

Bush Mechanics – Artificing a Future Our Children We can Live With

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Abstract

Here we explore the possibilities and potential of old made new again. Today we often hear the term "futuring" used to refer to bringing proactive concrete responses to futures issues into present-day operation. This article sees such a process as a post industrial form of what in times of old was called "artificing", and then seeks to explore some aspects of this Middle Age precursor to today's technician. The article examines important aspects of today's "artificer" such as rebraiding thinking and doing and explores how this can be codified in futuring's "exemplar projects" or the artificers "master piece". The Artificer Learner still surviving, though only just, is today called a "bush mechanic" and is then situated with various types of action learning. This renewed approach is found to be suitable to certain particular present day challenges that derive from the global problematique are explored. In this way we can help demonstrate how such an ancient approach to futuring can help demonstrate a better tomorrow today – a future our children can live with.

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 validate actions towards a better world; as well as 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, production and more generally the "lived" intergenerational community life.

In Australia there is a term for someone who links thinking and doing and 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 self reliance and excellence at her task and is not to be confused with a "backyard mechanic" who does shoddy work. This short piece brings together the futurist and actionist skill sets in what we call "bush mechanics" or more technically "artificer learning" or "futuring" and explores the concept's past, present and future links.

Needed, another Type of Learning – Bush Mechanics

As called for we seek a type of action learning that:

- Focuses on the learner, not only the thinking (academia) action (much behaviourist vocational education), such that it
- Draws from experience, yet is proactive and intentional, towards a better world
- Embraces the overall Design process covering Idea|Design| Implementation (I | D | I): including intelligent understanding of the basic concept; prototype design; establishment and critical reflection on subsequent outcomes –
- Embodies the agency of the learner; not only seeking to address structural issues/projects
- Is directed to the good of the person and the good of society (integrity and ethics) i.e. virtuous action towards the good (of) society¹
- Links action directly to the necessities from the "global problematique"¹² and is concretised in an exemplar project or master piece, and that
- Moves praxis from doing to making and shaping, i.e. production line to prototype development, for the general good through a focus on critically informed instrumental action.

Often we see thinking and doing as mutually exclusive. There are, however, times when we put all of ourselves into what we are doing; and times when we lose ourselves in our activity, as in play as children or in undertaking a hobby as adults, even as we shape (artifice)

some new gadget. At these times, we are fully present in our activity, thinking *and* doing unite in our human "being". Here, artificing our future means shaping it with intent (telos) through futuring towards a better world for our children.

A pedagogy that can embrace being and doing we call "Artificer Learning". It is miles away from the imitative "learning" – *or to draw out of*, or more correctly "education" as in – *to push into* associated with much vocational, and increasingly tertiary "education", today.

Moving to Action

This article argues that we need to embrace the vital role of artificing in the design process viz. Idea | Design | Implementation (action). We have found that, in conventional social innovations in the "real" world, up to 90% of our energy is absorbed in action as implementation and compliance rather than design or (re) conceptualising an idea or active experimentation towards improving the concept's application.

This compares, for instance, with up to 90% of the energy expended in the conventional academic education process in action as conceptualisation. And regrettably in Vocational Education today, which is assessed by competence which is no more than "correct behaviour" demonstrated three times. Assessment does not include understanding, so that up to 90% nine tenths of energy is directed to action as behaviour, not to understanding as in conceptualisation let alone design or active experimentation. Additionally, the actions of those concerned with implementation tend to be limited in scope (e.g. by an auspicing body - employer, sponsor, commissioning body) - 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 is one of the fundamental critiques of the positivist and post positivist par-

adigms by action learning/action research circles, and one of its key areas of needed innovation. (Levin and Greenwood 2000) Indeed Arendt (1963) argues that the challenge of modernity is the re-linking of thinking and doing.

Q - How to braid learning and action? A - Never separate them in the first place.

Types of Actions

Various types of action are needed:

- *Communicative* action³, is a fundamental requirement for *Phronetic* actions - which answer the questions about choosing, even acting ahead wisely, and "how then should we live?"
- *Instrumental* action, comprising - *substantive* action (the nature of intended actions) – *strategic* action (the direction of intent) and *operational* action (implementation).
- *Futuring or Bush Mechanics action* - prototype development (that includes the above types of action, and integrates self-building (integrity)), block-building (actual project), community-building (ethics), and mind-building (learning by making) all "braided" together. This approach can help us move further, toward "how then can we live?" Even and ultimately "how can we and our children then live together on Gaia?"

On the Separation of Thinking and Doing

Boyte (1995) after Arendt (1963), 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." The Judeo-Christian belief of original sin - where the manifest world, and potentially our actions therein, are seen as tainted - possibly maintained and extended this Platonic division.

After Plato, in the West, we have doggedly followed a staunchly mechanist view, identified

with Newton, that "The Universe was a mechanical one whose order was maintained by a distant God." Newton, in fact, wrote more on alchemy than mathematics: he saw the universe tintured and enlivened by emotion and love.⁴ These works remain unpublished. [Coulter and Wiens (2002), Christianson (1984)]. 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 other bush mechanic type activities. Arendt (1963) claims this is the challenge for modernity: to re-braid thinking and doing.

From Action Learning to Bush Mechanic Learning

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 collectively 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 - content. Generally speaking academia focuses on the third, or, content area.

In action learning theory we start with the formula for:

Learning

- Learning = Programed knowledge + Questioning [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 P → RP,
- (2) "I" for Intent is added to Q → IQ, and
- (3) "EP" (Exemplar Project or Master piece) replaces A → EP.

So the Bush Mechanic Learning formula (BML) becomes:

- *Bush Mechanic Learning (BML)* = Critical reflexive programmed knowledge + Questioning Intent + Exemplar Project.

Futuring now as Artificer or Bush Mechanic, then, incorporates the various types of action listed above with an emphasis on critically informed Instrumental Action over an extended time period, generally at least a decade, which is designed to improve the human condition. (Wildman 1995)

Related but not identical terms for this type of learning include: holonomic learning, (aspects of) play, integral learning, comprehensive design learning, environmental design, phronetic learning, immersion learning, emancipatory action learning and experiential learning. In all of these, to varying extents, thinking and doing are integrated with intent. TV programs going close to artificer learning include: Junkyard Wars and Escape from Experiment Island.

It is the extensive world of information, events and gadgets that enthalls us most. The inner world of meaning, and fundamental causes and issues seems not to harbour such attraction. Further, in our highly specialised world, few people seem to be interested in dealing with the interfaces between technologies and/or social systems. In short, planning, understanding and acting for the long run that involves developing projects from idea to design to the implementation stage seem outside the capability of many of us and our organisations.

This may well be a reflection of Rick Slaughter's view 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 horizontal and disparate. We argue that any serious system of activism needs to engage this dilemma. Historically, in Australia, we argue one the closest ways we can get to this "path less traveled" is via the "bush mechanic" or in academic parlance "artificer". To this end we 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>]

More recently we have sought ways of acting more locally on systems which we can influence. This has often enabled us to seek to initiate a counter-culture/exemplar projects which displays a concretised alternative to an aspect of problematique from the prevailing culture. A few examples from among us are given in Appendix A.

Situating Bush Mechanic Learning (BML)

BML Differs from Emancipatory Action Learning (EAL)

BML draws its actions from, and directly in answer to, the question - "emancipation to what?" EAL retrospectively emancipates from but not to. Artificer Learning, on the other hand, seeks to make the future world by addressing the context of the global probalematique within which emancipation occurs. So BML is different to EAL in that it overtly includes not only "emancipation from" but also "emancipation to".

BML Is Different to Critical Futures Praxis (CFP)

BML is about the local being given precedence in the context of the global *from the present to the future* whereas CFP is about the global being given precedence by driving the local from the global *from the future to the present*. CFP then uses futures critically in that the future is seen as a platform to critique the present cp. BML which seeks to respond pragmatically with exemplar projects to particular aspects of the global problematique. In BML the future enactivises the present cp. problematising it as in CFP. (Dick and Wildman 2005)

BML Can Extend Praxis

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

1. Theoria knowledge - academic knowledge - *thinking*;
2. Poietal knowledge - producing - *forming*

and making and therefore designing - i.e. artificing something e.g. poem, work of art;

3. Praxis knowledge – *doing* - action and learning there from – we would add

4. Poetic knowledge – *imaginal* - *imagining*.

Of all the above terms artifice is most closely related to poiesis and also includes elements of praxis yet praxis is more about doing than making or prototyping. Here "doing" is less of "doing as behaviour" more of doing as "forming and making".

BML Is about Futuring

"Futuring" is a name applied initially by the first author, in the mid 1990's to intentional Action Research that deliberately has the end of the activity in the future. Futuring, unlike BML however, does not necessarily use the overall design process of Idea | Design | Implementation, nor does it require the same personal involvement in implementing the project as "prosumer" i.e. producing what one consumes. Futuring, like BML, can generate exemplar projects, uses a whole project focus and requires substantial timelines.

BML Is about Starting Somewhere Else – Starting from Doing

We have hesitated to use the concept "activism" or "activist" as this category belies a confusion - in that the necessity for even having such a word comes from a system obsessed with separating thinking and doing – with what Kolb terms Abstract Conceptualisation (AC) cp. Active Experimentation (AE). In turn these concepts are part of the four step Kolb Experiential Learning cycle whereby (1) Concrete Experience (CE) → (2) Reflective Observation (RO) → (3) Abstract Conceptualisation (AC) and finally → (4) Active Experimentation (AE) which cycles on to CE. (Kolb 1984)

We suggest that around 90% of our culture's energy is spent primarily on Abstract Conceptualisation and 10% or less on Active Experimentation. In this sense Artificer Learning or the Bush Mechanic approach ideally suits situations where an exemplar project is

desired in response to a future challenge within the global problematique. Such a project may be seen as a form of backcast lighthouse, if one may, to show us today that there can be concretised and systematised ways of acting alternatively and presently towards a different tomorrow.

Masterpiece – Linking Higher Education, Vocational Training and the humble Bush Mechanic

The modern day technician was preceded by the tradesman of the 20th Century and, during the industrial revolution, by the journeyman and prior to that in the Middle Ages, by the artificer. For instance the Statute of Artificers Act Britain was passed in 1563 and established a formal, seven 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 movement from a journeyman to master was through a peer assessed "journeyman's piece".

The Bush Mechanic, or Futuring, project links to this concept of the "Journeyman's Piece" (JP) of the Middle Ages in that an exemplar project or thesis can, if suitably reviewed, become a "master's piece" or "masterpiece". This artificer level piece of trades work, one step above the artisan, in the area of ones "calling" that, if successful, examined admitted the journeyman to master tradesman status e.g. Master of Plumbing or Master of Economics so to speak. [see Appendix A for examples of current day exemplar projects.]

Conclusion

We argue for a need to bias learning to action; to braid thinking with action rather than as at present, where the two are separated. Further, we 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 policy

whereby we structurally and concretely move away from the "universe as a machine" world view of Newton. It may well be that such an integrated pedagogy may once again help reinvigorate Higher and Vocational Education towards a better world for our children's children.

In this article we have sought to explore one such approach Artificer Learning more commonly recognised as Bush Mechanic. 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 demonstrate concretely, through exemplar projects, systems ideas and designs for a better world. Such a "futuring" approach braids thinking and doing through such projects. In this way the Statute of Artificers of the 14th Century and the concepts behind it, may well have renewed relevance today.

In this way we can help demonstrate a better tomorrow today – a future our children can live with. .

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Notes

1. Phronesis is a reasoned and true state of capacity to act with regard to human goods (eudaimonia). [Aristotle - Nichomachean Ethics 1140b25]. Phronesis is practical wisdom developed through insight, reflections and practical theory, accumulated around citizen actions taken on common issues aimed at embodying the "good life" in the space of public life. [Boyte (1995: 6)]. Phronesis was part of the larger political economy of 4th century BC Athens – that of isonomy: a col-

laborative polis without "rulership" (whose degraded form was known as democracy). Prohairesis – a related word extends phronesis and means "choosing ahead wisely", a bushy version would be "acting ahead wisely" – Modern English lacks a linguistic and epistemic ability to capture this proactive ethical enactive embodied perspective.

It appears that concepts such as parrhesia (being in the truth), phronesis (acting for the general good), and prohairesis (choosing ahead wisely), don't have easily recognised modern English equivalents. In this Greek sense, of being in the Truth (broadly thought of today as discourse ethical deliberation and its enactment), can probably no longer occur in the dominant western (Post-) modern epistemological framework; where the truth is conceived as being in facts and figures i.e. being external and 'out there'.

Phronesis then is used in this article in the sense of being in the truth; that is, decided on deliberatively and manifested through acting ahead wisely.

2. An example of the global problematique is presented in the State of the Future Report which outlines some 15 key global challenges for policy makers to address over the next 35 or so years. (Glenn and Gordon 2004)
3. Communicative Action involves commitment to actionable principles and requires deliberants to have considered - in dialogue - the kinds of practical actions inferred by principles, and their consequences, prior to making the commitment to protect common interests in the face of global opportunities, risks and challenges. (Habermas 1992)
4. Today we continue this dysfunctional trinity of Plato's idealism, Newton's finite mechanical universe and Christianity's Original Sin. In all this we have bypassed Aristotle's Phronesis: virtuous action - in which thinking and doing are inseparable. Bush Mechanicing, and many other forms of action learning, call for thinking and doing to be integrated, emotions to be incorporated in the learning process, experience to be as valued as reflection, and for all to be codified in an exemplar project aimed at bettering the human condition. It can be argued that once we separate thinking and doing, then neither feeling and being, nor spectator and actor

are likewise separated. This however is an article in itself.

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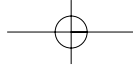
Appendix A: Examples of Bush Mechanics and their exemplar projects*

Addressing the need for Global Governance. Richard Mochelle, seeing the emerging global governance crisis, has combined post Doctoral studies in the arena of Global Governance with field-work; designing and piloting an exemplar communicative action community involvement global governance project. Commencing in Architecture in his 20's this current project, commenced in the early 1990's, 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 (CART's) – a model for a proactive citizen's group 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 centre's innovative research and learning activities; towards explicating a creative physics modeled on the ancient Greeks: wherein Science and Art; thinking and doing, are intertwined for the betterment of humanity. [Pope, R *Ethical Physics: A Foundation for Tomorrow's Communities*. New Renaissance, 1998. 7(4): 21-23]. 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 masterclasses, 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 behaviorist 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. [Schwencke, H., *Making Connections - Past and Present: Developments in adult and community education in Queensland since the 1960's*. 2001, Lifelong Learning Council Queensland inc. [formerly Adult Learning Australia (Qld Branch) Inc.: Brisbane. p. 110] 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.

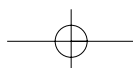
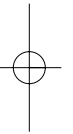
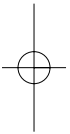
Biotech for a better world. David Wyatt is the principal of Novogenesis, a futures oriented Business Angel, Creativity & New Venture Catalyst company he founded in 1998, and adjunct professor graduate school of management Queensland University of Technology. His original field was micro-biology: specialising in children's health. 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

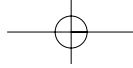


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Bank This has allowed David to achieve his design intention of establishing exemplar innovative bio-technology projects and more recently to broaden his investments to social innovation. To this end Novogenesis has established an "investment angel" type exemplar project that 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.

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