Re-imagining engaged scholarship in South Africa: a transdisciplinary perspective

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Abstract

This paper represents a constructive disruption of the extant habits of mind associated with community engagement in South Africa. The constructive disruption is developed by applying a critical realist method placing emphasis on engaged transdisciplinary knowledge co-production processes. The argument that is developed suggests two plausible disruptions. The first disruption argues that it is possible to consider a second order form of methodological decision making using a concept labelled 'critical epistemological selectivity' as a mechanism to increase the armamentarium of engaged, transdisciplinary scholarship. The second disruption focuses on the real-world utility of the current 'spirit' of engagement – 'social justice' – in the face of increasingly complex global challenges. The article concludes by suggesting that second and third order perspectives could contribute to a more reflexive form of engaged scholarship that may be of benefit to both academe and its neighbouring communities.

Keywords: *community engagement; constructive disruption; critical epistemological selectivity; second and third order engagement*

Introduction

This paper presents a constructive disruption of the current habits of mind that influence community engagement in South Africa. The purpose of the constructive disruption is to stimulate critical debate about whether the current habits of engaged minds are likely to sustain community engagement as a responsive form of transdisciplinary scholarship in the face of increasingly complex global changes. Emphasis is placed on transdisciplinarity because – as Palmer (2001, p. vii) – notes "real-world research problems .... rarely arise within orderly disciplinary categories, and neither do their solutions". The disruption is articulated through a critical realist method called 'AART' (Abduction, Abstraction, Retroduction and Testing) which was developed to re-interrogate an object of research in

order to catalyse novel "hypothesis-generation for innovative theorizing" (Decoteau, 2017, p. 72). In this instance the object of research is transdisciplinarity and engaged scholarship in South Africa.

Two novel heuristics derived from the literature relating to transdisciplinarity which are labelled as 'both–and' and 'boundary stretching' are applied as referential axes of enquiry for the re-interrogation. The re-interrogation is also influenced by first, second and third order learning which refers to the different levels of learning associated with Gregory Bateson (Bateson, 1972). The expression 'first order' refers to uncritical analytical perspectives that rely on descriptive and relatively superficial modes of enquiry associated with reductionism to achieve scientific results (Smith & Berg, 1997). The expression 'second order' refers to the inclusion of the "the underlying systems and social structures that proliferates the issue in the first place" within the analytical frame (Bishop & Dzidic, 2014, p. 15). 'Third order' points towards a more reflexive process of "*seeing our* worldview rather than *seeing with* our worldview so that we can be more open to …. other views and possibilities [representing] a dramatic shift of consciousness" (emphasis in original, Sterling, 2010, p. 26).

The findings point towards two plausible novel hypotheses relating to engaged scholarship in South Africa. The first novel hypothesis reflects a project level of granularity and focuses on 'weak' and 'strong' forms of engaged transdisciplinarity. The project level novel hypothesis suggests that by conceptualising 'weak' and 'strong' transdisciplinarity as an interdependent whole could be of utility if engaged scholars are equipped with capabilities relating to a concept labelled 'critical epistemological selectivity' which is a concept that is developed further towards the end of the paper.

The second novel hypothesis relates to a national level of granularity and reflects on the appropriateness of the current 'spirit' of engagement which is postulated to be social justice. The expression 'spirit' of engagement is an adaptation of the argument by Basarab Nicolescu that improving the real-world utility of transdisciplinary scholarship requires a novel "spiritual metaphor of enquiry" that is shared by both academe and civil society (Nicolescu, 2014, p. 212).

The national level novel hypothesis queries the logic of maintaining social justice as the dominant 'spirit' of engagement in South Africa in favour of alternative conceptual 'spirits' that reflect contemporary real-world problems. The purpose of querying the extant 'spirit' of engagement in South Africa is to ask if alternative, real-world 'spirits' might improve the utility of engagement as a responsive form of transdisciplinary, engaged scholarship in the face of increasingly complex global / local challenges.

Materials and methods

The conceptual research methodology is presented as follows: an overview of Boyer's conceptualisation of engaged scholarship; a summary of the evolution of community engagement in South Africa and a re-interrogation of community engagement in South Africa using the first two 'AA's of the AART method. The findings are then presented as a

discussion about the novel hypotheses because, strictly speaking, the novel hypotheses do not represent results or findings; they are constructive theoretical disruptions of the habits of mind that influence the 'spirit' of community engagement in South Africa.

The article concludes by suggesting the utility of community engagement in South Africa could be improved if second and third order forms of scholarship are further developed and applied. It is also suggested that the emergent third order forms of engagement could be reinforced if the current 'spirit' of engagement – social justice – is simultaneously problematised.

Engaged scholarship: Boyer's contribution

In an essay titled 'Scholarship reconsidered: priorities of the professoriate' the late Ernest Boyer, initiated what is now recognised as a tipping point in the development of engaged scholarship (Boyer, 1990). Boyer's position was that it was necessary to consider "[e]nlarging the [academic] perspective" towards increased civic engagement through four interrelated themes: the "the scholarship of discovery; the scholarship of integration; the scholarship of application; and the scholarship of teaching" (Boyer, 1990, p. 16), Table 1.

Table 1: Boyer's 'Scholarship reconsidered', selected extracts. Source: Boyer (1990, pp. 17-23)

The scholarship of ….	Brief description
'Discovery'	Research that "contributes not only to the stock of human knowledge but also to the intellectual climate of a college or university." (p. 17).
'Integration'	Places emphasis on giving "meaning to isolated facts, putting them in perspective. By integration, we mean making connections across the disciplines, placing the specialties in larger context, illuminating data in a revealing way, often educating non-specialists, too" (p. 18).
'Application'	Requires that "the scholar asks 'How can knowledge be responsibly applied to consequential problems? How can it be helpful to individuals as well as institutions?' And 'Can social problems themselves define an agenda for scholarly investigation?'" (p. 21).
'Teaching'	The teaching engagement "becomes consequential only as it is understood by others. ….. When defined as scholarship, however, teaching both educates and entices future scholars" (p. 23).

Boyer's ambition was not to revolutionise academe, but "rather to broaden and deepen the possibilities for civic engagement in higher education" (Barker, 2004, p. 125).

Boyer went on to argue that academics should become what "Donald Schön of MIT has called 'reflective practitioners,' moving from theory to practice, and from practice back to theory" in order to inculcate a culture of iterative, critical and collaborative re-interrogation of their knowledge stock as a day-to-day scholarly norm (Boyer, 1996, p. 17).

Boyer argued that the critical skills associated with 'reflective practitioners' could enable academe to become a "more vigorous [institutional] partner in the search for answers to our most pressing social, civic, economic, and moral problems, [thereby] reaffirm[ing] its historic commitment to what I call the scholarship of engagement" (Boyer, 1996, p. 11). Whilst Boyer's interest was primarily to reconsider the purpose of higher education in the United States, the concept of engaged scholarship has gradually secured a global foothold in variable ways (Beaulieu et al., 2018; Post et al., 2023).

Community engagement in South Africa

Boyer's theorising about the potentials of engaged scholarship coincided with the South African transition to democracy, but did not initially influence higher education in South Africa. Nevertheless, in 1997 the White Paper on Education positioned the earlier vestige of community engagement – "community service" – as a mechanism to "promote and develop social responsibility and awareness amongst students of the role of higher education in social and economic development through community service programmes", as well as to demonstrate the "social responsibility of institutions and their commitment to the common good" (DOE, 1997, pp. 10-11). The White Paper also emphasised that social responsibility required academe being "responsive to societal interests ... [within] ... the national and regional context" (DOE, 1997, pp. 6 & 10).

At that time, community service in South Africa was deemed to be a mechanism to promote institutional 'social responsibility' in 'responsive' ways, rather than remain exclusively a scholarly activity – but the White Paper indicated that there were potentials for 'community service' to "enhance the Culture of Learning, Teaching and Service in higher education" (DOE, 1997, p. 18). Whilst there is legitimate ambiguity in this latter statement, it is evident that there was an intuitive belief that community service had potentials to influence scholarship that could be further developed.

This opportunity for the transformation of the potentials of community service was reflected in subsequent reports in which it became evident that the localised, South African, conceptualisation of 'service' was becoming increasingly influenced by 'responsiveness' and 'scholarship'; viz: "knowledge based community service" (HEQC, 2001, p. 9); "responsive .... community engagement" (HEQC, 2004, pp. 3-4) and then, following Boyer, the expression "engaged scholarship" (HEQC/JET, 2006, p. 188). Conceptualising community engagement as a form of responsive scholarship was further reinforced in a subsequent policy document which stated that community engagement should be "formalised and integrated with .... teaching and learning and research, where appropriate" (HEQC, 2007, p. 24).

Despite a growing consensus in South Africa that community engagement should be positioned as a form of engaged scholarship integrated with the other core functions of higher education institutions (HEIs), a debate about how to define community engagement emerged (Hall, 2010). Critical commentators took the view that "finding a generalisable definition [for community engagement] *as a starting point* .... is too ambitious ..... rather, [it is] something to work towards through a deliberative process" (Slamat, 2010, p. 109-110).

Whilst identifying a single definition of community engagement was contested, there was agreement that engaged scholarship was multidimensional in nature and contained unifying characteristics of which the most dominant included social justice and partnerships between academe and non-academic stakeholders (Bender, 2008; Briffett Aktaş, 2024; Maistry & Lortan, 2017).

From the unifying characteristics, secondary engaged operational characteristics emerged and included, *inter alia*: transdisciplinarity (Cole, 2017); knowledge mobilisation (Hart et al., 2013); reciprocity (Davis et al., 2017); participatory processes (Zuber-Skerritt et al., 2015); co-creation, of actionable knowledge (Bell & Pahl, 2017); sustainable partnerships (Kline et al., 2018); co-identification of research priorities, co-designing research methods and co-assessment of subsequent outcomes (Lam et al., 2017) and mutual learning and beneficiation (van Veen et al., 2013).

In South Africa, the contemporary landscape of engaged scholarship relate to different perspectives connected to the umbrella theme of social justice including, *inter alia*: epistemic (in)justice/s (Maistry & Lortan, 2017); indigenisation of knowledge co-production processes (Ross, 2018); the decolonisation of knowledge co-production processes (Le Grange, 2023) and postcolonial feminist theory (McCann, 2023) – all of which include, in variable degrees, some examples of transdisciplinary forms of knowledge co-production which is reflected on below.

Transdisciplinarity

The expression 'transdisciplinarity' was reportedly first used by psychologist Jean Piaget in the 1970s amidst the growing anxiety that the extant mono-disciplinary knowledge production method had insufficient utility in a world that was becoming 'too big to know' (Weinberger, 2011). The argument that the world was becoming to 'too big to know' reflected, on the one hand, respect for the advances made through mono-disciplinary modes of knowledge production, and simultaneously, on the other hand, critical concerns that the mono-disciplinary knowledge project had, under many circumstances "reached its own limitations with far-reaching consequences not only for science but also for culture and social life" (Max-Neef, 2005, p. 21).

The emergence of transdisciplinarity

One of the primary drivers of the emergence of transdisciplinarity was prompted by the perceived deficiencies of what is often labelled as the "classical Cartesian-Newtonian paradigm" (Ross & Mitchell, 2018a, p. 40). The Cartesian-Newtonian paradigm is a descendent of the Aristotelian traditional which presupposes that the world is a tangible entity which is separate from the observer, thus can be rationally known to the observer, and a world that is functionally sustained by linear relationships between multiple entities (Lent, 2017). Scientific analysis of linear relationships – reductionism – requires deconstructing the system into its parts so that "each part [can be] solved separately to construct the full solution" (Rickles et al., 2007, p. 934).

The dominant presupposition that justifies the reductionist mind-set is that the linear relations between the parts of the whole operate under universal laws which make the future a predictable entity if appropriate scientific analysis is undertaken. This, in turn, generates a rationale for the universality of the scientific method in which every statement can, with appropriate scientific enquiry, be labelled as either correct or incorrect. It has been argued that the embeddedness of the reductionist mode of enquiry within academe gave rise to habits of mind which are summarised below.

"[O]bjective knowing of exterior objects (over subjective knowledge, i.e. feelings); quantifiable, verifiable data (over qualitative, subjective data); reductionist focus on parts (over holism); deterministic laws of cause and effect (over chance events that laws cannot predict); certainty (over uncertainty); universal knowledge (over local knowledge); one correct view of, or right ways for, a situation (over multiple, relevant, views) and either/or thinking (over accepting with working with ambiguity and paradox)." (Ross & Mitchell, 2018a, p. 47).

Multiple commentators have argued that these habits of mind reinforce the legitimacy of mono-disciplinary scientific methods that are invariably tied to the Cartesian-Newtonian paradigm as the *sine qua non* which, to this day, saturates much of mainstream academe. Almost every critical commentator who recognises deficiencies in the universal application of the Cartesian-Newtonian paradigm recognises that *under certain conditions* the assumptions that underpin the Cartesian-Newtonian paradigm have had, and continue to demonstrate, extreme utility (Weaver, 1948).

However, it has also been argued that the Achilles Heel of the Cartesian-Newtonian paradigm is not the paradigm itself, but rather the uncritical (or naïve) application of the method, *irrespective* of context (Preiser & Cilliers, 2010). It has been argued that in a world which is becoming 'too big to know', the all-important contexts that exacerbate the Achilles Heel are global phenomena created by non-linear systemic interactions, such as a climate variability or food insecurity which manifest – and are experienced in – dispositional ways within different localities around the globe (Taleb, 2007).

These global challenges have been labelled as 'wicked problems' which refers to "any complex issue which defies complete definition and for which there can be no final solution …. in that they resist the usual [Cartesian-Newtonian] attempts to resolve them" (Brown et al., 2010, p. 302). Despite the agility of complex problems to resist endeavours to find solutions to them, it has been argued by some commentators that it is possible to build resilience to – or, "tame the growl" of – wicked problems (Churchman, 1967, p. B-141). The source of the 'agility of complex problems to resist endeavours to find solutions to them was, and remains, attributed to the universal application of the Cartesian-Newtonian paradigm, *irrespective* of the wicked context which opened a door towards "a new way of thinking about, and engaging in, inquiry" (Montuori, 2008, p. ix).

Transdisciplinarity – growing pains

The development of the concept of transdisciplinarity was an enterprise that emerged from earlier efforts to overcome the sub-optimal capabilities of mono-disciplinarity:

> *"While **multidisciplinarity** studies a topic not in one but in several disciplines at the same time, whereas **interdisciplinarity** is concerned with the links and the transfer of knowledge …. from one discipline to another, **transdisciplinarity** is concerned with what is between the disciplines, across the disciplines and beyond the disciplines" (Padurean & Cheveresan, 2010, p. 108).*

This represents a critique of earlier attempts to improve collaborative forms of knowledge co-production through multi-, pluri- and interdisciplinary methods that are implicitly based on collaborations which only addressed what is *between* and *across* disciplines, but erased the question of what is *beyond* disciplines (Max-Neef, 2005).

The primary critique of the earlier forms of multi-, pluri- and interdisciplinary efforts to improve collaborative knowledge co-production processes was that despite the intention of moving beyond the constraints of the Cartesian-Newtonian paradigm, they typically resulted in "an accumulation of [independent] visions emerging from each of the participating disciplines" (Max-Neef, 2005, p. 5). In other words, their collective ontological premise remained closely tied to the Cartesian-Newtonian paradigm; hence the overall epistemological potentials remained constrained within the very paradigm which they were intended to supersede.

In order to go beyond the constraints of the multi-, pluri- and interdisciplinary conceptualisations of knowledge co-production towards a conceptualisation premised on horizontal (rather than hierarchical) *inter*dependencies (rather than an accumulation of isolated, thus conceptually fragmented, *in*dependencies) enabled Nicolescu (2002) to introduce the concept of 'weak' and 'strong' transdisciplinarity.

Going beyond disciplines requires moving beyond binary, meaning-making – "good or evil, right or left, heaven or hell, …., rich or poor" – that emerges from habits of mind associated with the Aristotelian logic of exclusion (Nicolescu, 2010, p. 30). In contradistinction to the 'either/or', binary habits of mind, Nicolescu theorised in favour of an 'included middle' which he later elaborated on as being both a metaphor and logic that "allows us to cross two different levels of reality or of perception and to effectively integrate, not only in thinking but also in our own being, the coherence of the Universe" which represents both an intellectual tool and embodied experience (Nicolescu, 2010 31), Figure 1.

Figure 1: Nicolescu's 'included middle'. Source: adapted from Ross and Mitchell, 2018, reproduced with permission (Ross & Mitchell, 2018b).
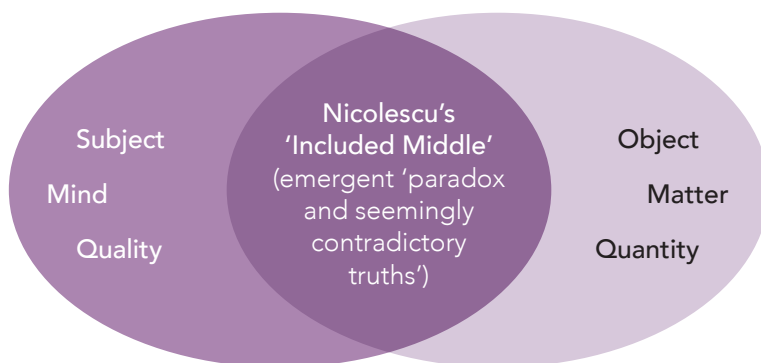
The 'included middle' enables "paradox and seemingly contradictory truths …. that point to different levels of reality, where their unity is explained" to emerge and be analysed, rather than be satisfied by the binary conventions of academe that the 'either/or' habit of mind sustains (Ross & Mitchell, 2018a, p. 44)., 'Weak' transdisciplinarity thus represents collaborations which "remain within the scope of linear logic, which is characteristic …. of the Cartesian-Newtonian paradigm" (Ross & Mitchell, 2018a, p. 40). In contradistinction, 'strong' transdisciplinarity represents "a clear challenge to the binary and lineal logic of the Aristotelian tradition" (Max-Neef, 2005, p. 35). This provided the platform from which Nicolescu (2014, p. 212) argued that, ultimately, for the full potentials of transdisciplinarity to be realised, required a broader societal shift towards a new form of "spirituality" that he labelled "cosmodernity"; meaning "essentially that all entity (existence) in the universe is defined by its relation to all other entities."

More recent theorising by Ross and Mitchell (2018a) supports the earlier arguments that under certain conditions – especially 'wicked' conditions – it is pragmatic to be critical of the universal application of the Cartesian-Newtonian method, but suggest that the existing transdisciplinary modes of knowledge co-production may be too narrow a perspective. Their alternative conceptualisation is based on the premise that ontology, epistemology and axiology are components of peoples' "worldview" which is, more broadly speaking, comprised of multiple, integrated and interdependent "meaning systems (mythic structures)" (Ross & Mitchell, 2018a, p. 47). The kernel of their argument is that to increase the accessibility of transdisciplinary methods requires reflexivity because worldviews are comprised of variable, often culturally patterned, constructions.

The alternative conceptualisation included two interdependent suggestions. The first is to broaden the transdisciplinary perspective to include "cosmology, anthropology and social vision" to make the transformative heuristic more inclusive of pluralistic worldviews (Ross & Mitchell, 2018a, p. 48). The second is to adopt a holistic focus on "third order learning

intent, in which the entirety of the meaning systems of our paradigms and worldviews are *stretched*" to achieve a broader "transformative" conceptualisation (emphasis added, Ross & Mitchell, 2018a, p. 50). The process of 'stretching' represents a reflexive process of problematising the assumptions that sustain the "Newtonian-Cartesian paradigm, through deeper and more critical reflection on and mindfulness of the assumptions and beliefs within which we operate and thus the [associated] outcomes" during transdisciplinary collaborations (Ross & Mitchell, 2018a, p. 51), Table 2

Table 2: The spaces that a 'stretched' form of transdisciplinarity enables. Source: selected extracts adapted from Ross and Mitchell (2018a, pp. 42 & 50).

System	Beliefs and embedded assumptions in the Cartesian-Newtonian paradigm	Vignettes associated with transdisciplinary perspectives
Cosmology: origins of the universe	"The universe is a predictable machine".	"The universe is a self-organising, creative and co-creating realm in which the possibilities …. are so infinite that it is impossible to predict the future".
Ontology: how we define reality	"Reality is defined by absolute permanency ….. Nature is deterministic, governed by causal laws".	"There are different [interdependent] levels of natural and social reality and correspondingly, different levels of perception. … meaning that any level of analysis can only ever be an extremely partial view".
Epistemology: Knowledge (truth claims) and understanding (grasped meaning)	"Knowledge is a finite, ….. Rationality is separate from and superior to experience and emotion. Reductionism is the primary method for understanding phenomenon".	"Knowledge is temporal, historical, relational, emotive, refutable, perspectival, inseparable from the knower, ephemeral, partial, collatable and intregratable, loving, more-than-human, easily rationalized. Transrational-intuitional and embodied knowing is valid and valuable".
Axiology: values	"Value is separate from, and has no place in, objective thought. It is possible to separate values from knowing, and from the means of achieving our ends".	"The subject and object, researchers and researched, are re-integrated, e.g. values and subjectivity are explicitly recognised within enquiry".
Anthropology: the role of humanity	"Humans are separate from, and superior to, nature".	"Humans explore trans-anthropocentric, trans-simplistic relationships with nature, in which nature, with equal rights and consciousness, is valued, and deep interconnectedness is recognised".
Social vision: how society should be organised	"Democracy and capitalism are superior forms of social organisation".	"A vision in which liberation, hope, and equity are prioritised over economic and government ideologies".

Ross and Mitchell's contribution to the on-going conceptualisation of 'transformative' transdisciplinarity provides useful heuristics that are inclusive of multiple components of peoples' 'worldviews (mythic structures)' as entry points for 'paradigmatic reconstructive learning' in concert with 'boundary stretching'. These transformative heuristics contribute to the re-interrogation of transdisciplinary, engaged scholarship in South Africa using the AART method.

The AART method

The AART method that was formulated by Jean Laurier Decoteau (2017) has origins within critical realist ethnography. The AART method consists of 'A' – "abduction"; 'A' – "abstraction"; 'R' – "retroduction", and T – "testing" (Decoteau, 2017, p. 58). For the sake of brevity, the AART method is summarised below, Table 3.

Table 3: The AART method summarised. Source: adapted from Decoteau (2017).

Phase	Description
Abduction	• Recontextualising the object of enquiry using new referential axes of enquiry; • Identify the associated social relations/structures that the object of enquiry is situated within, and • Determine – if possible – the relationships the object of enquiry has with the associated social relations/structures.
Abstraction	Use the abductive findings to consider new theoretical perspectives about the relationships that connect the object of enquiry to the associated social relations and/or structures.
Retroduction	Involves constructing a model, or models, that aims to explain how the emergent abstraction would actually work in practice.
Testing	Involves rigorous empirical testing of the model to determine its utility in real-world settings.

The AART method is designed to constructively disrupt existing patterned 'habits of mind' in order to catalyse novel "hypothesis-generation for innovative theorizing" about the object of research (Decoteau, 2017, p. 72). In this instance the object of research is engaged, transdisciplinary scholarship in South Africa using heuristics labelled as 'both – and' and 'boundary stretching' which are underscored by second and third order learning perspectives, as disruptive referential axes of abductive enquiry.

The 'both – and' heuristic is derived from Nicolescu's 'included middle', Figure 1, and the implicit "paradox and seemingly contradictory truths" that are contained therein, as a metaphorical alternative to the "either/or" habit of mind that is associated with reductionist thinking (Ross & Mitchell, 2018a, pp. 44 & 47). The 'boundary stretching' heuristic is derived from Ross and Mitchell's argument in favour of 'stretching' worldviews

and paradigms as a mechanism to promote transdisciplinary engagement. Augmented by critical systems and complexity thinking, the analysis, below, is restricted to the first two 'AA's of the AART method.

Re-interrogating transdisciplinary, engaged scholarship in South Africa

Two novel hypotheses are presented. Novel hypothesis #1 focuses at a project level of granularity and reflects on the notion of 'weak' and 'strong' transdisciplinarity. Novel hypothesis #2 focuses at a national level of granularity and problematises the contemporary 'spirit' of engagement in South Africa. Prior to presenting the novel hypotheses a brief statement is provided about 'means' and 'ends' from a critical systems perspective in order to introduce the use of the expression 'critical epistemological selectivity'.

Critical systems thinking: second and third-order 'means' and 'ends'

A scientific method represents the '*means*' that is applied to achieve an '*end*'; viz: from a Newtonian-Cartesian perspective a bonafide 'end' would be a 'correct solution' to a problem derived through a reductionist first order 'means'. From a 'wicked' perspective, a legitimate 'end' would be a resilience strategy, or multiple resilience strategies and is derived though a systemic, second and/or third order 'means'. Invariably, the way that the 'end' is defined reflects components of peoples' worldview – and the justification for the applied 'means' is typically derived through a particular worldview. The 'means' thus represents selectivity relating to a real, or perceived, connectivity with an 'end' within a particular methodological decision making context. In other words: "What we believe the world to be, *ontology* ('ends'), which defines the questions we wish to ask, determines how we study and understand existence, *epistemology* ('means')" (parenthesis added, Cole, 1999, p. 222).

Proponents of critical systems thinking advocate that "reflective practice requires that we make ourselves and everyone concerned aware of this *selectivity*; for once our .... designs ('means') become a basis for action, selectivity turns into partiality .... thus some parties may be better served ('ends') than others" (parenthesis and emphasis added, Ulrich & Reynolds, 2010, p. 253). For the purpose of the constructive disruption, 'selectivity' is co-opted using the label 'critical epistemological selectivity' from the perspectives of the two novel hypotheses presented below.

Novel hypothesis generation #1: the 'both – and' and 'boundary stretching' heuristics ('weak' and 'strong' forms of engaged transdisciplinarity)

The first novel hypothesis focuses at a project level of granularity and reflects on the notion of 'weak' and 'strong' transdisciplinarity. As exemplified in a recent publication (Van Eeden et al., 2022), most literature relating to engaged scholarship in South Africa tends to position transdisciplinarity within a 'weak' first order paradigm. Such a paradigm is restricted to descriptors of the simultaneous application of two, or more, disciplinary

modes of knowledge production which necessarily erases the potentials 'strong' second and third order perspectives may contain for engaged transdisciplinary knowledge co-production processes. A second and third order conceptualisation that relates to engaged scholarship is the basis for disruptive novel hypothesis #1, below.

Critical epistemological selectivity

At first glance, the descriptors 'weak' and 'strong' transdisciplinarity appear to represent a pair of opposing concepts which, if left unconnected, represent a binary, 'either/or' first order representation. However, it is possible to make a second order connection between the two concepts by focusing on the system dynamics within which the knowledge production process is situated. The perspective that is proposed is underpinned by the argument that the Achilles Heel of the Cartesian-Newtonian paradigm is not the paradigm in itself, but rather the uncritical application of the method, irrespective of context – which, in this instance, is countered by systems and complexity thinking, placing emphasis on system dynamics and knowledge *co*-production processes.

System dynamics and knowledge co-production processes

A heuristic called the Cynefin framework has been used to argue that leaders can improve the utility of their decision making by problematising the context within which a decision is being made (Snowden & Boone, 2007). The authors argue that there are four dominant contextual decision making domains which must be treated in qualitatively different ways if optimal decision making is to be achieved. In this instance, two decision making domains are considered: 'ordered' and 'unordered'.

The ordered decision making domain represents systems that are at, or close to, equilibrium. The system dynamics of the parts within these types of system are linear and consequently generate predictable outputs. For example, the parts that comprise a functioning machine have linear interactions that consistently produce a specific output. Ordered systems are a manifestation of the type of system that require a 'means' that the Cartesian-Newtonian paradigm is familiar with (i.e., a reductionist 'means'). Snowden and Boone describe the ideal-type decision making response within the 'ordered' decision making domain as "sense, categorize, and respond. That is, [leaders] assess the facts of the situation, categorize them, and then base their response on established [Cartesian-Newtonian] practice" (Snowden & Boone, 2007, p. 69).

On the other hand, the 'unordered' decision making domain represents systems that are *in extremis*, in a state of 'chaos', but, more-often-than-not, are far from equilibrium, thus complex. The system dynamics of the parts within the unordered domain are non-linear and consequently generate unpredictable, but patterned outputs. These types of non-linear interactions represent complex system dynamics that are "reflected in patterns of behaviour, that is, shapes in space or movements over time, which are never exactly repeated but are always similar to each other" (Stacey, 2003, p. 44). Unordered system dynamics thus represent a manifestation of the type of system that requires a 'means' that

is 'a clear challenge to the binary and lineal logic of Aristotelian tradition'. Snowden and Boone argue that decision making in the unordered, complex domain requires leaders to "probe [the environment] first, then sense [what happens after the probing], and then respond" (Snowden & Boone, 2007, p. 72). The logic behind their decision making heuristic is that when working within the unordered domain it is necessary to anticipate a patterned response to the probe (an input into the system) which acts to alter the non-linear system dynamics, but the details of what emerges (outputs) during the patterned response are unpredictable – therefore it is pragmatic to wait and see what type of particular emergence is generated prior to making a decision.

It is possible to transpose the systemic influences that Snowden and Boone propose into the domain of 'weak' and 'strong' transdisciplinarity. 'Weak' transdisciplinarity implicitly refers to forms of knowledge production within ordered systems (i.e., 'remains within the scope of linear logic' of the Cartesian-Newtonian paradigm). On the other hand, 'strong' transdisciplinarity implicitly refers to forms of knowledge production within unordered systems (i.e. systems that represent 'a clear challenge to the binary and lineal logic of Aristotelian tradition'). These qualitatively different transdisciplinary knowledge production contexts ('weak' or 'strong') are generated by qualitatively different system dynamics ('ordered' or 'unordered'), thus require qualitatively different knowledge production methods.

From an engaged perspective, there is no need – or logic – in 'challenging the binary and lineal logic of the Aristotelian tradition' without due systemic cause. What is required is a conceptualisation that obviates the binary, 'either/or' first order perspective in favour of a systemic conceptualisation that makes 'weak' and 'strong' forms of transdisciplinarity a functional, engaged whole, Figure 2.

Figure 2: Weak' and 'strong' transdisciplinarity fused into an engaged, systemic whole through 'critical epistemological selectivity'. Source: author's contribution.
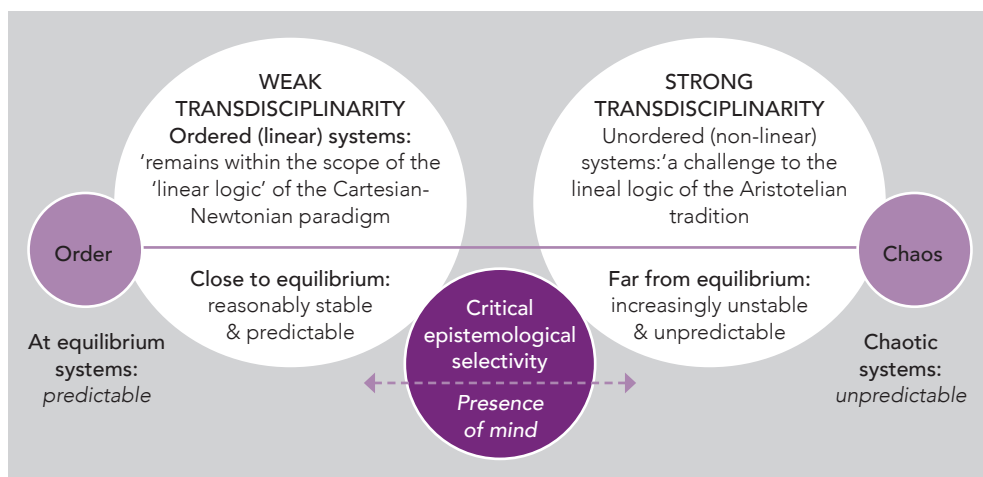
From the perspective of engaged scholarship, one mediating factor that brings utility to the conceptualisation of 'weak' and 'strong' forms of transdisciplinarity, as well as unifies the concepts into a systemic functional whole, is – as Snowden and Boone argue – the ability of leaders (in this instance, engaged scholars) to "know not only how to identify the context they're working in at any given time but also [to know] how to change their behavior and their decisions to match that context" (Snowden & Boone, 2007, p. 75). In other words, a high utility engaged, transdisciplinary schemata must be inclusive of the dexterity to critically apply a methodological 'both – and' *presence* of mind (critical epistemological selectivity), rather than a universal, thus exclusionary, 'either/or' *habit* of methodological mind in, in order to determine the systemic properties of a knowledge production context, prior to methodological decision making.

For example, within an engaged project lifecycle the likelihood is that both linear and non-linear challenges will be encountered. Possessing the *presence* of mind and the selective epistemological dexterity to respond to variable system dynamics within a knowledge production context is, most likely, a transdisciplinary capability that can add value to engaged partnerships. The value emerges from the increased synchronicity between the system dynamics of the challenge being encountered and methodological decision making through a process of critical epistemological selectivity prior to implementation. From the perspective of the engaged practitioner, the agile *presence* of mind referred to above, could be operationalised at an institutional level by applying a heuristic labelled here as 'boundary stretching'.

'Boundary stretching' and critical epistemological selectivity

The expression 'critical epistemological selectivity' enables a comment about 'disciplinary boundaries' proposed by Beaulieu et al, (2018) in their 20 year global scoping review of engaged scholarship reflects a first order position: The analysis reflects a first order position in which a key transdisciplinary "principle" of engaged scholarship is the capacity to cross disciplinary borders.

> *"[E]ngaged scholarship fundamentally involves a multi-inter-transdisciplinary approach [and] …. . It assumes an interaction across disciplines and relevant sectors. Moreover, engaged scholarship must overcome disciplinary boundaries" (emphasis added, Beaulieu et al., 2018, p. 9).*

An alternative position is a third order perspective of transdisciplinarity which manifests through a process of "boundary *stretching*" entailing "reflection on the mythic structures that direct our ways of knowing, being, and doing" in order to problematise the assumptions that sustain the universal, uncritical application of the Newtonian-Cartesian paradigm (Ross & Mitchell, 2018a, p. 51). These two conceptualisations are qualitatively different.

The 20 year scoping review presented by Beaulieu et al. (2018) reflects a first order transdisciplinary disposition which is limited to surface descriptors without consideration of the system dynamics (the context) that are being 'crossed'. The first order descriptor position exclusively assumes a universal system dynamic thus – for as long as this universal position holds for engaged scholars – the need for any form of critical epistemological selectivity becomes, by default, superfluous to the knowledge co-production encounter.

The concept of third order 'boundary stretching' which Ross and Mitchell implicitly propose emphasises the relevance of system dynamics during collaborative knowledge co-production processes. Being responsive to system dynamics which define the knowledge co-production context demands a process of reflexive 'stretching'. In the context of engaged scholarship, the reflexive 'stretchiness' implicitly suggests an elastic boundary dynamic – with the degree of elasticity being interdependent with the presence of mind (reflexivity) of engaged practitioners to determine and respond to variable systemic knowledge co-production contexts (critical epistemological selectivity). As such, the third order position which is inclusive of engaged minds with the capabilities to apply 'critical epistemological selectivity' to determine the system dynamics of particular knowledge production contexts prior to methodological co-decision making may represent an opportunity to 'stretch' the transdisciplinary methodological armamentarium of engaged scholarship.

Novel hypothesis generation #2: The 'spirit' of engagement (historicity and 'beyond disciplines')

The second novel hypothesis focuses at a national level of granularity and problematises the contemporary 'spirit' of engagement in South Africa. The expression 'spirit' is co-opted from Nicolescu's expression "spirituality", referring to "cosmodernity" – meaning "that all entity (existence) in the universe is defined by its relation to all other entities" (Nicolescu, 2014, p. 212). It is postulated that the dominant 'spirit' of engagement in South Africa is social justice. The justification for this claim is that the extant identity attributed to the 'spirit' of engagement by South African academe has developed in variable ways in relation to (1) the injustices associated with the legacy of apartheid, and, (2) the perceived hegemony of the northern knowledge project in the real-world context of place-based inequalities, as is evidenced in the epistemic (in)justice/s, indigenisation and decolonisation of knowledge co-production arguments.

Whilst there is nothing intrinsically wrong with the focus on social (in)justices; it is also legitimate to ask if the extant 'spirit' of engagement represents a *habit* of mind that may unintentionally constrain the contemporary potentials of engaged scholarship in the face of global, wicked challenges that manifest locally in variable ways. History provides insights.

Between 1990 and 1996 Earnest Boyer re-imagined a more engaged academe. During the same period South Africa journeyed into the democratic transition. The convergences of the two concepts had sufficient synergy to contribute to a shift in South Africa from

'community service', to 'knowledge based community service', to 'community engagement' and then 'engaged scholarship'. By 2007 there was also a consensus that community engagement must be integrated ('both - and') with the other core functions of HEIs (HEQC, 2007).

This shift in focus from non-academic 'community service' to integrated 'engaged scholarship' emerged over a ten-year period in South Africa through some 'paradox and seemingly contradictory truths' – as is evidenced by the inability of South African academe in 2007 to agree a single 'generalisable definition' for community engagement. Nevertheless, just over a decade and a half later, the secondary operational characteristics of engaged scholarship became institutionalised as a uniquely South African form of differentiated community engagement placing social justice as an 'end' and engaged scholarship as the 'means', Figure 3.

Figure 3: The emergence of the 'spirit' of engagement in South Africa, 1994 – 2024. Source: author's contribution
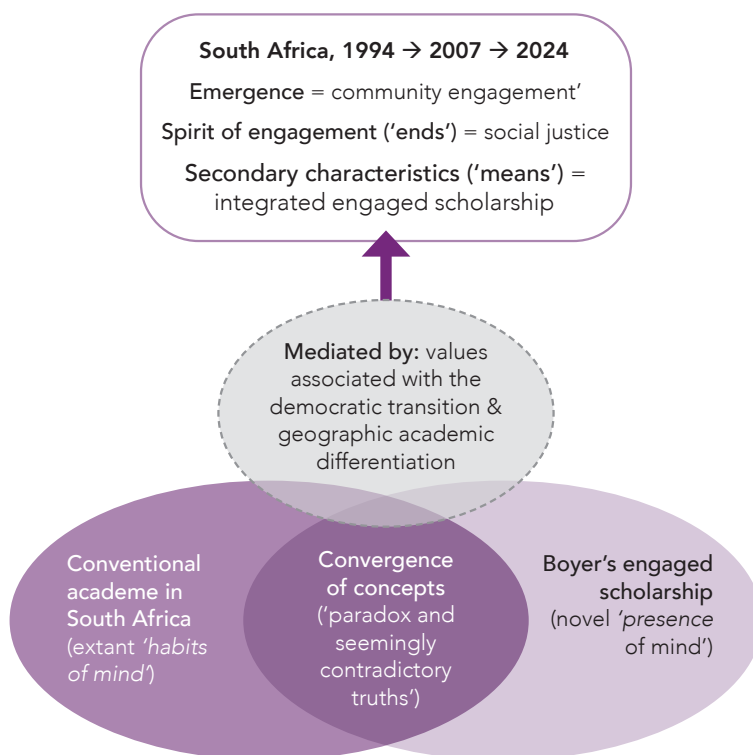

Figure 3 represents the emergence of a South African 'spirit' of engagement which influenced and developed through the historical, 'both – and' convergences of Boyer's

engaged scholarship and the extant South African habits of academe (primarily situated within the Cartesian-Newtonian tradition). The particular South African identity of the 'spirit' of engagement has developed though two dominant mediating co-factors: the values associated with the national democratic shift and geographical differentiation of engaged HEIs. Simply stated: the uniquely South African form of community engagement that we see today has emerged through a historical, interdependent process reflecting *'both'* the axiological primacy placed on social justice which reflected the broader national context *'and'* the localised geographical differentiation of HEIs.

Discussion: the South African 'spirit' of engagement re-considered

The unique form of engaged scholarship in South Africa has emerged through transdisciplinary 'boundary stretching' of South African academe with Boyer's conceptualisation of engaged scholarship which was enabled by a 'both – and' presence of mind, as well as some 'paradox and seemingly contradictory truths'. The new form of engaged scholarship was also influenced by a sufficient presence of mind to deliberate on the potentials of the 'both – and' of the South African Constitutional principles and the localised geographical differentiation of academe.

This combination of 'boundary stretching' and 'both – ands' was facilitated by a presence of collective engaged minds that provided impetus for the historical development of what has now become an established form of community engagement in South Africa. From this perspective, it becomes evident that South African academe has, in variable ways, 'gone beyond disciplines' because community engagement was not a scholarly activity two decades ago, but is now institutionally embedded as integrated scholarship alongside teaching and learning and research (HEQC, 2007).

However, the secondary operational characteristics (properties) of the systems associated with engaged scholarship in South Africa are potentially constrained by a 'spirit' of engagement that (1) has a tendency – if novel hypothesis #1, above, is credible – to be restricted to first order, 'weak' transdisciplinarity, and (2) champions social justice to be an 'end'. By re-considering these habits of mind, – given that the South African Constitution enshrines social justice as both a 'means' and an 'end' *and* most contemporary policy documents prioritise more tangible, real-world issues as 'ends' – it is possible to problematise the primacy given to social justice as an 'end'. The questions that seem relevant include:

- Does the contemporary South African context justify championing social justice as an 'end', or is that conceptualisation an inappropriate, or outdated, habit of mind that now constrains the potentials of community engagement?
- What would happen if social justice became a 'means' to achieve multiple different 'ends'?
- What sort of presence of mind would be required to catalyse new 'ends'?

- What type of transdisciplinary 'means' might support alternative 'ends'?
- What type of potential 'means' and 'ends' candidates could be considered?.

For the sake of brevity, one suggestion about a potential candidate that could disrupt the primacy status that is currently bestowed on social justice is considered: 'second order science'. Second order science is a nascent method that aims to respond to the wicked realities that confounds the Cartesian-Newtonian tradition (first order science). The secondary operational characteristics of second order science are situated within the logic of 'strong' transdisciplinarity and has synergies with the secondary operational characteristics of engaged scholarship, including, *inter alia*: "shared research problems" (Alrøe & Noe, 2014, p. 69); participation in the research process by multiple "communities of practitioners" (Lissack, 2017, p. 12) and a focus on both "[real-world] solution [oriented] processes .....[while being] reflexive" (Fazey et al., 2018, p. 57). However, for the full potentials of the second order science candidate to be activated within an engaged context requires at least one new mediating factor. One exemplar of a potential mediating factor is considered: a commitment to 'taming the growl' of wicked problems by developing resilience strategies to the problems, rather than aiming to identify correct solutions, Figure 4.

Figure 4: A disruptive 'spirit' of engagement. Source: author's contribution
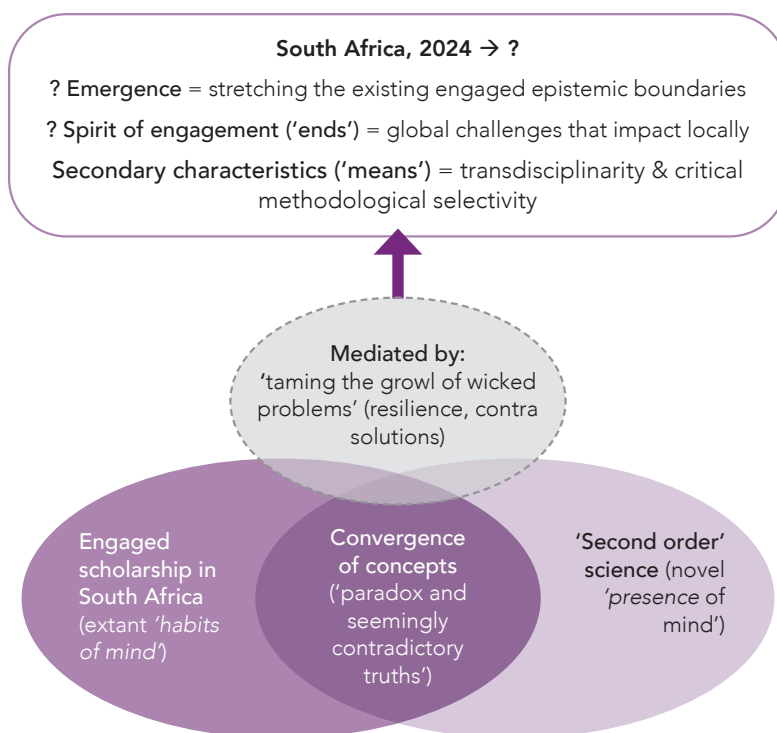
A conflation of the concepts associated with engaged scholarship and second order science could stimulate sufficient disruptive presences of mind to generate 'paradox and seemingly contradictory truths' from which a new form of third order engaged scholarship might emerge. The example of second order science is presented as a potential disruptive candidate – but the candidate is a biased example, amongst multiple potential candidates. Nevertheless, re-considering the 'spiritual' primacy of social justice as an 'end' against *'both'* multiple disruptive contenders with multiple possible 'means' *'and'* realist mediating factors could expand the potentials of engaged scholarship in South Africa.

Limitations of the conceptual research methodology

This article has taken a theoretical position which, for many readers, may seem overly complicated and distant from the 'real-world' practice of engaged scholarship. The article has also not included several avenues which could illuminate transdisciplinary engaged case studies – such as the UNESCO Chair in Community-Based Research and Social Responsibility in Higher Education which supports the Knowledge for Change Global Consortium.

That being said, if the article catalyses sufficient interest from engaged practitioners then the next steps would be to ask practical 'how to' questions so that the theory that has been presented above could gradually become adapted into a workable methodology. Whilst this endeavour may, at first glance, appear to be an unlikely scenario there is ample case material that can be drawn upon to provide stepping stones towards a workable model. Global examples include Bakhache et al. (2017) and Bartels et al. (2019). Closer to home, there are examples from South Africa including Burman and Aphane (2019); Cunningham (2020); Strydom (2023); Van der Merwe et al. (2019) and van der Merwe et al. (2020) from which valuable lessons could be learnt.

Concluding comments

The purpose of this article has been to constructively disrupt the current habits of mind with regard to community engagement in South Africa using the 'both – and' and 'boundary stretching' heuristics, underscored by second and third order learning as disruptive referential axes of abductive enquiry. Two novel hypotheses have been presented. The first novel hypothesis refers to a project level of granularity and argues that the notions of 'weak' and 'strong' forms of transdisciplinarity could be transposed into engaged scholarship if the concept is applied with a presence of mind labelled as 'critical epistemological selectivity'. The second novel hypothesis refers to a national level of granularity and queries the utility of the extant 'spirit' of engagement – which places primacy on social justice as an 'end'. The reason for querying the primacy placed on social justice is not to denigrate social justice, *per se*; but rather to ask if social justice could usefully become a 'means' that contributes to more tangible, real-world 'ends'?

Both novel hypotheses are underpinned by the concepts of 'habits' and 'presences' of mind which enables a broader historical reflection. The period from 1994-2007 represented a period dominated by a fragmented and geographically differentiated national South African *presences* of mind relating to the potentials of Boyer's conceptualisation of engaged scholarship within the emergent democratic context. However, there are indicators that in the post 2007 era South African academe has seemingly gravitated towards a *habit* of mind which could be constraining the potentials of community engagement.

The primary constraint is that community engagement in South Africa appears to have retained an inward, first order, localised habit of mind associated with the Cartesian-Newtonian tradition. This represents a limited, if not uncritical (naïve), conceptualisation of transdisciplinarity when there are second and third order alternatives that can be considered. Likewise, for as long as the 'spirit' of engagement in South Africa is retained as social justice through first order, ahistorical (the reification of the democratic shift) and predominantly localised perspectives in the face of multiple, real-world global challenges that 'wickedly' manifest in particular contexts, it is plausible that engaged scholarship could become a sub-optimal vehicle to ameliorate the impact of those challenges.

In summary, there is a risk that the individual agency and collective axiological presence of engaged minds which contributed to the development and institutionalisation of community engagement in the 1994 – 2007 – 2024 period could render itself in a deficit position in the face of emergent wicked global challenges for as long as engaged scholarship retains an inward, first order, localised habit of mind. Hopefully, this article contains sufficient 'paradox and seemingly contradictory truths' to contribute to a transition towards a more contemporary form of critical, second and/or third order transdisciplinary engagement that can become mutually beneficial to both academe and its neighbouring communities in the future.

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References

Alrøe, H. F., & Noe, E. (2014). Second-order science of interdisciplinary research: A polyocular framework for wicked problems. *Constructivist Foundations*, 10(1), 65-69. http://www.univie.ac.at/constructivism/journal/10/1/065.alroe

Bakhache, N., Michael, S., Roupetz, S., Garbern, S., Bergquist, H., Davison, C., & Bartels, S. (2017). Implementation of a SenseMaker® research project among Syrian refugees in Lebanon. *Global Health Action*, *10*(1), 1362792. Retrieved 22 August 2024, from https://doi.org/10.1080/16549716.2017.1362792

Barker, D. (2004). The Scholarship of Engagement: A Taxonomy of Five Emerging Practices. *Journal of Higher Education Outreach and Engagement*, *9*(2), 123-137.

Bartels, S. A., Michael, S., Vahedi, L., Collier, A., Kelly, J., Davison, C., Scott, J., Parmar, P., & Geara, P. (2019). SenseMaker® as a monitoring and evaluation tool to provide new insights on gender-based violence programs and services in Lebanon. *Evaluation and Program Planning*, 77, 101715. Retrieved 18 October 2024, from https://www.sciencedirect.com/science/article/pii/S0149718919301119

Bateson, G. (1972). *Steps to an Ecology of Mind*. San Francisco (USA): Chandler.

Beaulieu, M., Breton, M., & Brousselle, A. (2018). Conceptualizing 20 years of engaged scholarship: A scoping review. *PloS one*, *13*(2), 1-17. https://www.ncbi.nlm.nih.gov/pubmed/29489870

Bell, D. M., & Pahl, K. (2017). Co-production: towards a utopian approach. *International Journal of Social Research Methodology*, *21*(1), 105-117. https://doi.org/10.1080/13645579.2017.1348581

Bender, G. (2008). Exploring conceptual models for community engagement at higher education institutions in South Africa. *Perspectives in Education*, *26*(1), 81-95. https://www.ajol.info/index.php/pie/article/view/76445

Bishop, B. J., & Dzidic, P. L. (2014). Dealing with wicked problems: conducting a causal layered analysis of complex social psychological issues. *American Journal of Community Psychology*, *53*(1-2), 13-24. https://doi.org/10.1007/s10464-013-9611-5

Boyer, E. L. (1990). *Scholarship reconsidered: priorities of the professoriate*. New York (USA): John Wiley & Sons.

Boyer, E. L. (1996). The Scholarship of Engagement. *Journal of Public Service and Outreach*, *1*(1), 11-20.

Briffett Aktaş, C. (2024). Enhancing social justice and socially just pedagogy in higher education through participatory action research. *Teaching in Higher Education*, *29*(1), 159-175. https://doi.org/10.1080/13562517.2021.1966619

Brown, V. A., Harris, J., & Russell, J. (2010). *Tackling wicked problems through the transdisciplinary imagination*. London (UK): Earthscan.

Burman, C., & Aphane, M. (2019). Improved adherence to anti-retroviral therapy among traditionalists: reflections from rural South Africa. *African Health Sciences*, *19*(1), 1422-1432.

Churchman, C. W. (1967). Wicked Problems. *Management Science*, *14*(4), B-141-B-146. https://doi.org/10.1287/mnsc.14.4.B141

Cole, A. (2017). Towards an Indigenous Transdisciplinarity. *Transdisciplinary Journal of Engineering & Science*, *8*(1). https://doi.org/10.22545/2017/00091

Cole, K. (1999). *Economy-environment-development-knowledge*. London (UK), New York (USA): Routledge.

Cooper, T., & Skipton, M. (2013). Revisiting the mission of the business school through scholarship of engagement. *Journal of Higher Education Theory and Practice*, *12*(3-4), 57-71.

Cunningham, C. (2020). *The adaptive capability of the operational team to respond to challenges in the Emergency Centre. A SenseMaker® study in Emergency Centres within Cape Town,* (PhD), University of Cape Town. OpenUCT. Cape Town. http://hdl.handle.net/11427/32215

Davis, K. L., Kliewer, B. W., & Nicolaides, A. (2017). Power and Reciprocity in Partnerships: Deliberative Civic Engagement and Transformative Learning in Community-Engaged Scholarship. *Journal of Higher Education Outreach and Engagement*, *21*(1), 30-54.

Decoteau, C. L. (2017). The AART of Ethnography: A Critical Realist Explanatory Research Model. *Journal for the Theory of Social Behaviour*, *47*(1), 58-82. https://doi.org/10.1111/jtsb.12107

DOE. (1997). White paper on education and training 3: A programme for the transformation of higher education. Government Gazette No 1820, 15 August (G. Printers, Ed.). Pretoria (South Africa): Department of Education (DOE). https://www.gov.za/sites/default/files/gcis_document/201409/18207gen11960.pdf

Fazey, I., Schäpke, N., Caniglia, G., Patterson, J., Hultman, J., Van Mierlo, B., Säwee, F., Wiekg, A., Wittmayerh, J., Alduncei, P., Al Waera, H., Battacharyaa, N., Bradbury, H., Carmena, E., Colvink, J., Cvitanovicl, C., D'Souzam, M., Gopeln, M., Goldsteino, B., … Wyborn, C. (2018). Ten essentials for action-oriented and second order energy transitions, transformations and climate change research. *Energy research and social science*, *40*, 54-70. https://doi.org/10.1016/j.erss.2017.11.026

Hall, M. (2010). Community engagement in South African higher education. *Kagisano*, *6*(1), 1-52.

Hart, A., Davies, C., Aumann, K., Wenger, E., Aranda, K., Heaver, B., & Wolff, D. (2013). Mobilising knowledge in community–university partnerships: what does a community of practice approach contribute? *Contemporary Social Science*, *8*(3), 278-291. https://doi.org/10.1080/21582041.2013.767470

HEQC. (2001). *Founding document* (C. o. H. Education, Ed. Vol. Higher Education Quality Committee (HEQC)). Pretoria (South Africa): Council on Higher Education. http://www.che.ac.za/sites/default/files/publications/HEQC_Founding_document_web_2001.pdf

HEQC. (2004). *Framework for Institutional Audits* (C. o. H. Education, Ed. Vol. Higher Education Quality Committee (HEQC)). Pretoria (South Africa): Council on Higher Education. http://www.che.ac.za/sites/default/files/publications/CHE_Institutional-Audit-Framework_June2004.pdf

HEQC. (2007). Council on Higher Education Institutional Audits Manual (C. o. H. E. H. E. Q. Committee), Ed. Vol. Higher Education Quality Committee (HEQC)). Pretoria (South Africa): Council on Higher Education (Higher Education Quality Committee). https://www.ul.ac.za/wp-content/uploads/2024/07/The-Manual-for-Institional-Audits-Higher-Education-Quality-Committee-Council-on-Higher-Education-2007.pdf

HEQC/JET. (2006, 3-6 September, 2006). Proceedings of the Conference. The CHE-HEQC/JET-CHESP Conference on Community Engagement in Higher Education, Pretoria (South Africa).

Kline, C., Asadian, W., Godolphin, W., Graham, S., Hewitt, C., & Towle, A. (2018). From "Academic Projectitis" to Partnership: Community Perspectives for Authentic Community Engagement in Health Professional Education. *Engaged Scholar Journal: Community-Engaged Research, Teaching, and Learning*, *4*(1), 79-96. https://doi.org/10.15402/esj.v4i1.310

Lam, B., Zamenopoulos, T., Kelemen, M., & Hoo Na, J. (2017). Unearth Hidden Assets through Community Co-design and Co-production. *The Design Journal*, *20*(sup1), S3601-S3610. https://doi.org/10.1080/14606925.2017.1352863

Le Grange, L. (2023). Decolonisation and a Third Possibility for the University. *South African Journal of Higher Education*, *37*(1), 38-52. https://doi.org/doi:10.20853/37-1-5676

Lent, J. (2017). *The Patterning Instinct: A Cultural History of Humanity's Search for Meaning*. New York (USA): Prometheus Books.

Lissack, M. (2017). Second order science: Examining hidden presuppositions in the practice of science. *Foundations of Science*, *22*(3), 557-573. https://doi.org/10.1007/s10699-016-9483-x

Maistry, S., & Lortan, D. (2017). Lessons from the global South: knowledge democracy and epistemic justice in higher education institutions in South Africa. *Journal for New Generation Sciences*, *15*(1), 123-139. https://hdl.handle.net/10520/EJC-c858e106a

Max-Neef, M. A. (2005). Foundations of transdisciplinarity. *Ecological Economics*, *53*(1), 5-16. https://doi.org/10.1016/j.ecolecon.2005.01.014

McCann, C. (2023). On possibility: Exploring the connections between postcolonial feminism and community engagement in pursuit of university transformation. *African Journal of Higher Education Community Engagement*, *1*(1), 39-54.

Montuori, A. (2008). Foreword: Transdisciplinarity. In B. Nicolescu (Ed.), *Transdisciplinarity: Theory and practice* (pp. ix-xvii). Cresskill (USA): Hampton.

Nicolescu, B. (2002). *Manifesto of transdisciplinarity (K.C. Voss, Trans)*. New York (USA): State University of New York Press.

Nicolescu, B. (2010). Methodology of transdisciplinarity. Levels of reality, methodology of the included middle and the complexity. *Transdisciplinary journal of engineering and science*, *1*(1), 18-38. https://doi.org/10.22545/2010/0009

Nicolescu, B. (2014). *From modernity to cosmodernity: Science, culture, and spirituality*. Albany, NY (USA): SUNY Press.

Padurean, A., & Cheveresan, C. T. (2010). Transdisciplinarity in education. *Journal Plus Education/Educatia Plus*, *6*(1), 127-133. https://www.ceeol.com/search/article-detail?id=671767

Palmer, C. L. (2001). *Work at the boundaries of science: Information and the interdisciplinary research process*. Dordrecht (Netherlands): Kluwer Academic Publishers.

Post, M. A., Ward, E., Longo, N. V., & Saltmarsh, J. (2023). *Publicly engaged scholars: Next-generation engagement and the future of higher education*. New York (USA): Taylor & Francis.

Preiser, R., & Cilliers, P. (2010). Unpacking the ethics of complexity: concluding reflections. In P. Cilliers & R. Preiser (Eds.), *Complexity, difference and identity. An ethical perspective* (pp. 265-287). Dordrecht (The Netherlands): Springer. https://www.researchgate.net/publication/225982584_Unpacking_the_Ethics_of_Complexity_Concluding_Reflections

Rickles, D., Hawe, P., & Shiell, A. (2007). A simple guide to chaos and complexity. *J Epidemiol Community Health*, *61*(11), 933-937. https://doi.org/10.1136/jech.2006.054254

Ross, E. (2018). Reimagining the South African social work curriculum: Aligning African and western cosmologies. *Southern African Journal of Social Work and Social Development*, *30*(1), 16. https://doi.org/10.25159/2415-5829/2273

Ross, K., & Mitchell, C. (2018a). Transforming Transdisciplinarity: An Expansion of Strong Transdisciplinarity and Its Centrality in Enabling Effective Collaboration. In D. Fam, L. Neuhauser, & P. Gibbs (Eds.), *Transdisciplinary Theory, Practice and Education: The Art of Collaborative Research and Collective Learning* (pp. 39-56). Cham: Springer International Publishing. https://doi.org/10.1007/978-3-319-93743-4_4

Ross, K., & Mitchell, M. (2018b, 20 November). Transforming transdisciplinarity: Interweaving the philosophical with the pragmatic to move beyond either/or thinking. *Integration and Implementation Insights blog*. https://i2insights.org/2018/11/13/transdisciplinarity-and-either-or-thinking/

Slamat, J. (2010). Community engagement as scholarship: A response to Hall. *Kagisano*, *6*(1), 104-114.

Smith, K. K., & Berg, D. N. (1997). *Paradoxes of group life: Understanding conflict, paralysis and movement in group dynamics*. San Francisco (USA): Jossey-Bass.

Snowden, D. J., & Boone, M. E. (2007). A leader's framework for decision making. *Harvard Business Review*, *85*(11), 68-76. http://www.ncbi.nlm.nih.gov/pubmed/18159787

Stacey, R. (2003). *Complexity and group processes: A radical social understanding of individuals*. New York (USA): Brunner-Routledge.

Sterling, S. (2010). Transformative learning and sustainability: Sketching the conceptual ground. *Learning and Teaching in Higher Education*, *5*(11), 17-33. https://www.researchgate.net/publication/266184629_Transformative_Learning_and_Sustainability_Sketching_the_Conceptual_Ground

Strydom, C. (2023). *Trialling The Sensemaker Methodology To Conceptualise Precarious Work Among Employed Individuals In South Africa,* (PhD), University of Cape Town. OpenUCT. Cape Town. http://hdl.handle.net/11427/39859

Taleb, N. N. (2007). *The Black Swan: The impact of the highly improbable*. New York (USA): Random House.

Ulrich, W., & Reynolds, M. (2010). Critical systems heuristics. In M. Reynolds & S. Holwell (Eds.), *Systems Approaches to Managing Change: A Practical Guide* (pp. 242-292). London (UK): Springer.

van der Merwe, S. E., Biggs, R., & Preiser, R. (2020). Sensemaking as an approach for resilience assessment in an Essential Service Organization. *Environment Systems and Decisions*, *40*(1), 84-106. https://doi.org/10.1007/s10669-019-09743-1

Van der Merwe, S. E., Biggs, R., Preiser, R., Cunningham, C., Snowden, D. J., O'Brien, K., Jenal, M., Vosloo, M., Blignaut, S., & Goh, Z. (2019). Making Sense of Complexity: Using SenseMaker as a Research Tool. *Systems*, *7*(2), 25. https://doi.org/10.3390/systems7020025

Van Eeden, E., Eloff, I., & Dippenaar, H. (2022). *Community Engagement Research in South Africa - Methods, Theories, Histories and Practice*. Pretoria (South Africa): Van Schaik Publishers.

van Veen, S. C., Bunders, J. G. F., & Regeer, B. J. (2013). Mutual learning for knowledge co-creation about disability inclusive development programmes and practice. *Knowledge Management for Development Journal*, *9*(2), 105-124. https://www.km4djournal.org/index.php/km4dj/article/view/162

Weaver, W. (1948). Science and Complexity. *Scientific American*, *36*(4), 536-544.

Weinberger, D. (2011). *Too big to know: Rethinking knowledge now that the facts aren't the facts, experts are everywhere, and the smartest person in the room is the room*. New York (USA): Basic Books.

Zuber-Skerritt, O., Wood, L., & Louw, I. (2015). *A Participatory Paradigm for an Engaged Scholarship in Higher Education: Action Leadership from a South African Perspective*. Rotterdam (Netherlands): Sense Publishers.