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Re-forming and Innovating Education: Lessons from International Development

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Abstract
Reform, innovation and change in education are here claimed to be intersecting phenomena often associated with the provision and application of new knowledge, practices and technologies. While flows of innovative knowledge and information are not new, the pace of expansion has risen to unprecedented levels often generating transfer gaps and hindering capacity for beneficial absorption. What has emerged as a critical variable is the nature of processes that provide for contextual understanding, local authority, and generative implementation where local innovation facilitates reform. Such processes, it is argued, are beneficially informed by the perspective of dialogic engagement (Holquist, 2002); a perspective which acknowledges that change is in constant negotiation with shifting circumstances; that it is ongoing, continuous and unfinished. This paper will explore these dynamics with respect to educational change in an international development setting while arguing it is not enough for educational innovations to be seen as value-adding, but that those involved in their 'adoption' must be recognized as mediating that value, and be enabled to enact innovative extension in the context of local educational practice.

Keywords: *Innovation, educational reform, international development, dialogical orientation, mediation*

Introduction

This paper is informed by three fundamental assumptions: Firstly, that adjustment, change and innovation are intrinsic to education and the ongoing development and pursuit of learning. Secondly, a process perspective provides a focus on the means by which innovative ends or expected educational developments are be achieved. As such it seeks to shape a view of re-form, innovation and change that pays specific attention to context and the interdependent relation that exists between existing states of affairs and new things. Thirdly, education, by definition, has human development at its core. It is inherently defined as change – it is hard to envisage a case where education does not result in knowledge modification, acquisition or transformation ie change. If nothing changes, has anything been learned?

Why the Lens of International Development?

The contexts for educational re-form, innovation and change are many and varied in their focus and responses to national and international demands. We found ourselves in the midst of efforts to find new and innovative ways to connect and advance modern and traditional economies, cultures, languages and educational practices.

Agencies of international development have adopted 'innovation' as a theme with a view to hastening work to eradicate poverty, disease, gender inequity, etc. through the provision of education (UNDP, 2017). In many ways the dynamics of international development in education provides an instructive lens on present global efforts aimed at

stimulating change and progress through education. Formal western-styled education has become a key pursuit in the achievement of a modern life, and while providing benefits, has come, and continues to come, at a cost. Education is seen as a barometer of a society's priorities and prosperity.

As acknowledged by the United Nations Development Programme: *'Globalization cannot be rolled back, so the challenge is to ensure that it leaves no one behind'* (UNDP, 2017). Education has come to be viewed as a main engine driving national economy, identity and stability (Nicolai, 2009; Luke et al, 2005).

International development is now firmly linked with the world's economic, educational and technological developments, with digital technologies, for example, making inroads into societies that have not been part of their technological development history. Some reference will be made to international education development initiatives in Papua New Guinea (PNG), a Pacific state of more than 6 million people with a highly diverse language, culture and geography. Up to 90% of Papua New Guineans live, or remain connected to rural and subsistent lifestyles (Pickford, 2005). The country has a developing western-styled education system that has been engaged in significant reform sponsored by international aid donors and various development agencies.
With respect to the transnational movement of education, Lingard et al (2003) have observed:

> It needs to be noticed that in the globalized present, local and national educational policy fields are affected and inflected by global developments and flows. This has seen an apparent policy convergence in education around the world, where policy borrowing is not unusual. We may go so far as to talk about global policy fields in education, where institutions such as the OECD, UNESCO, the European Union, the World Bank and the International Monetary Fund, and others, have increasing local effects within national education systems and schools - for good or ill. (p.68)

Transnational flows of technical knowledge and information are not new but are expanding at unprecedented levels. In addition to the spread of technological knowledge there has been a focus on establishing social and economic environments to enhance national productivity through universal basic education and gender equity initiatives. These in themselves have increased girls and boys participation in education, feeding back into local community and family life. While they have provided opportunities for innovative adaptation of new knowledge in 'traditional' settings it is not uncommon in the Pacific and Asia to see dual economies that blend customary and modern living.

Defining Innovation

To innovate, by definition, is to introduce something new; make incremental changes in an established practice; 'to exploit a new idea' (Adams et al, 2006), or the novel use of something for a purpose other than that for which it was intended. A recent

'novel' example I read was of a man who drove his car into a plastic bag during the floods in Bangkok in order to protect it and now many people reportedly have giant plastic bags to use if such an event was to be repeated.

Novelty is a synonym for innovation, one used by the Organisation for Economic Cooperation and Development (OECD) (Cerna, 2014, p.6). On the one hand it means 'new' or 'original' on the other it has come to more commonly mean something 'interesting' but non-essential, and is associated with things that may not last. For example, the world now has an abundance of obsolete technologies. What were a few years ago, new and innovative is now history. In terms of classroom technology, when was the last time you used a video cassette player or a floppy disk? At a personal level, how many mobile phones have you owned since 1983 when they first became commercially available? We are surrounded by old and stranded innovative technologies – while some have advanced, others have become redundant.

While some would separate definitions of reform, change and innovation, they are clearly interrelated. Educational innovation involves change and adjustment. In academic research innovation is sometimes referred to as 'methodological adaptation' or 'development' where current ideas or processes are merely extended or blended, rather than being newly determined (cf Pickford, 2014; Xenitidou & Gilbert, 2009).

Two areas of reference in discussions of how innovation occurs are, firstly, discussion of technological increments, and secondly, the emergence of innovations resulting from cross-disciplinary thinking. In education innovations emerging from cross-disciplinary influences see developments in one academic field blended with other fields across traditional boundaries. For example, theories from both cognitive and social science regularly inform educational theory; cross-disciplinary fusions in educational research are now common. Like other institutions, University of Wollongong (UOW) has an Innovation Campus that promotes the view that innovative ideas are found *'at the intersection of different approaches to a problem'* as such its focus is on *'connect(ing) different disciplines and encourage(ing) innovation through collaboration and interaction.'* (Price, 2018).There is a clear recognition that innovation draws from the benefits of engaging inter-disciplinary diversity; and expanding upon what is seen as regular and everyday, while continuing to ask questions in anticipation of what the future might bring.

Drivers of Innovation and change

Innovation is a driver of change, and change is a driver of innovation. There is recent interest in the latter through greater recognition that what we do today is informed just as much by what we did yesterday and the anticipations we hold for the future.

The rise of the current emphasis on innovation has its roots in economic discourse – primarily business development and the functions of the market economy. As noted by Adams et al (2006) *'…innovation … is widely seen as the basis for a competitive economy'* (p.21). As advanced economies seek to increase economic productivity, innovation has become the contemporary response to lifting productivity. The rise of

digital technologies, increasing computational power, and information sharing, are ultimately about market access and development.

Economic productivity and education are linked, as education systems, Luke et al argue, are tasked with providing:

> …less risk-averse citizen workers, (who are) creative and entrepreneurial in recognising and generating new markets and services; capable of continual learning, re-learning, unlearning; dispositionally able to deal with community, workplace and institutional cultural diversity and multilingualism; and thereby economically flexible in the face of volatile employment and industrial futures. (Luke et al 2005, p.10)

The drive to innovate is often fuelled by the view that rising generations are not currently well served by schools in terms of workplace preparation or life in general. As the World Economic Form commented in 2016:

> Five years from now, over one-third of skills (35%) that are considered important in today's workforce will have changed. (https://www.weforum.org/agenda/2016/01/the-10-skills-you-need-to-thrive-in-the-fourth-industrial-revolution)

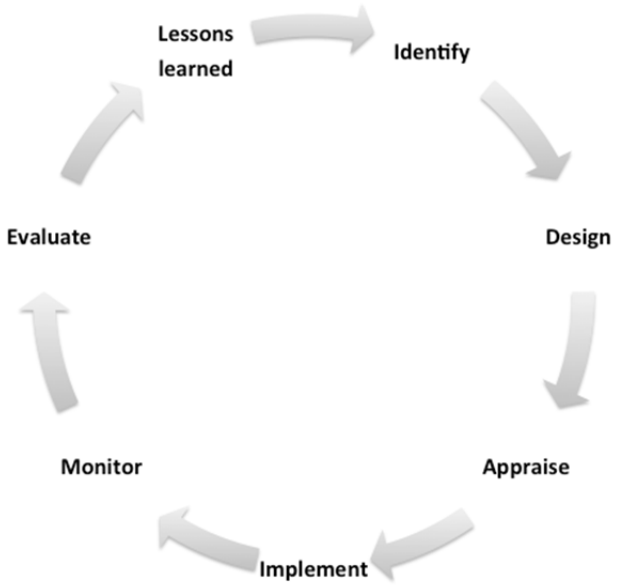
What has become an accepted view of a future skills deficit has driven innovations in course design, content and delivery, teaching methods, classroom infrastructure with an increasing movement towards internet-based education.

Underpinning this trajectory is essentially a western economic view of what counts as human progress and how it might be best achieved. From this perspective, education is viewed as an input into economic and social development; its effectiveness is ultimately measured by testing student performance against the costs of delivery. As more money is invested, more questions are asked regarding the performance returns of that investment. In many respects educational delivery now mirrors corporate processes requiring increased productivity and efficiencies through innovation.

In the 'developing' world, western-styled schooling has been more than just an innovation grafted onto traditional knowledge systems. It has brought entirely new knowledge, new ways of learning and assessing, and new perspectives and thinking, that have materialized as new forms of economic activity, health provision, food security, political governance, mobility, international identity, etc. Yet while the introduction of these developments has resulted in some positive hybrid responses in which local ways have been blended with new ways, some countries are experiencing a state of perpetual transition as they seek to keep pace with global developments, somewhat like the children who in their first year of schooling find themselves academically in the lower half of the class and despite six years of educational effort are unable to progress beyond that position. Innovation may not be the problem here, or the answer.

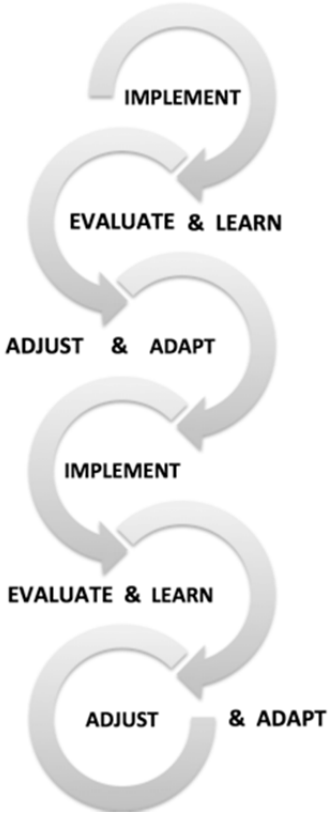
Innovation and Change Management

Within the broader field of change management a common approach is to *identify* desired changes and outcomes, *design* a method of delivery, *appraise* the design, *implement* and *monitor* implementation, *evaluate* the outcome and draw *lessons* from the experience to inform subsequent projects. In this respect the generic cycle of Figure 1 looks as if it might fit all circumstances. **Figure 1: Generic Project Implementation Cycle**



Though this model is presented as a recurring cycle, it is strongly linear and sequential and doesn't reflect the need for evaluations and adjustments to be ongoing as in Figure 2.

Figure 2: Progressive Evaluation & Adjustment



Innovation and change management frameworks are plentiful and provide a variety of approaches aimed at turning 'inputs' into successful 'outputs' (see Adams et al, 2006). Change processes, as defined in Figure 1, are often viewed as the organized management of concurrent events following a sequential path. In reality, however, these paths are often interrupted as a result of seeking to achieve ambitious outcomes in inadequately understood contexts. This is can be the case in education systems where changes in one level of schooling impact on another.

Morgan (2002) observes, in relation to several projects he reviewed, that:

> Many in the development community lost a sense of reality about what was feasible and absorbable. They lost track, too, of what they did and did not understand about the complex systems in which they were intervening. (p.3)

He further reports that of World Bank project outcomes:

> From the late 1980s through 1997, about 30 per cent of Bank-supported projects had "unsatisfactory" development outcomes. Bank exit evaluations also judged close to 66 per cent as not having had "substantial" institutional development impacts. (p.4)

In a setting I am familiar with, the primary school language curriculum was rewritten three times in approximately 9 years by outside experts. Each successive program replaced the previous with no explicit linking. The unintended impact upon teachers, students and administrators was to add instability to teaching and learning. Teachers were perpetually required to be 'resourceful' with no enabling support, which ultimately resulted in reductions in the scope of the curriculum and its outcomes.

Remenyi (1996) has observed that development in education *'has played out as a continuous process of adjustment to constantly changing circumstances'* (p.5). Ongoing adjustments to teaching, curriculum and assessment practices are not limited to developing nations, but occur globally. From the OECD (2016) comes a similar observation twenty years later that:

> Talking to education ministers one quickly gets the impression that education systems in general are very reluctant to innovate, and that there is strong resistance to change among teachers…But talking to teachers gives one the opposite idea – that there are too many changes imposed on them without much consultation or the necessary preconditions for successfully implementing change. (p.12)

Remenyi (1996) has also observed that imposed development at the local level has often been *'characterized by social instability, uncertainty and individual crisis'* (p.5), where authority structures have not been able to generate effective solutions to local problems. Individuals, schools and education institutions vary in their capacity to accept and respond to innovation, such capacities ought to inform the dimensions of a context assessment.

Context-Awareness

Innovations as practices are not context-free and do not occur in a vacuum, though their development history may not always be apparent. Innovations that are sensitive to context facilitate change and improvement. Adaptive innovations are contingent upon context ie they are applied at a point of need in a form which meets that need; they may extend or modify a practice to make it more responsive and effective or to target a particular need. For example, research has indicated that child literacy orientations have their origins in home literacy practices (Heath, 1983/1996). Where home literacy practices resemble school-based practices children show more success with school literacy, where they do not, teachers need to 'innovate' the literacy curriculum to accommodate a different reading culture. In this case 'innovate' refers to differentiating the curriculum to ensure all children are enabled.

When reforms and innovations are introduced in challenging contexts this leads to what Candlin (2000) calls 'contextual instantiations' of innovations where specific situations intersect with introduced changes and stimulate adjustments.

Innovation may play a support role to larger initiatives as when PNG adopted a national policy of providing elementary education in children's mother tongues and was faced with providing literacy materials in approximately 800 languages.

To support this initiative 'shell books' were developed to enable print versions of local language stories in which the text of a story could be progressively inserted by teachers beneath a sequence of pictures or in speech bubbles in the community language. The text could be scaled by difficulty and register according to the reading level of the children. In these circumstances necessity became the mother of innovation.

Context-sensitivity is a critical condition to support change, but not determine it. Even when levels of context-sensitivity are achieved they ought not be a means of imposing a singular orientation to achieving development. Contexts are complex and constantly changing, a multidimensional view of contexts increases the likelihood that areas of focus will be comprehensive and not unduly restricted. In education, this holistic view of context acknowledges a wider educational environment inclusive of teachers, students, administrators, and also families, communities and the settings in which they live.

Ideological and Valuing Impacts

As with all educational discourse, the language of innovation carries ideological assumptions and values. Change, however, can create dichotomies as 'new' is contrasted with what is 'existing'. Advocates of innovative pedagogies and transformative classrooms have often underpinned their advocacy with criticisms of prevailing modes of teaching and learning, for example, lecture-styled instruction verses discovery methods; closed classrooms vs open and flexible learning spaces. In each of these pairs, the former is assigned a 'static' status, and the latter a dynamic status (cf Scott, 2015). Dichotomized thinking, like this, may reject what is good and useful in the present and too readily accept what is offered as new. Innovation, as 'a new-idea' potentially seeks ideological superiority at the expense of known practice. What is argued for here is a critical

perspective that questions binaries like 'teacher-centred vs learner-centred'; 'dependent vs independent learning'; etc. and a recognition that it is specific educational purposes that drive practices, not the uncritical adoption of circulating terms and trends.

In a study of pre-service teacher discourse and perceptions PNG students ranked common expressions used in their schooling and education. Table 1 sets out a hierarchy of most and least important terms that informed their everyday views**.**

Most important	**Least important**
modern	traditional
school	home/community/village
practical	theoretical/mental
new world	customary
technological/scientific	religious
scientific	cultural
Christian	traditional
skills	interpretation/understanding
brain	mouth
English	tok ples/Pidgin/Motu
researching	imitating
inventing	**copying**
experimenting	observing
career	everyday life
educators/expatriates	natives

Table 1. (Pickford 2002, p.16)

These pairings reflect the impact of considerable social and cultural change brought by new technological, social, educational and religious influences.
The 'inventing/copying' pairing, for example, reflects an arguably distorted view of modern societies and cultures as creative and achieving and traditional societies and cultures as imitating and unoriginal. Reforms and innovations bring not only material changes, but also changes in social, cultural and personal valuing.
So what are some of the conditions that might be created to ameliorate the impact of innovations and reforms?

Dialogical Orientation

Ideas are the life-blood of educational innovation and their generation and development is supported through different forms of dialogue.
Drawing from the work of Bahktin (1981) and Holquist (2002), the perspective presented here proposes a dialogic approach to enacting reform and innovation. Rather than closing off change, as implied in a 'monologic' orientation that seeks to resolve and finalize all problems, a dialogic approach acknowledges that change is in constant negotiation with its environment and with itself; that its work is ongoing, continuous and unfinished; and

that change is always participatory, influenced by more than one voice, as it were. Hence, in education, the implementation of reform, innovation and change is envisaged as an interactive, dialogic, ongoing social enterprise.

A dialogic approach is defined by Holquist (2002) as unending dialogue emerging in *'the relation between two bodies occupying simultaneous but different space'* (p.19) where 'bodies' represent physical entities, ideas, cultural norms, social practices, professional disciplines, political ideologies, each experiencing the world and perceiving it from particular positions. Language is the essential mediator of this dialogue; the mediator of new knowledge occurring in specific discourse contexts. As Halliday asserts *'language is the essential condition of knowing, the process by which experience becomes knowledge'* (in Wells 2003, p.106). It is the place where what is spoken and known is opened up for expansion, questioning, rejection, acceptance and reciprocal responses.

With respect to innovation, a dialogic perspective argues that innovative ideas, acts and outcomes be relationally developed '… *at the intersection of different approaches to a problem'* (Price, 2018).

Active and open dialogue is key to generating the insights and energies to overcome problems and improve. Explicit in many approaches to problem solving is the controlled definition of a problem. It is believed that a problem can be defined and ultimately solved much as we might do in simple mathematics. In some technical fields of study this may work quite well. To control a problem's definition too tightly is to step around what are often the very features needed to stimulate critical inquiry and innovation: such features as resistant knowledge, contradictory opinions, fragmented and disordered thinking, insider questioning and emergent understandings. Historical shifts in art, music, literature, medicine and science, for example, have been the product of questioning and resistance to the status quo, confronting accepted ways of doing things with a view to improvement.

Instead of thinking of innovations as solutions built on a hoped for future outcomes we should think of them as experiments that are dialogically shaped and reshaped over time. All 'solutions' are likely to generate new problems and ambiguities. Coping with this requires a range of possible dialogic approaches derived in the circumstances of the innovation or change.

While we seek the spread of innovation benefits, the issue of the generalizability of innovation is an important one. Generalizability here refers to applying a specific set of conditions or 'solutions' to a general population to achieve a predicted outcome. While there may be some merit in the generalizability of *technical* outcomes, there are debates in the literature about its appropriateness to the task of achieving *social* outcomes (MacIntyre in Thomas 2007, p.57-60). Thomas (2007) argues for a 'pure contingency' approach claiming a *'galaxy of minor and major things of everyday life that cannot be factored into any social situation'* (p.59): hence his view that the social world is shot through with unpredictability. If we accept this argument, even in a weak form, we must

be careful accepting claims about the precise outcomes of different innovations in educational settings where social interaction plays such a critical role. For example, McCance (2015) and Mealings (2017) provide critiques of recent innovative classroom learning environments based on open plan designs. In addition to reporting learning difficulties experienced by students in mainstream classes, they report aural difficulties of students with foreign language backgrounds, and of Autistic students with visual and auditory challenges.

In a more recent study, Byers and Lippman (2018) build upon a comprehensive review that found, in terms of achieving specified learning outcomes, that quality of teaching and learner participation outweighed room design or use of innovative furniture (Blackmore et al, 2011). They state that there was *'… little evidence to support the idea that making physical changes to classrooms boosts learning outcomes'* (p.1).

Contingency, therefore, argues for an interventionist role for teachers and educators to define innovations in terms of their circumstances, relevance, and benefit to learning, for particular groups of learners.

The aim to achieve stability in the midst of innovative change is enhanced by forms of dialogue in which revisions, adjustments and adaptations are a common expectation and undertaking. Such dialogue underpins the view that outcomes are never final ends, but ongoing working hypotheses. A dialogic view acknowledges that interactions between an existing state of affairs, and the new, are 'responsive and contestable' and recognizes a level of distributed authority across participants, rather than a single authoritative voice. Such a perspective sits in tension with rigid management structures that exist on the basis of levels of authority, whether they are present in traditional or modern worlds. Morgan (2002) notes how politicized organizational environments hinder the transfer and absorption of capacity and technical contributions and argues for flexibility of leadership.

Additionally, as Cerna (2014) observes:

> Many innovations are happening at the frontline of the system, in schools and classrooms, with pioneering teachers and inventive school leaders creating innovative learning environments. In some cases, education policies help create favourable conditions for innovation and improvement, but also many examples can be found where policies have engendered conformity to top-down regulation and compliance to the status-quo, rather than create spaces to experiment and instil the trust and courage needed to think outside the box. (p.4)

Authorship: Educators as innovators and mediators

In order to invest education reform and innovation with the power to generate benefits, all participants must be authors and creators of innovation in their settings and situations. Authors have authority, a sense of expertness needed to shape practices and contexts in ways responsive to the classroom and institutional ecologies they work in. They are able to generate productive connections and networks. Morgan's (2002) review of cases of technical interventions in international development reveals a useful feature that can be applied to teachers and teaching:

> Each of these cases … developed, a conscious "theory of action" … Most … began with some basic ideas and then slowly experimented and expanded their scope as their confidence and access to resources grew. (p.13)

He refers to local "reprocessing" ability where ongoing judgments are made to sort or customize new knowledge. His experience was that:

> (m)ost technical advice, especially across cultures, simply (did) not fit into the new context: It (was) not focused on the right stuff. It (was) too advanced. (p.13)

In any professional development interaction there is a risk of 'semantic reduction' where information transmitted by an expert is reduced in meaning by participants. Morgan reports how local recipients of interventions and development assistance developed a sense of what *they* needed to know to fit *their* context.

> In practice, they turned themselves into "learning engines" … they developed … a feedback loop – that helped to redirect the flow of expertise back to the project. (p.13)

Authoring innovations may require the reconstruction of perceptions – to see things differently. Personal reflection and thought alone, may not be enough, other perspectives need to be engaged, to probe orthodoxy, expand understandings, extend thinking. An authored innovation may be as much as a change in the way something is said and done. For example:

- Rather than responding directly to a student's answer, a teacher may reflect it to the class to expand classroom interaction, and in so doing, hand the floor to students to be conversation initiators, increasing opportunities for student authoring of learning; or
- Students may be provided with pre-recorded lectures as preparation for spending class time discussing concepts, cases and issues that arise in the material; or
- Instead of asking students to record what they know, ask them to write down what they are having trouble with, things that are not clear, and then respond to these.

In this respect, it is teachers who are authoring innovation and providing opportunities for student authoring of learning. As innovators, teachers demonstrate creativity, agility and flexibility not just in lesson design, but also in their professional discourse.

But these qualities are not the product of a single moment. Good teachers build on experience and are forward looking, anticipate classroom responses and developments, and visualize the successful state of their students in and beyond schooling. They monitor student responses and the impact of their teaching over time and make adjustments accordingly. A teachers' critical perspective seeks to understand the consequences of innovations and their 'arguments' while conceptualising improvements (Gillespie & Cornish, 2014). To apply Agar (2012) we can refer to this as 'conceptual innovation', the

means by which teachers conceptualise or rethink old and new knowledge to reach new or improved outcomes.

Professional development is a consequence of learning both within the communities in which one is located, and in interaction with different communities. A major determining factor by which professional development is shaped is the influence of socio-professional discourse with other professionals.

In this we can follow a version of Vygotskyian theory that ways of thinking first appear on the 'inter-psychological plane' or in interaction with knowing others, before appearing on the 'intra-psychological plane' or as personal thoughts (Holquist, 2002, pp.77-78). The development of inner thought, ideas, convictions and motivations about change initially begins as external socio-professional experiences interacting with the consciousness of individuals. On the surface, this appears to be stating the obvious, yet professional understanding needs to reach a point of significance in an individual or group in order to shift perceptions and practices. It is argued here that it is best reached through multiple engagements and an accumulation of thought that reaches a point of *spoken or represented expression*, in the process of collectively exploring the demands of daily, professional work.

Fullan (2008) argues that teachers alone can't bear full responsibility for the implementation of change or its outcomes; hence the need for partnerships in practice. Morgan (2002) from a development perspective reports the need for a community of committed people *'who care(d) profoundly in both professional and personal terms about the fate of the intervention'* (p.14). To this we can add the make-up of that community where diverse backgrounds, skills and experience provide for diverse responses to issues prompting innovative thinking and action.

Professional communities and relational authority

Professional communities that share common commitments to improvement share values that drive a relational model of action. The relational dimension develops around different kinds of events and dialogue as in Table 2:

Domains	**Indicative Dialogue**
Problem solving	"Can we work on the issue and brainstorm some ideas; I'm stuck."
Requesting information	"Where can I find the reference to the new curriculum?"
Seeking experience	"Has anyone dealt with a student in this situation?"
Reusing assets	"I have a presentation I prepared last year that you can adjust and use for your purpose."
Coordinating	"Can we combine our meetings to cover the new material?"
Discussing developments	"What do you think of the new Smart boards? Are they really better?"
Documenting challenges	"We have faced this issue many times. Let's record our responses."
Visiting	"Can we come and see your sports program? We need to establish one at our school."
Mapping	"Who knows how to support special needs children? What do we need,

knowledge gaps and who should we talk to about it?"

Table 2: Adapted from Wenger (2006, pp.2,3)

Relational authority locates authority in the dynamics of collaborative activity and a commitment to ongoing experimentation and continuous improvement (cf Butler, 2014). Where ways of thinking and doing are shared and negotiated, participants build common perspectives, ownership and improved practice as in the following case of participatory action research.

Case 1

In second language learning theory the concept of 'authenticity' is applied to the learning of everyday authentic language as opposed to only focusing on language forms. In a recent UOW doctoral study this was a focus of practical concern for teachers seeking to improve language learning.

Three teachers and a doctoral student explored the notion of 'authenticity' with respect to second language teaching in elementary classes in Vietnam by introducing moments of authentic conversation in English at different points of a lesson. They adopted an incremental approach, progressively experimenting with different strategies. In addition to learning how children adopted and adapted these communications, a critical perspective developed as teachers observed ways of speaking where the use of the second language was shaped by first language practices, changing for them what counted as 'authentic language'.

Their new educational expertise was built up through 'trialling', observing and post-lesson evaluation. Trialling innovative ideas allowed them to be better adapted to their settings. They had a philosophy of building on what they already knew, not throwing anything out, and conducting ongoing evaluation. As such they added to their pool of knowledge, altered children's learning pathways, and created a small professional learning community.

Beyond such practitioner-led change broader scaled initiatives, external to teachers' direct control, require different kinds of evaluation.

Evaluating larger-scale reform, innovation and change

> At the level of institutional change, Hall (2013) observes:
>
> In far too many cases the initiatives to change schools by introducing new programs, processes and reforms has not resulted in obtainment of the desired outcomes. (p.264)

Hall's main argument is that there has been too little focus on measurement and understanding change processes and implementation efforts, largely because the more complex an intervention or innovation is, the more difficult to assess its outcomes. He observes that the most common finding when evaluating the difference between old and new ways of doing things has been 'no significant difference'. (ibid)

Hall's approach to evaluation is underpinned by four assumptions:

- that change, regardless of scale, 'is a process, not an event';
- that introducing a new approach does not guarantee its use;
- that '… change is a personal experience. People have different feelings and perceptions as a change process unfolds…(and) the journey differs for each person involved';
- that innovation is often '…adapted to meet the needs and contingencies of the implementation context.' (pp.265-266).

These assumptions are represented as scales of:

- Personal concerns at different stages of an innovation;
- The extent to which an innovation is implemented and used;
- The degree to which an implemented innovation is faithful to its intended form ie fidelity.

This approach highlights two issues: whether experienced teachers and novice teachers manage change processes differently; and the different nature of participant concerns at particular stages of the implementation of an innovation.
Hall found concerns about change were characteristically highest when participants were first introduced to innovations, as illustrated in his Stages of Concern scale (2013, p.268):

Self
0. Unconcerned - *I'm concerned with … (something else)*
1. Informational - *I would like to know more about*
2. Personal - *I'm not sure if I can do this*
Task
3. Management - *It's taking all my time to work this out*
Impact
4. Consequence - *My students are/are not benefiting from this*
5. Collaboration - *We should work together on this*
6. Refocusing - *There may be others ways to do this*

Those interested in metric driven evaluation methods of change may find this work and its applications useful, particularly in terms of its reported applications in a variety of educational settings.

There are now multiple approaches to evaluation and tools designed to capture impacts of change. Two with a more qualitative orientation are Most Significant Change (MSC) (Dart & Davies, 2003) and Performance Story Reporting (PSR) (Vanclay, 2015). Both are interactive assessment strategies that draw on participant accounts to identify 'what works best' in a program or innovation. These approaches are used in situations where complex and varied social outcomes are anticipated**.**

Participant stories are collected through semi-structured 'social-inquiry' interviews starting with a key evaluation question, for example: *"In the last 3 months what do you think is the most significant change that has taken place with the introduction of … ?"*

Responses are collected and thematically organised and analysed providing accounts of both successful and unexpected outcomes. The analysis also notes instances when an innovation hesitates or is altered, and notes contingent behaviours and responses. (Dart & Davies, 2003; 2005)

Such approaches to evaluation have the potential to enhance the implementation logic of innovation by adding narrative dimensions to consideration of outcomes as illustrated in Figure 3 below.

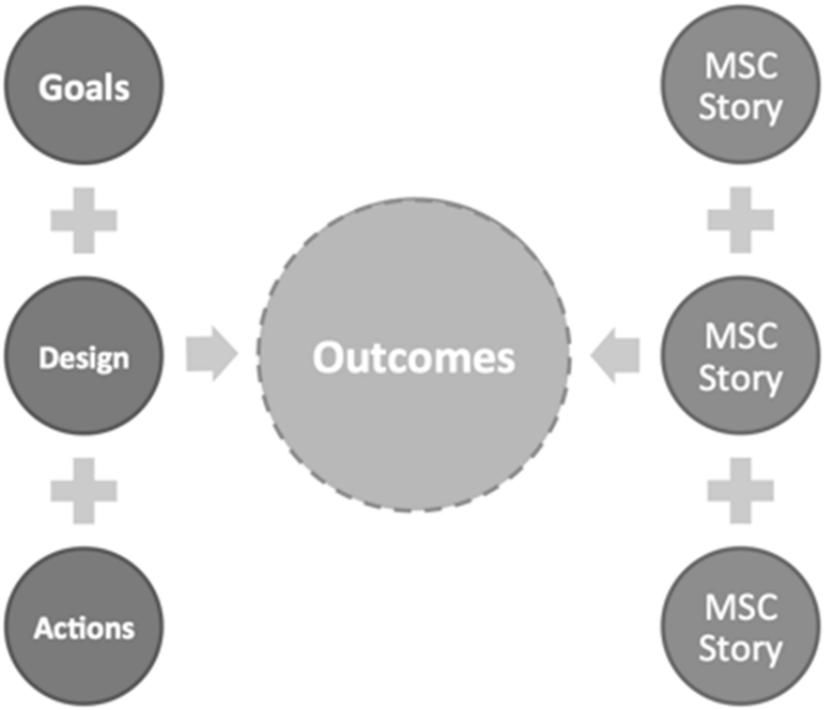


Figure 3: Increasing the narrative dimensions of innovation implementation

The claim of these approaches is that participant stories can provide details of attitudes, values and consequences *based on concrete outcomes rather than abstract indicators'*; that they can *'infiltrate the collective memory of an organization, helping staff to gain and retain a more deeply shared understanding of what is being achieved'*. (Dart & Davies 2003, pp.140-141)

Innovative extension and generative initiatives

Most innovations linked to education might best be viewed as extensions to current practices: such as altering the age mix of learner groups; or multidisciplinary teaching; or teacher and learner joint-constructed curricula.

Rather than an innovation or reform producing a singular one-off outcome, it can become the stimulus for further change enabling second-generation developments to emerge.

As consultants in teacher education my PNG counterpart and I discussed the concept of genre, as a way of strengthening a tertiary language curriculum and scaling its use in school language programs. It is a technical term describing forms of language use in different social situations. The concept was applied generatively by colleagues in their descriptions of local language registers as 'vernacular genres' and led to a greater focus on the diverse registers of local languages. The construct, 'vernacular genre' became a new way of thinking, a new metaphor for guiding thought and activity in local language teacher education.

Generation and extension of conceptual metaphors provides for the development of new perspectives and areas of study and learning, and often develops in cross-cultural educational settings where more than one language is used.

Innovations arising in situated practice

Case 2: Adjusting Demonstration Lesson Focuses

In PNG teacher education, classroom-based demonstration lessons initially only focused on display of teaching skills, with a focus upon teachers' performances and little consideration of what children were doing in response. The nature of 'demonstration' was that a lesson must be seen to be a success and reproducible by student teachers. To ensure this, demonstrations were carefully choreographed and timed lessons with particular responsive children chosen to answer questions. At the end of demonstrations with the class dismissed, there was an opportunity for students to ask questions. Questions were often display from lecturers and only rarely asked by students.

On one occasion, near the end of the lesson when children were still writing and the teacher supervising, it was decided to look at what children were doing in response to the teaching. While doing so several student teachers took up positions around children's tables observing what they were writing.

The teacher taking the lesson allowed that space. When asked about this by a visiting school inspector I told him we were not only concerned with the teacher's skills, but also with what sense the children were making of the lesson. At the end of the session students talked about things they had seen and the teacher provided history and insight into the way children worked.

This session became the basis for adjusting the college school experience program. Instead of demonstration lessons, students went to 'normal' classrooms and observed 'normal' teachers and children in their everyday lessons, and afterwards worked with small groups of children on projects.

In putting up and implementing these changes support was forthcoming from the college departments and the administration, as well as the schools asked to participate.

Case 3: The Shared Curriculum

The six-year Papua New Guinea-Australia Primary and Secondary Teacher Education Project (PASTEP) provided support to secondary and primary teacher education institutions in PNG. Five of the seven institutions were private agency administered and two were government run. All operated under the policy of a unified teacher education system.

A key objective was the design, implementation and evaluation of a revised primary teacher education curriculum. The challenge was to align curriculum revisions with common curriculum outcomes while accommodating the specific interests and expertise of all stakeholders. Initially there was strong resistance from institutions driven by concerns about institutional autonomy and curriculum ownership. Out of disagreement emerged an innovative agreement, accepted by all stakeholders, as the shared curriculum model. The model was based on a vision of mutual benefit allowing for a common discipline-based curriculum with specific inclusions reflecting the academic and educational interests of each institution/agency.

Implementation of the curriculum included trialling in teacher education programs that generated student-teacher contributions that were integrated into course content, in addition to innovative initiatives in bilingual education and multi-grade teaching generating curriculum input and involvement from local schools.

The development of a shared integrated curriculum became a dynamic and creative venture that was propelled forward, not by technology, but by 'creative' thinking, and agreement on a participatory mode of development that acknowledged the value of professional partnerships at different levels. Notwithstanding the agreement, the process was characterised by ongoing robust negotiations.

A generative outcome of this process was cross-institutional strengthening through ongoing professional dialogue and increased capacity for institutional curriculum development and innovation.

These cases are examples of innovative practice-led interventions that were aimed at more than just the immediate innovation, but long-term impact across multiple stakeholders.

Technological mediation and digital distraction

Much current innovation in education is technology led. We live in a time of seeming unlimited technological development. Yet technologies are not value-neutral though they are often represented as just tools. In essence they are mediating tools and it is those mediations that need to be critically explored. Wholesale embracing of some digital technologies, for example, can bring unanticipated social consequences as many schools in Australia have learned. Schools in Australia that have banned the use of mobile phones, for example, have suddenly found that playgrounds have become noisier at break times – what is going on here?

Recent research among university students shows an alarming level of addiction to smartphones, resulting in *'a positive relationship between smartphone addiction and*

stress' and a '*negative relationship between smartphone addiction and academic performance'* (Samaha & Hawi 2016, p.324)

Arguments over innovation relevance and appropriateness need to be made at all levels.

In a review of research studying use of laptops, tablets, smartphones in primary and high schools Sung et al (2016), found that,

- While mobile devices increased student capacity for independent study they also excluded group or team collaboration;
- Teachers' main use of mobile devices was for student motivation, with a secondary use being content delivery;
- Groups using mobile devices increased their social cohesion, but no improvement in learning outcomes was apparent when compared with groups not using mobile devices.

The key recommendation from the study was for '*more elaborate instructional design developments … to more thoroughly exploit the educational benefits possible by utilizing mobile devices.'* (p.265). The review indicated that while new mobile technologies may be used in innovative ways to modify student behaviour, they are yet to be linked to significant improvements in student learning when compared with non-use of devices.

Recently the Australian media (ABC, 2018) reported that some people are losing 'cognitive fitness', with their capacity for deep work and learning interrupted by technological addictions. They reported that 38% of students could only work for 10 minutes before becoming distracted and losing focus (Journal of Computer Behavior, 2016). Some students were being conditioned to work in short attention spans and as a result were not able to sustain a focus; more successful students reported being able to disengage from social media when studying. The argument is further made in a recent study of workplace distraction:

> Companies regularly roll out new technologies and tools intended to help people do their jobs more efficiently, collaborate more directly, and boost productivity. But they've also spawned new sources of digital distraction. (https://research.udemy.com/research_report/udemy-depth-2018-workplace-distraction-report/)

There is arguably a link being made between the prevalence of innovative technologies and the incidence of addiction and distraction that needs careful attention in the context of their use in education settings.

Conclusions

We have arrived back at the question of what it means educationally to live in a time of innovation.

- Is 'change' the new 'normal', ironically, a new constant?
- Is innovation an answer or a distraction?
- Where is the inspirational advance in education going to come from?

It is suggested here that the inspirational advance is going to come from inspirational teachers – the ones with a teaching style that enhances the ordinary; who consistently draw inspiration from their work and bring students along with a vision; who ground theory and practice in experiential and case-based data; and who develop productive partnerships both within and beyond their institutions. While technology may enable innovation, it is not the power of innovation. Imagination, intuition and inspiration are fuel for innovation, and dialogue in the form of professional conversations and ongoing questioning is often the stimulus for these processes to be activated.

Education is a long term, and in some cases life-long, undertaking, change is expected, but not in the form of short-term 'novelty' adjustments. A deeper and more consistent approach to innovative change ought to be informed by the principle of ethical adaptations of innovations. In international development, we find increasing evidence of local adaptation contributing to a productive diversity, not a mechanical conformity to imposed changes (UNDP 2017).

Innovations and reforms involve professional responses that cut across issues of valuing. What we value educationally, socially and culturally is implied in our adoption of innovation. What is referred to as 'innovative education' is an oversimplification if it is represented as something acting independently of the capabilities of teachers, learners and administrators. It is not enough for innovations to be valued or to be seen as value-adding to education, those involved in their application must be recognized as 'authors' and mediators of that value-adding; as educators through whom an innovation comes into existence, in a form contingently shaped for the greatest possible *educational* benefit.

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