is real and vital to children. Learning is still best done

through active and critical engagement; it is not best done through transmission to passive learners. Teaching is more than skills training – it is inextricably connected with the formation of social life.

These tenets are embedded in the 1997 speech given by Singapore’s Prime Minister Goh Chok Tong (Goh, 1997), and again in Lew Kuan Yew’s address to the 2004 China Scientists Forum, (Lee, 2004). At the same time, both of these leaders recognise and acknowledge the importance of having what Ulrich Beck calls *roots and wings* – the capacity to fly high at the same time as we maintain stability and purpose. Educational researchers are responsible for assisting educational providers worldwide in maintaining the foundational tenets. Yet our responsibility to the worldwide educational community is more than financial and professional accountability. It is a moral and ethical imperative to provide the best evidence we can to answer big questions about education which also remain unchanged: What’s going on? How do we know? So what?

What is evidence?

What counts as the best evidence remains a hotly contested issue - at least, *it should*. In 2003, Allan Luke wrote of the “controversial push in the US [and elsewhere] ...to narrow what counts as educational research” (Luke, 2003: p.1), in the light of a “contraction of public funding for education” and “the ostensible ‘failure’ of educational systems and of research to ‘solve’ ... baseline cultural and economic problems” (p.2). In his call for pragmatism, alignment and multi-disciplinarity to characterise the future of educational research, he insisted that “intuition, guesswork and high theorization” are as necessary to social and medical science as “rigorous empiricism” (p.3). A decade ago, educational scholar Deborah Britzman spoke briefly at a closing panel of the American Educational Research Association in New York. Asked about her wish for the future of educational research, she said: “My hope is that educational research *becomes increasingly unintelligible to itself*”. Understandably, many in the audience thought that she had mis-spoken, or that they had mis-heard. Surely she meant ‘intelligible’? Why would anyone hope for un-intelligibility? In a much earlier time, Anna Freud expressed the hope that education might ‘*do the least harm*’. What did she mean by this? Surely she intended to say ‘do the most good’?

It is hard to hear the intent of such provocations or value their usefulness when we are sure that we know what is going on, and who the good guys and the bad guys are. It is also hard to hear such 'ill-logic' when we are expert in using our tools to get the evidence that we are convinced will support our claims. We apply our tools, and presenting our findings, as though the evidence is lying neatly out there, waiting to be found. Yet the events of the past decade should tell us about the importance of maintaining radical doubt about the limitations of the tools we use, the claims we make and the evidence we provide to warrant our claims, even when we draw from the 'best' or most reliable science. Life, said G.K Chesterton, is not illogical but it is a trap for logicians. What does this connote for educational research? It does not mean that we should set about doing 'illogical' work. But it does mean that we should continue to imagine the gap between thoroughly reasonable instruments of inquiry and the 'nearly reasonable' human condition. Many of the decisions that have so negatively impacted our social, economic and physical world have been highly rational ones. They seemed at the time to be informed and thoroughly reasonable.

Making new moves

As has been demonstrated in recent times, the future is not what is used to be. According to control theorist William Gosling (1994), the future will be neither more of the same nor a gradual process of improvement or decline. Many of the changes we have predicted have been proven wrong - the millennium bug, the paperless office, more leisure time – all flawed but reasonable predictions. Meanwhile we continue to see crucial changes which few of us ever anticipated – an African-American in the White House, global fiscal meltdown, the powerful impact of email on work, the Stanley knife used as a weapon of mass destruction. In this century we will continue to confront a future that is neither more of the same nor a predictable process of gradual improvement or decline. Change in the twenty-first century will be, according to Gosling, of an order that he terms "*the knight's move*". In other words, change will not have a gradual trajectory in the future, yet neither is it likely to be chaotic. In anticipating irregular patterns of 21st century change, we are challenged to re-think 'straight road' programs of educational research and development, and the assumptions they make about the linear-cumulative nature of learning.

I want to pursue the usefulness of the analogy of 'the knight's move' in thinking about designing and enacting educational research. Before I do so, it is necessary to do some throat-

clearing about the assumptions I make in milking this metaphor. Four things that characterise my use of 'the knight's move' are:

1. It is an analogy.
2. It is a tool for thinking with.
3. It is unpackable as an impetus to strategy.
4. It keeps us focused on the main game – explanatory power.

Here is what 'the knight's move' is *not*:

1. It is not a methodology.
2. It is not an attempt to re-enter or restore old qualitative-versus-quantitative debates.
3. It is not a rejection of the value of rational science.
4. Like all other metaphors, it is not endlessly milk-able.

Let us return now to consider the strengths and limitations of the knight's move. The knight on a chess board is not free - it moves in an L-shaped manner because it is forbidden to take the straight road. Because it is denied the straight line of action, the knight is a powerful chess-piece for its ability to make strategic, irregular moves. So the knight is potentially more agile than other pieces. It can move early, jump over other pieces (in the Western game) and is the only piece that can be in position to attack a king, queen, bishop, or rook without being reciprocally attacked by that piece. It is most powerful in closed positions, so the best use of the knight is close to where the action is.

The knight works best in the thick of the action, rather than on the margins. The knight is also somewhat differently deployed by Eastern and Western players, with its ability to jump other pieces in the Western game making for more aggressive potential than its Eastern, more defensive, counterpart. The knight's move can thus be a useful metaphor for imagining strategic moves in research and development in a new century. With an understanding of the knight's strengths and limitations, and its similarities and differences across East and West, we are better placed to understand the challenges of designing relevant programs of educational research and professional development. In doing so, we can hope to build more

epistemologically agile learning communities that can be proactive and powerful at the centre of the learning action.

I was provided with an example of the knight's move by one of my Masters students in a class here at NIE only a few weeks ago. The class had to begin the day's program by writing a paragraph or two in response to the question: 'What is education for?' This particular student, unlike others who felt more confident than she to write an answer, decided that, rather than produce nothing from her uncertainty, she would text this same question to her niece to get a 10 year old Singaporean's response. She then 'googled' the thoughts of the current Director-General of Education on this same question. Her strategy might be understood in some classrooms as 'task avoidance', or even 'cheating' but to me it is a great example of the knight's move. It was a sideways move, not the one I intended her to make. And it pre-empted a powerful piece of scholarly reflection.

Enabled and constrained

There is little doubt that linear-cumulative thinking and modes of inquiry are important to building a platform of theoretical and practical knowledge in and beyond the disciplines. Just as the bishop or the rook or the queen's capacity to cover the chess board in long strides makes them powerful players and adversaries, so too the value of large-scale and longitudinal projects in informing changes to the strategic direction of educational policy needs to be acknowledged as undeniable. We are often reminded, however, of the value of 'pawn-sized' projects – case studies, action research projects and the like - that provide robust and practical snapshots out of which larger patterns can be created and large-scale ventures can be successful.

The knight's move is unusual among chess pieces. When it moves, it can move two squares horizontally and one square vertically, or two squares vertically and one square horizontally. This can be seen as a constraint, in that the knight's move is more restricted than other 'noble' pieces in terms of its reach, nor does it have the numbers and expendability of the pawns. However, it does have an element of surprise and great capacity for game-winning action if and when it is used strategically in conjunction with surrounding pieces.

There are implications here for how we understand what research capacity is and how it might be built with and for educational stakeholders. Despite so much rhetoric - and evidence - around the importance of the team to scientific inquiry and organisational success, our systems of acknowledgements and rewards in education still elevate the individual above the group. University appraisal systems are no more enlightened in this respect than systems in any other sector. Mainstream sorting and credentialing processes remain firmly wedded to the idea that individuals are of most interest and importance when it comes to the educational enterprise. This is not to refute the importance of separateness of identity and motivation to the learning journey, but to insist that the individual often rises or falls on the backs of those around them. The message of the knight's move is an endorsement of the power of the team to 'make way' in order to maximise its potential (as pieces must do in the Asian game) or to mobilise strategically to enable the L shaped knight's move to be utilised to its maximum effect. In drawing attention to the power that teams have to be more than the sum of their parts, I am mindful of the concerns expressed by Amanda Sinclair (1992) about the way 'team' is often evoked as the all-purpose solution to success. She says:

[T]eams are frequently used to camouflage coercion under the pretence of maintaining cohesion; conceal conflict under the guise of consensus; convert conformity into a semblance of creativity; give unilateral decisions a co-determinist seal of approval; delay action in the supposed interests of consultation; legitimize lack of leadership, and disguise expedient arguments and personal agendas. (p.611)

In other words, appeals to get a 'team-based approach' can have reactionary rather than reformist effects. Notwithstanding this caveat, the imperative to dynamic team-based approaches is one that is flagged by the knight, in that it relies on complementary capacities around it to do its best work. So too many of us have come to know the pleasure of close engagement with others who share our passions for the meta-game we are in but bring different skills and capacities to a project of inquiry. If we are epistemologically agile enough, we can learn from and draw on very different disciplinary and design strengths to enable us to do better together than we can in any one discipline or method. Transdisciplinary and multi-method moves should, however, come with a health warning, much like a packet of cigarettes - the achievement of this higher order collective capacity will not be forthcoming by doing violence to precise expertise emanating from a particular discipline or body of thought. It

demands both a powerful input of disciplinary expertise coupled with a capacity for what Charles Leadbeater (2000) calls 'useful ignorance'.

Epistemological agility, then, is an important ingredient in building the 'second generation' research teams needed to tackle the very complex problems we have yet to grapple with successfully in this century. It is a creative capacity for holding disparate things together long enough to generate a new or third space or idea, or, as Norman Jackson puts it "to move an idea from one state to another" (p.8). Albert Einstein once explained this intellectual activity as a form of combinatorial play that connects concepts rarely combined. It demands an ability (on the part of individuals and groups of individuals) to hold large numbers of associations together and then select the particular associations that offer interesting possibilities. As explained by psychologist Teresa Amabile and her colleagues:

It's as if the mind is throwing a bunch of balls into the cognitive space, juggling them around until they collide in interesting ways. The process has a certain playful quality to it....If associations are made between concepts that are rarely combined – that is, if the balls that don't normally come near each other collide – the ultimate novelty of the situation will be greater. (Amabile et al, 2002: 52)

Once 'ultimate novelty' is there for all to see, it is often mistaken for the outpouring of pure and unadulterated genius of one individual, when it is in fact more likely to be the outcome of a number of persons and activities and disciplined deliberations that include the rejection of many alternative combinations, just as the knight's move may depend on the rejection of an array of alternatives and an intimate connection to the moves being made around it.

The instructive complications of error

There is, it needs to be acknowledged, an element of risk in all this serious play. What if the 'right move' is rejected, despite all the hard work that has been done to avoid making strategic errors? Better or at least less risky, perhaps, to counter moves than to make them. This may make for a longer game but it is no guarantee of long-term success. Yet we remain strongly wedded to the idea that we can and should move from success to success. The 'Eureka' moment of breakthrough has been lodged in the collective psyche much more powerfully than the force of Thomas Edison's positive assertion: "I now know ten thousand ways that it won't work". We are still more likely as teachers to ask our students to put up

their hands when they have the right answer, rather than a useful question. Little wonder then that the average child asks 125 questions a day, while the average adult asks a mere six!!

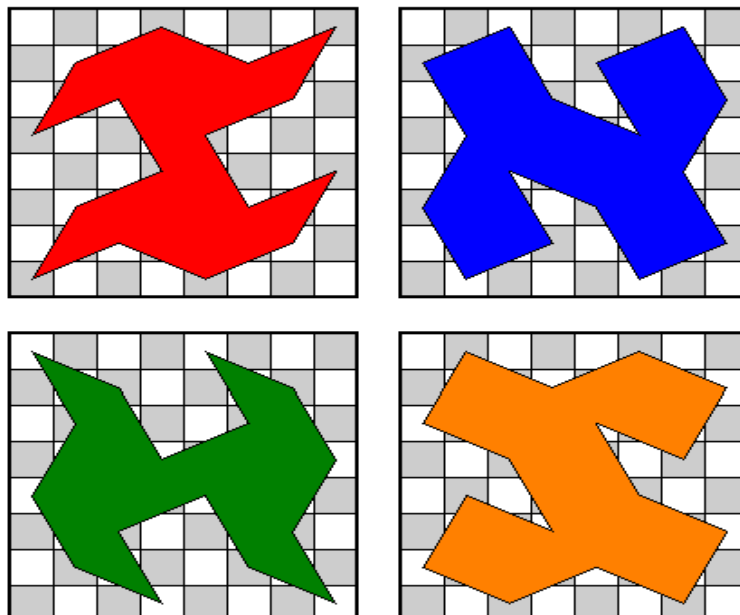
Meanwhile, trial and error is very much a characteristic of the way that young people learn to play digital games to a very high level. A large research study conducted in the USA by John Beck and Mitchell Wade (2006) found that the gamer environment is not an unregulated environment, but gamers have “systematically different ways of working ... systematically different skills to learn, and different ways to learn them” (p.2). They jump over preambles and introductions and are much less anxious in the absence of top-down rules for proceeding from one point to the next. In simple terms, their study shows that ‘gamers’ are much more likely than their baby boomer predecessors to learn by trial and error. Thus does not mean that researchers should work unsystematically. But it does mean that what we have come to see as the ‘right (methodological and conceptual) systems’ for getting to the ‘right answers’ must be subjected to scrutiny, not just taken for granted. The knight’s move can look awkward among other more predictable straight line moves, but its impact can be all the more powerful because of it.

We have seen many methodological ‘knight’s moves’ come and go. Often, there has been an impatience to be rid of them - poststructuralism, feminism, queer theory, cyber-psychology, narrative inquiry - so that we can get on with the real work of applying our instruments and finding out what is going on out there (all of it waiting patiently to be ‘found’). New theoretical tools offer corrective moments, however much we might rail against them as clutter in the halls of academe. They call is to *think about thinking about* our research projects. And in doing so, they can help us to refuse the unseemly rush to the field that has so bedevilled the social sciences in recent times. The idea that the field itself is constituted, at least in part, through the very performance of an inquiry is an annoying one because it troubles the ‘blissful clarity’ that Barthes (1978) speaks of as comforting to us as social scientists. Our ‘good intentions’ add impetus to this rush to the field – the pleasure of being out there ‘really doing it’ rather than ‘just talking about it’. Of course, this is another binary that we could do without. However, if we were to think of the work of inquiry as involving engagement in head work, field work, text work and relational work – all of which demand substantial time and energy, we might be better placed to take on the intractable problems that we have increasingly been pushing away because they do not seem so amenable to

investigation through ‘normal’ methods. It would be considered bad manners, for example, to conduct research with indigenous communities in Australia, for example, without a substantial length of time (say two years or more) spent in communal conversations on site. If our research is intended to be with and for, not on communities ‘out there’, then getting the relational work right cannot be relegated to the time it takes to make a phonecall or share a cup of coffee.

Knight’s move and relational patterns

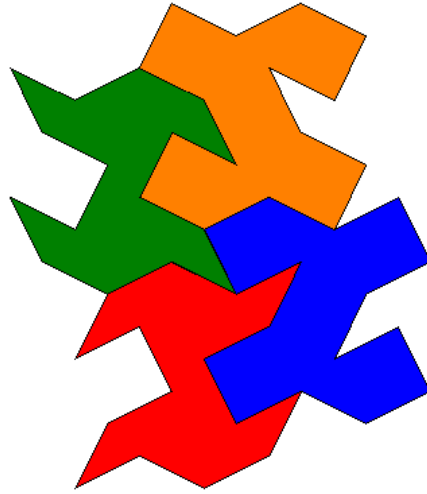
If we are to value the dynamic team and if we are to harness the knowledge of our colleagues and others in what we understand to be the field – students, policymakers, parents, employers, social commentators – then there is more we can learn from the knight’s move. To do so, we need to look more closely at the pattern of the knight’s movements. If we were to map the full sixteen moves of the knight - two squares horizontally and one square vertically, or two squares vertically and one square horizontally, putting each pattern on a separate chess board, the result would be the 4 designs below:



From <http://www.borderschess.org/KTtess.htm>

If we were then to close the open pattern to make a geometric shape, and fill in the pattern with the same colour, here now exist four pieces that can be connected into one piece, in

such a way that it can now be described as tessellated. Tessellation means the complete covering or tiling of a plane or space with a non-overlapping shape.



From <http://www.borderschess.org/KTtess.htm>

What we have, then, in thinking through the knight's move, is a new metaphor for understanding the geometric landscape that is produced when educational researchers connect meaningfully with the daily work of other stakeholders. If, for instance, we were to take educational researchers, governments, schools and the broader community to be represented by the red, blue, green and tan colours above, then we can begin to think our way towards connectedness that is neither naïve nor chaotic. It is interlocking, with each coloured pattern relying on the coming together of other differently irregular patterning to make coherence visible.

Tessellated partnerships

I want to look more closely at the tessellated patterning that is produced by multiple 'knight's moves' as a metaphor for designing respectful and productive research partnerships. What might it connote in terms of the design and the conduct of educational research in this century?

First, it reminds us that the fitting together of the nature and purposes of these four entities is not a simple matter of circles within circles, nor of overlapping circles, nor small squares that are assembled to make a larger entity of identical shape. Tessellation implies that an intelligent and accommodating pattern of engagement and interaction is possible through mutual negotiation of each other's specific 'angles', but it is not necessarily obvious from the outset, nor is it achieved by the control or command of a 'king piece', or the linear thinking

and doing of pawns in a game. The pattern is achieved by non-linear moves that take cognisance of the structures of power in the educational field and work strategically to bring the players in the field together in ways that are respectful of their angularities and peculiarities.

The shape of our relationships with other stakeholders is increasingly 'non-linear', as Stephen Ball's mapping of funding arrangements in the UK reminds us. In his detailed scanning of 'New Philanthropy, New Networks and New Governance in Education' (2006), Ball demonstrates how the sources and rationales for funding education in the UK are dramatically different from what they were a decade ago. He identifies a new form of "experimental" and "strategic" governance' that is increasingly evident in UK education policy, one that is "based upon network relations among new policy communities" (p.2). According to Ball, these new policy communities bring different and multiple actors into the policy process, enabling new forms of policy influence and enactment, while at the same time disabling or disenfranchising some more traditional actors and agencies.

Through his tracking of the ways education is interlinked with business, philanthropy, quangos and non-governmental agencies, Ball demonstrates how new social networks serve as policy devices to "avoid... established public sector lobbies and interests" (p.2). He argues that they interject new priorities and sensibilities into areas of education policy that are seen as change-resistant and risk-averse, steering towards a re-form of the education system in which the state *contracts and monitors but does not deliver* education services. Rather than understanding this new form of governance as a 'hollowing out' or 'weakening' of the state, Ball sees it as requiring more complicated manoeuvring across a web of social networks with a much wider variety of players. Importantly, he points to the development of an increased reliance on "self-administered" policy communities as a strategic device, "part of the redesign of the delivery architecture and re-orientation of the key narratives of the public sector" (p.25).

The shift of emphasis that Ball maps – *from government to governance* – has important implications for educational research in terms of its capacity to pattern itself for influencing policy priorities and the funding that is attached to them. If, as Ball argues, the rationality of government has shifted to networked self-management rather than direct advocacy to "big government", then holding to a fixed position that sees education either as an adversary to

government or as a pawn of government, is counter-productive. Likewise, the identification of the private sector as 'the enemy' or alternatively the source of all practical wisdom, is dated and naïve. Moreover, Ball's meticulous tracking of the "'joining up' of businesses, non-state organizations and actors and the 'core executive' as a general re-spatialization of policy" (p.8) draws attention to the peculiarities of the shape of new networks and territories of influence. Put in terms of the dominant metaphor of this paper, the strategic patterning of new networks is non-linear, with new alliances and coalitions being sought out as temporary affordances at the same time that they are strongly conceived and eminently sustainable if and when their value has been proven. As Bruno Latour reminds us, power resides in the accumulation of allies from one unique moment to the next. To accept this dictum is to value capacity for agile movement across a fluid and uncertain policy landscape.

To make 'the knight's move' to forge new research alliances cannot mean more of the same quality or quantity in our research partnerships. It signals a break from our taken for granted field of partnerships and strategies for achieving and sustaining them. For education, it would mean that we would devote more of our time engaging with innovative thinkers and designers in the commercial and not-for-profit sectors, rather than staying inside the smaller world of professional educators alone. This move is not just necessary, but long overdue, according to Robin Rogers, Chair for Green Chemistry in the UK's QUILL Research Centre, who insists that:

[i]ncreasingly the research base for the next century will rest on our ability to collaborate and integrate information across disciplines to resolve complex questions and to transfer such information to the private sector in public/private collaborations that stimulate regional economic development. (Rogers, 2008: 11)

Rogers sees university researchers "including quite prominently, research in pedagogy" as having to "confront the challenges of breaking age-old departmental and college disciplinary and cultural barriers...to maintain and advance global leadership in research". Traditional departments will not be sustainable, he asserts, without such radical re-organisation (p.11).

The shift from government to governance that Ball documents has been occurring at a time when consumer-supplier relations have been rapidly changing, with the configuration of supply itself being reconfigured as moving within a fluid and horizontal network rather than being at the top end of a supply chain. A supply or value chain, according to business and

public policy analyst Greg Hearn (2007), “is a simply, one-way, linear process”, with value creation essentially limited to “reducing transaction or distribution costs” (p.3). The shift to a value network is consumer-centric rather than linear. It “involves processes of reiteration and feedback” in which “movement may occur from any one point to any other point” with “horizontal links cutting across institutional boundaries to put people in direct contact with each other” (p.4). Agile actors move quickly within and across these networks, by-passing nodes that have ceased to add value, just as water flows around rocks. Where nodes of exchange do not add value, they can – and will – be by-passed. This shift has powerful implications for education, given that so much of what young people learn in schools and universities is understood to be ‘supplied’ and then assessed through a top down, vertical process in which supply passes through every link in the chain. Once pedagogy, curriculum and assessment are reconfigured as horizontal, fluid processes of networked learning and performing, then the nature of inquiry into educational endeavour is necessarily implicated. We find ourselves increasingly needing to attend to ‘the geometry of fluids’ and the “new design logics” that this entails.

To make *the knight move* as educational researchers, then, demands that we move into zones of disciplinary and methodological discomfort. This will take us away from the straight line trajectories that narrow our theoretical and practical options. This new found epistemological agility will enable us to work with enlightened others (there are many enlightened others outside the field of education!) to attack the big problems that bedevil the planet, none of which are amenable to ‘straight-down-the-line’ solutions (see Martin, 2007). If power is the accumulation of allies from one unique moment to the next, then our greatest strength as researchers is going to be our capacity to collaborate across the boundaries of our methodologies, disciplines, institutions and languages. I have been very fortunate to have an experience of the powerful learning such collaboration allows, through the Centre of Excellence for Creative Industries and Innovation in Australia, where I sat regularly with lawyers, media analysts, public policy analysts, entrepreneurs, animators, web and game designers, and so on, all of us coming to know the discomfort and the excitement of building a borderland where no one individual is The Expert, yet all bring necessary methodological, disciplinary and design expertise to the table. It remains an unusual opportunity in education today, despite so much evidence that collaborations of this nature are overdue. Many of us

have been rewarded for staying close to home and following the straight path. This is as unsustainable as our current levels of energy consumption.

Conclusion

Increasingly the research base for the next century will rest on our ability to collaborate and integrate information across disciplines to resolve complex questions and to transfer such information to the private sector in public/private collaborations that stimulate regional economic development. This mindset is apparent in many new agency programs and competitions at the international level, vision statements from National Science Boards, and frequent discussions of the issues in articles in prominent professional journals. Successful collaborations and epistemological agility depend on disciplinary and methodological rigour. It is not a matter of deserting our disciplines or our methods, but knowing them intimately enough to understand their strengths and limitations. In Kieran Egan's (2008) terms, it means re-engaging with knowledge as an "abstract and awkward realm of ideas" (p.x), not as a linear logic. In this way, we can be more, as a research community, than the sum of our parts, and more strategic in making our moves than we have been in the past.

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