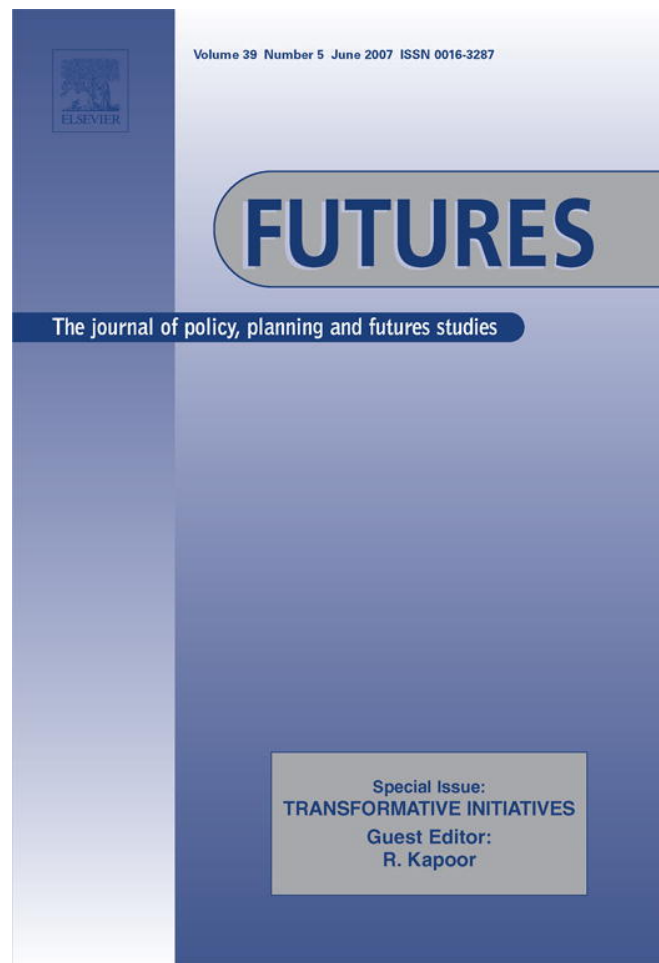


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How futuring bush mechanics seek to transform the world

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Abstract

In today's complex and turbulent world it is vital to have futurists who can collaborate on collective projects, focus on action codified in exemplar projects and validate actions towards a better world. Unfortunately, current 'education' systems focus almost exclusively on the individual learner and have separated the learner from the praxis of the lived life. Furthermore, classrooms separate the learner from design, production and integration of learning into community life. The author argues that overcoming this separation of thinking and doing is one of the key challenges for modernity in future, in particular.

This paper argues that a way in which we may be able to meet this challenge is known by the term 'bush mechanics' in Australia—innovative individuals who look forward wisely and solve collective problems today through applying their ingenuity with what is available, thus integrating thinking, doing and being in what in ancient times was called poiesis and in Medieval times 'artificing' and today can be seen in action learning and the bush mechanic. The four principles, as well as examples, of the bush mechanic approach are discussed including their exemplar projects. Finally, the importance of the bush mechanic approach to 'futuring' and creating living breathing examples today of a future our children can live with is emphasised and collaboration sought.

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1. Introduction

In today's complex, turbulent and often incoherent world it is vital to have futurists who can collaborate on collective projects, focus on action codified in exemplar projects and

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validate actions towards a better world; and actionists who can think of the longer term and the big picture in which we, and our actions, are located (or situated). Unfortunately, current ‘education’ systems have separated the learner from the praxis of the lived life; and classrooms separate the learner from design and production of artifacts for our lives, and more generally intergenerational community life.

In Australia there is a term for someone who can act forward wisely and solve problems with what is available while developing innovations ‘in the field’ so to speak that respond to broader needs—this person is called a ‘bush mechanic’. NB: A bush mechanic is committed to the use of personal ingenuity for self-reliance and excellence at her task of developing innovative exemplar projects² and is not to be confused with a ‘backyard mechanic’ who does shoddy work.

The bush mechanic is deeply ingrained into the Australian national psyche indeed the runner up for the national anthem—Waltzing Matilda—is about a bushie who steals a sheep for food and ultimately takes his own life rather than be caught by the law. Conventionally, a bushie is someone who can fix a practical problem with ‘fencing wire’ and do a great job to boot and the Australian Broadcasting Commission’s bush mechanic series (see web site section in resources) literally shows just that particularly in indigenous communities.

2. The mismatch between conception and action

In order to understand the bush mechanic approach, we need to embrace the vital role of praxis in the design process viz. idea | design | implementation (I|D|I) (action). I have found that, in social innovations in the ‘real’ world, up to nine tenths of project energy is absorbed in implementation and compliance rather than (re)conceptualising an idea or active experimentation towards improving the application of the concept. This compares, for instance, with up to nine tenths of the energy expended in the conventional academic process in conceptualisation. And regrettably in vocational education today, which is assessed by correct behaviour not understanding, up to nine tenths of energy is directed to action, not as praxis or poiesis, but in behaviour, not to understanding as in conceptualisation let alone active experimentation. Additionally, the actions of those concerned with implementation tend to be

²Two examples:

- (1) Mark Thomson in his Australian books on rare trades and the importance of sheds in the innovation process illustrates key attributes of the bush mechanic [see references section].
- (2) Oshkosh air show for home builders in the US the large aircraft manufactures are all present, not only on stands, but rather snooping around seeing the latest bush mechanic type innovations that they can use for their larger commercial aircraft, as developed by the various DIY/own builders with their exemplar project/prototype type aircraft developed from ‘the ground up’ i.e. an example of applied grounded theory, on display. NASA has even been reported to visit. To this end the industry regulator (the FAA—Federal Aviation Authority] for this category of aircraft developer is seen more an industry facilitator having just implemented, following substantial consultation, a special ‘sports aircraft’ category for the robust sector [http://en.wikipedia.org/wiki/Oshkosh_Airshow]. It is the contention of this article that social/governmental innovation needs to take account of this sort of diverse ecology of DIY self innovation zones that generate exemplar projects through the operations of such Bush Mechanics. This is in contradistinction with for instance Australia where punitive regulation dominates in the aircraft, marine, automotive and many social arenas, and innovation is seen as unnecessary or grudgingly coming from the centre not the bushy at the margins so to speak.

limited in scope to operations only and bigger conceptual issues are seldom engaged.

This fundamental structural mismatch in education (action-less conception and concept-less action) has emerged over the past 200 years and been identified and explored previously by many educational innovators, yet possibly has not been adequately applied to futures/foresight. This article maintains this as one of the fundamental critiques of the positivist and post-positivist paradigms by action learning/action research circles, and one of its key areas in urgent need of redemptive innovation.

2.1. *Emergence of the division between thinking and doing*

Boyte after Arendt, explains that it was Plato who introduced ‘*the division between those who know and do not act and those who act and do not know*’ [1,2]. The Judeo-Christian belief of original sin—where the manifest world, and potentially our actions therein, are seen as tainted compared to seeking the divine in the life of the ascetic including renunciation of the senses, or at least suspicion of the joy found in manual dexterity and its fruits to some extent maintained, extended and deepened this Platonic division.

Newton’s view extended this Platonic perspective in that for him ‘the universe was a mechanical one whose order was maintained by a distant God’, and the best man could hope for was to understand the mechanics of it all—not the underlying rationale. Newton, in fact, wrote more on alchemy, at essence concerned with ultimate causes and transformations, than mathematics: he saw the universe tinctured and enlivened by emotion and love. These works however, remained unpublished [3,4]. After the tradition shaped by Plato and enhanced by Newton, in the West, we have doggedly followed a staunchly mechanist view, that culminates in the structural separation of thinking and doing in our schools, universities, bureaucracies and scientific research laboratories.

2.2. *Society as cephalocentric—accessing the overlooked mimetic epistemology of dexterity*

What this means for today’s humans—some 200,000 years after the transition from *Homo erectus* to *Homo sapiens*—is that our learning abilities and creativity are still very deeply connected to our manual capacities. The two are linked by dexterity.³ Cultures such as ours dichotomize ‘mind’ and ‘body’ and hold to what Wilson calls a ‘cephalocentric view of intelligence,’ whereby the importance of the hand–brain nexus is bypassed and the role of dexterity is largely ignored [5]. As a result, we overvalue symbolic knowledge (the ability to manipulate words and numbers to describe or represent meaning in abstract theoretical linguistic symbols) while undervaluing ‘bodily knowledge’ or ‘hand knowledge’ (or what Wilson calls mimetic knowledge i.e., knowledge which uses conceptual–manual dexterity to directly transform physical reality i.e., the world around us and vice versa [5, p. 48]).

He severely differentiates such mimetic knowledge from imitation because mimesis includes more than just copying and includes elements of intentionality and understanding

³Dexterity/Adroitness

- Skill and grace in physical movement, especially in the use of the hands; adroitness.
- Mental skill or adroitness; cleverness in and through practical learning.
- Aptness of design.

and capability generally manifested through dexterity i.e. learning or as I call it here ‘futuring’. For example, in car manufacturing in the 1950s and 1960s many accused Japan of just copying the design of western vehicles and selling them back to the West at a much cheaper price; however, in the subsequent 25 years it has become clear that the situation was one of mimesis not simple copying as the Japanese mastered the deeper conceptual and design arts and now have generated for instance, in Toyota one of the most innovative and largest vehicle manufacturers on earth, and many of the companies producing the vehicles originally ‘copied’ e.g. Leyland are not in business.

Mimetics then are acts that embody a theory of knowledge, an epistemology, that manifests in intentional, representational and concrete acts (e.g. making a stone axe 1,000,000 years ago or an exemplar project today as discussed in this article) that are not mythic (symbolic narrative) or theoretic (abstract calculus) but mimetic. Thus they are not just copying as in monkey what monkey sees he does, but replicating with understanding including intentionality leading to the capability to manipulate the elements of our physical environment to create meaningful actions and objects in our lives. For Wilson this mimesis involves the invention of intentional socially encoded representations and their articulation into communal reality [5, p. 49].

In schools, Wilson writes, children ‘who are most successful, even virtuosos, at using their hands to conceive, understand, build and fix complicated things in the everyday world around them’ are often the same children doing very poorly on mathematically-related intelligence tests. Furthermore, one can see this respect for the mimetic epistemology behind the theories of education of Dewey [6], Kolb [7], Sarkar (see [8,9]) and Steiner [10] and others and also in much of the intent of the vocational education systems. According to Wilson then such systems are not as they are seen nowadays as secondary for students who can’t ‘cut it’ in academia, they are actually discrete and equal to the symbolic systems now so dominant in our educational arena.

Wilson’s book can be rough going at times, but I highly recommend it to those of us who feel that our hands are quite literally the smartest things we own, further he maintains that the hand speaks to the brain just as surely as the brain speaks to the hand. This can be seen in any discussion where people who have to put their hands behind their back simply cannot communicate properly. From perspective gesticulation of Wilson is a part of the mimetic episteme based on dexterity. Certainly smarter than the conventional Western brain that chooses to risk either ignoring or overworking dexterity to the point of repetitive strain injury (RSI), seldom choosing to dance with or respect it.

The results of this split are readily seen to day in terms of the specialisation of skills, separation of academia from actual social change projects, separation of producing from consuming e.g. we are moving rapidly away from being ‘prosumers’—having our own gardens, making our own clothes and the pejorative position that vocational education takes in relation to higher education, and so forth. Arendt claims this is the challenge for modernity: to re-braid thinking and doing, in sort facilitating the re-emergence of mimesis.⁴

⁴In our business in early childhood development we seek, for instance, to express in some small way this mimesis through play (games, building blocks, discovery play and so forth), with learning stories built around play as part of the lived life of the child as opposed to curriculum centred approach. See <http://www.kal.net.au>. Optimally such mimesis needs to be cross-generational thus the company name, kids (play) and adults learning (exemplar project). This is proving to be hard goal to reach in today’s age cohort lock step pedagogy, which separates distinctly from any links with andragogy. [On this see, for instance, http://www.trainer.org.uk/members/theory/process/pedagogy_andragogy.htm and Conner, M. L. “Andragogy and Pedagogy.” *Ageless Learner*, 1997–2004. <http://agelesslearner.com/intros/andragogy.html>]

3. From action learning to bush mechanic learning

Bush mechanics then may be seen as a type of action learning that:

- Focuses on the learner, not only the thinking (academic education) but also action (although much action is seen as ‘behaviourist’ vocational education), such that it...
- Draws from experience, yet is proactive and intentional, towards a better world and...
- Embraces the overall design process covering I|D|I: including intelligent understanding of the basic concept; prototype design; establishment and critical reflection on subsequent outcomes by...
- Embodying the agency of the learner; not only in seeking to address structural issues/projects but is also...
- Directed to the good of the person and the good of society (integrity and ethics) i.e. virtuous action towards the good (of) society by...
- Linking action directly to the priorities from the ‘global problematique’ and is concretised in an exemplar project or master piece, that...
- Moves from praxis to poiesis i.e. from doing to making and shaping, i.e. action as prototype development, for the general good through a focus on critically informed instrumental action.

Bush mechanic learning or artificer learning then is a form of action learning focused on the learner—who learns by making or shaping an action decided on collectivity and intended for some particular application towards a better world. Such learning is always threefold—internal to the learner (integrity, values, etc.), external to the learner (ethics and how the world works), and bridging between the two (dexterity delivered content).

In action learning theory we start with the formula for:

Learning

- learning = programed knowledge + questioning i.e. $L = P + Q$, and

Action Learning extends this to include action (A) related to the learning i.e.

- $AL = P + Q + A$.

Artificer learning then aims to add three key components.

- (1) ‘R’ for critical reflexiveness is added to programed knowledge, which now becomes praxis as in reflective praxis (RP),
- (2) ‘T’ for intent is added to Q, and
- (3) ‘EP’ (exemplar project or master piece) codifies A.

So the formula becomes

- futuring = bush mechanicing = artificer learning = $RP + QT + EP$.

‘Artificer’, then, is based on a type of action that emphasises a learning by doing approach that is designed to improve the human condition generally over an extended time period of at least a decade.

The present condition of the West may well be a reflection of view of Rick Slaughter of western cultures as manifestations of ‘industrial flatland’ where horizontal extension reigns and intention or vertical knowledge is deemed unnecessary—where thinking and doing remain desparate [11]. Any serious system of activism needs to engage this dilemma at a profound level. Historically, in Australia, I argue that one of the closest ways we can get to this ‘path less travelled’ is via a person called a ‘bush mechanic’ or in this instance ‘artificer’. To this end I have started a web blog—see www.hotfutures.net.au/bushie/ dedicated to the bushie within each of us. (see also <http://www.bushmechanics.com/home.htm>).

3.1. *Artificer learning—transforming praxis*

Aristotle, in (circa.) 500 BC, identified praxis as one of four types of knowledge:

1. Theoria knowledge—academic knoweldge—*thinking* in the noosphere;
2. Poietal knowledge—producing—*forming and making* and therefore designing—i.e. artificing something in the physiosphere interfaced with the noosphere e.g. poem, work of art, building, prototyping, designing (and thus interpreting) etc. and application of hermeneutics;
3. Praxis knowledge—*doing*—action and learning there from in the physiosphere
4. Poetic knowledge—*imaginal—imagining*.

Of all the above terms the two that survive to this day are 1 and 4 with an inordinate preponderance on 1. Artifice, on first glance, seems most closely related to praxis yet, on reflection, praxis is more about doing than making or prototyping with dexterity. Here ‘doing’ can be as ‘doing a behaviour’ whereas ‘forming and making’ is actually ‘shaping and designing and producing’. So I argue that the concept of dexterity in artificer learning links most strongly to the long forgotten mimetic episteme of Poietal knowledge i.e. poietis.⁵

4. **Masterpiece—linking higher education, vocational training and the humble bush mechanic**

The modern day technician of the 21st century, was preceded by the tradesman of the 20th century and, during the industrial revolution by the *journeyman* and before that in the early industrial age by the *artisan* and, before that in the late middle ages by the *artificer*. For instance the Statute of Artificers Act Britain was passed in 1563 and established a formal, 7 year, apprenticeship, regulated apprentice wages, and demarked vocations or ‘callings’, etc. Thus we can see a broadly drawn link between the artificer as explicated in this article and that of the artificer in the 14th century.

The exemplar project of the bush mechanic, or futuring project links to this concept of the ‘journeyman’s piece’ (JP) of the middle ages which, was an exemplar project to be done in one’s own time to demonstrate the best of class and to be judged by ones peers. Such a piece or thesis becomes a ‘master’s piece’ or ‘masterpiece’ or ‘masters thesis’. This artificer-level piece of trades work in the area of ones ‘calling’ that, if successful, embodied the

⁵Reference is made here to a related concept of (auto)poiesis i.e. of self-regulation and self-creation [12]. The Greek verb poieo (I make or create), gave rise to three words: poietis (the one who creates—inventor/innovator/bush mechanic), poiesis (the act of creation or formation—application of the mechanicing process seen in the four principles), and poiema (the thing created—the exemplar project).

person and the skills sufficiently to admit the journeyman (skilled apprentice called now a tradesman) to master tradesman status—Master of Plumbing or Master of Economics so to speak. (See the box below for examples of exemplar projects and Thomson [13,14] for Australian examples of the bush mechanic and his/her projects.)

In many places in the West, Slaughter's industrial flatland, still rules, there is not much cultural, industrial, vocational or even legal space left for alternative traditions such as the artificer, to survive. Nevertheless, the more one looks the more it appears that there are still some bush mechanics left⁶ [14].

4.1. *A working definition of a bush mechanic/artificer*

A bush mechanic or artificer learner now may be defined as

someone who while being deeply and broadly technically skilled is reflexively orientated and who ethically and participatively explores the big picture and prioritises, chooses, designs and enacts forward wisely by creatively developing prototypes towards a world transformed.

4.2. *Related concepts*⁷

French: Bricoleur—A bricoleur is a 'jack of all trades or a kind of tinkerer, a professional do-it-yourself person'. There are many kinds of bricoleurs—interpretive, narrative, theoretical, practical and political. The bricoleur produces a bricolage—that is, a pieced-together set of representations or components that are fitted to the specifics of a complex situation (closest English equivalent—tinkerer—though usually used disparagingly).

French: L'esprit Accor—is the art of blending skills, of combining traditions of the past with the modern innovation, adding the generosity, discipline, imagination and warmth which can carry our work to a higher level of excellence. L'esprit Accor then is a transforming vision of success (the closest English equivalent is—efficacious magnanimousness/morale—20% fit).

Critical futures praxis—here futures related praxis is used to problematise or criticise the present.

Futuring—proactive action research to establish actual futures oriented demonstration projects today—to show that a different future is possible. This may be termed futuring⁸ or

⁶This article applies the more formal term *artificer* to bush mechanic to indicate the step beyond artisan, which is the step beyond tradesman which is the step beyond apprentice. Furthermore, the article maintains that the 'spirit' of the artificer is alive, having been marginalised, and can now be found in the 'bush mechanic'—a self-reliant person who can be found, largely in the informal sector.

⁷The bush mechanic processes are substantially different to processes such as Community Capability Building, Social Entrepreneurship and Social Capital in that the process espoused in this paper seeks to apply capability, change the context in which entrepreneurship operates and move beyond social networks to actual innovation.

⁸To my understanding Jerome Glenn was the first to coin the term 'futuring' when he published an article called 'Futuring..' in January or February in 1972 or 1973—where futuring was defined as a process that (1) identifies trends, (2) projects them and includes broad participation to describe scenarios, (3) corrects them to be more normative and (4) traces them back for policy and strategy to do today. In the early 1990s I extended this process by adding an additional four points, whereby futuring also (5) seeks to assist in selecting a particular scenario and then, (6) to design implementation thereof through a prototypical exemplar project and (7) assists efficacious implementation thereof while (8) learning through an action learning cycle there from. Clearly a bush mechanic meets, to differing extents, these eight criteria and includes the concept of anticipatory action learning.

‘acting ahead wisely’ and is called in this study artifice commonly known as bush mechanicing. Here, reality is established through enactment that is the braiding of thinking and doing. Certainly in terms of futuring this research project suggests that a bush mechanic approach may be seen as one direct application or manifestation thereof.

Intentional action research—in this concept action research is directional and intentional in that it anticipates a change in the status quo and works from that perspective backwards.

Communicative action—communicative action refers to active citizen engagement in discourse-ethical dialogue with diverse others in order to develop actionable outcomes towards a better collective world.

5. The four cardinal principles of the bush mechanic

The outcome of my grounded theory whereby theory is built up from local or grounded observations not as is usually the case in ‘grand theory’ local data are sought to prove or disprove the grand or general theory⁹ [15]. Based on a 2 year research period working with some four bush mechanics identified the following four key principles. During this period I kept a field journal and recorded learning insights therein. Grounded theory was then applied to code these insights and identify key emergent ‘meta categories’ from this field data records. The key or paramount category that emerged, one that all other categories related to, was ‘the exemplar project’ (see Principle 1 immediately below) [15,16]. This action research protocol for this project is explicated in Wildman and Hadkins [17].

Bush Mechanic Principle 1: The Exemplar Project Principle—Exemplar project—or bricolage—means a best in class project/prototype designed to address a collectively prioritised need, and demonstrates a better world is possible for our children.

For example a project that is based on bush mechanic learning over a decade of praxis, such praxis helps to generate a grasp of the big picture while understanding the small picture, its components and interface. The exemplar project then involves the ‘design process and often occurs at the edges of the formal | informal economy. The project tends to be innovative rather than inventive and combines business discipline, vocational expertise and social context, that braids thinking and doing; part and whole; individual and collective and is aimed at bettering the lot of our fellow human in line with the requirements of the global problematique.¹⁰ In a social sense then the exemplar project integrates/interfaces social futures | action research and | change management.

⁹An illustration may assist ‘my aim purpose in public life is to do something about this problem (*poverty and welfare dependency*). I visit the (*housing*) estates as often as possible and try to learn as much as I can from the people who live and work there. This has given me a different attitude to poverty from most people in politics. My conclusion is that we should forget about the grand theories of sociology and the ideologies of the old politics and peruse an evidence-based approach to welfare reform. Poor communities have more to teach us than we have to teach them’, from p. 83 Mark Latham’s book *From the Suburbs: Building a Nation from Our Neighbourhoods*, Pluto Press, Melbourne, 2003, 150p. In Australia Mark Latham is an ex Prime Ministerial candidate and was (now retired) leader of the Federal Opposition (Australian Labour Party in 2004–2005).

¹⁰As such a bush mechanic can be seen as doing nothing new, or worse as they tend to be particularly singular in focus on task they can be seen as hectoring about their favourite ‘hobby horse’, failing at the main game, demonstrating little self-understanding, being overly practical and even at best a ‘ratbag’ and at worst ‘a professional failure’, even marginalising themselves over time, the key point being, however, that in general bush mechanics do not seek to have their work assessed on its conceptual or textual merits rather by the developmental process and practical results therefrom. Thus in the think/do dilemmas manifest in the dialectics between the academic *and* the practitioner; between theory *and* practice, between global and local, bushies tend to locate in the latter, while recognising that like breathing, both inhaling and exhaling, are necessary.

Bush Mechanic Principle 2: Social Betterment Principle—The exemplar project is seen by the bush mechanic as an example of a social betterment. Such betterment can be for the corporation and its community interactions, for the community independent of the corporation, or for society as a whole.

The exemplar project although it may manifest in a technological or organisational manner is actually seen by the bush mechanic as a social betterment or holon, after Koestler [18]. That is as self-organising nested system which is simultaneously part and whole, hierarchically situated yet autonomous, using fixed rules yet flexible strategies, such as the heart in the circulation system of our body.

The bush mechanic then may be seen as a renaissance person and sees the exemplar project at essence not uniquely materialistic i.e. a technological endeavour yet to be understood in terms of social betterment. Bush mechanics tend to integrate life at the individual perspective with social betterment.

Bush Mechanic Principle 3: Collective Responsibility Principle—the bush mechanic as a socially responsible citizen responding locally, proactively, concretely and collaboratively to the global problematique.

The bush mechanic or artificer sees themselves as a global citizen responding locally, concretely, participatively, anticipatively and proactively with the above two attributes to global futures via the global problematique by blending internal and external ethics e.g. the redefinition of psychological markers such as income, status, time, task, etc. One of the closest historical parallel to this type of combined vocational skill and consciousness raising that has emerged in Australia and the UK is, for instance, the Workers Education Association (WEA) movement.

In this sense the bushie sees the exemplar project as a living prototypical response to the question ‘how then should we live together?’—a sort of ‘Stargate’ portal to one aspect of a better world’.

Bush Mechanic Principle 4: Learning Principle—Learning from actions, based on the above three principles, demonstrating a better world is possible.

This includes individual and collaborative and collective learning from and with the engagement/embodiment/action of establishing the exemplar project.

5.1. *Towards a revised definition of bush mechanic/artificer*

Based on these four key outcomes of the bush mechanic/artificer grounded research project we may now postulate a new definition of same.

A bush mechanic is someone who, over a period of years and with substantial effort, resources and commitment, and as part of their responsibility as world citizen, participative and anticipatively conceives designs, establishes and learns through an exemplar project in order to demonstrate today a better world is possible for our children’s children.

In short someone who acts ahead wisely.

The approach of bush mechanics is illustrated by the following examples.

6. Examples of bush mechanics and their exemplar projects

Addressing the need for global governance: Richard Mochelle, seeing the emerging global governance crisis, has combined doctoral studies* in the arena of Global Governance with fieldwork; designing and piloting a communicative action community involvement global

governance project. Commencing in architecture in his 20s this current project, commenced in the early 1990s, is a self-funded all-of-life project and has included the production of media, a citizen action group and academic resources. Further, Mochelle [mochelle@acenet.net.au] has ‘walked his talk’ and ‘talked his walk’ through the design and implementation of several Communicative Action Research Teams (CARTs)—a model for a proactive’s group of the citizen to establish prototype internet interlinked global governance exemplars. *Mochelle, R., *Towards a New Constitutionalism: Developing Global Civic Responsibility through Participation in World Constitutional Deliberation*. 2001, RMITU (Royal Melbourne Institute of Technology University).

Linking Science and Art today for the betterment of human health tomorrow: Robert Pope and Robert Todani have, over 15 years, established Australia’s first Science Art Research Centre, just outside of Uki in Northern New South Wales. <http://www.science-art.com.au/>. This involved the artists themselves: conceiving, designing and building the centre; undertaking painting commissions; and continuing the’s innovative research of the center and learning activities; towards explicating a creative physics modelled on the ancient Greeks: wherein science and art; thinking and doing, are intertwined. This has largely been paid for by the sale of the artist’s own art. More recently Robert Pope (who originally trained as a surveyor) and his partner Irene Brown established a bed and breakfast at the centre, offering painting master classes, science–art philosophy courses and Thai cooking. Robert uses experiential learning to link his futures work and art with the present day-to-day activities in the centre in order to establish a creative physics for a ‘healthy’ global future.

Community education today for emancipated citizens tomorrow: Helen Schwencke has spent the past decade conceptualising, designing, launching and maintaining a Community Learning Association in Queensland. The Association has been a counterpoint to the economic rationalist and behaviourist approach to training mainly evident today (and which has meant the demise of the ‘School of Arts’ and ‘Workers Education Association’s’ where much forward looking Adult Education occurred in the past). Originally trained in the biological sciences, Helen’s [hschwenc@dovenetq.net.au] contribution has been self generated rather than by external reward. In order to redevelop and transform Adult Learning into something meaningful to adults and communities, rather than simply task competencies, she has undertaken several futures research and community development projects to facilitate Community and Adult Learning for our grandchildren.

Biotech for a better world: David Wyatt is the principal of Novogenesis, a futures oriented Business Angel, Creativity & New Venture Catalyst company he founded in 1998, and adjunct professor graduate school of management Queensland University of Technology. His original field was microbiology: specialising in health of the children. He was previously co-founder of the award winning biotechnology company PanBio [<http://www.panbio.com.au/>] established in 1987, now listed on the Australian Stock Exchange, and he also held the position of founding Managing Director from 1991 to 1998. Novogenesis is affiliated with the DeBono Institute and the Grameen Bank This has allowed David to achieve his design intention of innovating in biotechnology in order to broaden his investments to social innovation. To this end Novogenesis invests time and seed funds for equity in start-up enterprises that are knowledge based with global market

potential. David has embedded critical action learning as a means of disseminating lessons learnt.

Marine innovations: Boat designer, builder, racer and championship winner 1983, plus 25 years conceiving, designing and prototyping a series of marine innovations to assist in the accessibility of marine pastimes to more ordinary Australians. Also committed to bringing attention to the deterioration in citizens rights brought about through the declaration of ban on recreational fishing in areas covering some 3/4ers of the Queensland Coast (current—South East Queensland). Innovations include tri-hull design, a self-launch and self-retrieval system for trailer boats, no pull anchor, special pod design for maximum hydrodynamic lift from twin contra-rotating motors, spark plug tester and bore inspection method, stainless steel trailer design and construction. *Boating bushies* Don Miller—more info from paul@kalgrove.com

Disability induced lifestyle innovations: For a decade and with one finger typing a ‘disabled bushie’ has redesigned her home and built another lifestyle for herself and family after becoming brain injured in falling from a horse a decade ago. Meriel Stanger, now confined to a wheel chair, has had to rethink/redesign and had to reconstruct her lifestyle for herself and two daughters. She was approached to be the Event Director of Dressage Queensland to co-ordinate their state championships in October 2004. She is on the Boards of Management for several community disability groups. She is also on the Community Reference Group with Brisbane City Council for the foreshore re-development. Not only that, in all this she finds time to write and self-publish a book—Stanger, M., *Permission to Shine—The Gift a journey of recovery and discovery*. 2004, Brisbane 200pgs: Available from the author by email on mstanger@powerup.com.au or PO Box 2040, Ascot, Qld, 4017. At a cost of \$ 25 for the book plus \$5 P&H in Australia and \$15 P&H overseas.

Source: P Wildman 12-2005; * praxisers agreement for the publication of these notes gratefully acknowledged.

7. Integrating bush mechanicing into social and corporate design

Given we acknowledge the importance and urgency of social change then from an applied position the corporate and social/NGO sectors emerge as the most obviously propitious one today. In the public sector, innovation is largely by way of reactionary regulation and control—little in social evolution occurs therein. Consequently, in terms of a response to answering the question ‘*how then should we live and do business together today in order for a better world for ourselves and our children’s children?*’ arguably it is these two sectors where significant proactive, and innovative ‘bush mechanic style’ change can be forthcoming.

In the light of this, further research is needed to explore the applicability of the bush mechanic ingenuity in stimulating socially and economically profitable and responsible innovation and learning in these two sectors. Such research would be to explore how the concept of bush mechanicing as bottom line focussed and socially responsible innovation cycle could be applied *within* a corporation—private or NGO.

8. Conclusion

In overview the article calls for a concentrated action research project in the arena of the largely bypassed mimetic artificer type epistemology alluded to by Wilson and urged by Arendt in the re-linking of thinking and doing. For me this is the underlying and as yet unanswered or even unacknowledged challenge of the Western modernity project, thus this article. Potential areas that could enhance the chance of success of the bush mechanic approach and encourage others who now, or wish to, work on similar lines are highlighted below and the editor and I are keen to hear from anyone so interested.

This calls for a need to bias learning to action; to braid thinking with action—not separate the two. Further, I suggest the need for a pedagogy that reconciles the Platonic differentiation of thinking and doing while focusing on action, in a sort of epistemic affirmative action, and finally moving away from the ‘universe as a machine’ world view of Newton to a ‘universe as an interactive exemplar project’ view. It may well be that the development of an integrated artificer pedagogy may once again help re-integrate higher and vocational education towards a better world for our children’s children.

One such approach, artificer learning, is more commonly recognised as bush mechanics. It may be that in the medium-term future organisations aiming at futures work may wish to use some artificer or bush mechanic skills and approaches in order to concretely demonstrate through exemplar projects systems ideas and designs for a better world. Such a ‘futuring’ approach braids thinking and doing through exemplar projects by artificers, and artificer organisations, of integrity, e.g. the exemplar project examples in the box above. In this way the English Statute of Artificers of the 14th Century may well have relevance today.

One may see many such exemplar project examples today in the arenas of hard technology such as air and spacecraft and spacecraft design, information processing and genetic engineering and some of the better aspects of training in the health and military arenas. Little vocational education and almost no higher education today bare much semblance to artificer learning.

Sadly we see few exemplar projects in the social technology arenas of governance, restorative justice, local economy, urban design, citizen rights and responsibilities and deep sustainability.¹¹ Imagine if you will a FOX cable program called *Return to Intentional Community* which set teams seeking to join a particular community certain time critical governance and *soft system tasks, the outcomes of which could then be assessed, piloted and posted on a web based exemplar project clearing house site. Exemplar project write-ups could even have a place in journals and themes such as this.* Lack of development in socio-governance arenas means that for instance new hard tech processes such as weapons and information control are grafted on to existing non participatory top down delivery systems e.g. bureaucracies and other punitive systems, which then just further exacerbate the problem by further reducing citizen rights and overall system sustainability.

A few of these soft technology exemplar projects are out there, however, they are few and far between often do not interact with one another as they are in different sectors and

¹¹Yet, there are some ready to hand examples on our TV shows such as some DIY programs including *Junkyard Wars* and *Escape from Experiment Island* that use an exemplar project building exercise to demonstrate and develop teamwork and the cooperative spirit towards a common end of constructing some artifact that will serve the team and meet the projects design requirements.

have little web interface. This needs to change urgently as soft technologies are the nested system upon which hard science rests, and we urgently need improvements in, as well as the dissemination of, such soft technologies, in our social ingenuity in order to direct our hard technologies in ways that can demonstrate today a better world is possible tomorrow for our children.

In light of this challenge it is hoped that the neologism of the bush mechanic may play a part in providing an encouraging way forward to this more representative interactive artificing future.

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