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## A TRANSDISCIPLINARY *CURRERE*

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### Abstract

In the shifting of universities towards a more clearly economic imperative rather than social good, the relationship between higher education teaching and professional practice has become more apparent in the courses offered by universities and their relationship with employment and employers. This paper envisions all high-level vocational education as professional and discusses how an understanding of the phenomenology of transdisciplinary practice could help define how it might be structured, and with whom, in professional practice. Specifically, the paper considers a phenomenological understanding of how knowing can be conceived of a patterning of causes which forms the basis of the concept of a lifelong curriculum, or *currere*, might reconceptualise the curriculum from a course outline to what Pinar calls 'a complicated conversation' (Pinar, 2011).

### Key words

Transdisciplinary, Aristotle, *currere*, systems, professional practice, disciplinary power

### Introduction

A *transdisciplinary currere* reflects the embodiment of being through practice in any social setting but particularly the workplace and, as such, it can inspire curriculum practice that creates 'lucid and legitimate thinking of the ontological potential of humans' (Magrini, 2010). A *transdisciplinary currere* is the realisation of the multiplicity and weaving of context that helps understand and support one's becoming. It is not a curriculum for the development of student employability skills but for a way of becoming a professional. It is in this sense that it is used in this paper.

Such an approach draws attention to a tension between formal education's concentration on the self-developing autonomous individual, attested through technologies of individual assessment and resting upon a technical rather than a dispositional way of being, and the challenges of the economic imperatives in education. It is in the workplace that the shared agencies of communities of practice determine success. What fails the professional in the workplace is the difficulty for higher education institutions to grasp this phenomenon of transdisciplinarity, frustrated by cultures and ideologies of individual autonomy and reward.

### What is the Cause of what we know?

We have tended in recent times to deem what is knowable through what might be referred to as the scientific method, reified in disciplines and through specific and rigorous methodology, based in most cases on a decontextualising and deconstructing epistemology.

Indeed, Aristotle also would suggest that causal exploration is the way of knowing what one is investigating but would expand the forms of investigating to four causes, the third of which is the genus of our scientific method and the silos of closed system disciplinarity whilst the other three, substance, form and purpose, form a wider and more comprehensive way of understanding the being of a thing or concept. These are his four related causes explored in Book 5 of the *Metaphysics* and Book 2 of the *Physics*. It is the importance of the fourth or final cause and the understanding of this as the teleological nature of a thing; its purpose – its ‘reason for being’ that contextualising the other three causes to offer a real world understanding of a thing or idea. This understanding and its implication is the central platform of a *transdisciplinary currere*, while the modern deconstruction approach to knowing focuses predominantly on the third cause under the rubric of scientism, decoupling what might be from the real, seeking cause and effect in isolation from the transcendental and the totality of the influences of being in the world. Moreover, I will suggest this approach does damage to our ability to see the wider pictures of our world by ignoring the other causes of knowledge and limiting through the assertion of the third cause that knowledge is derived from formal, deductive and methodological codified ways, leading to the stable form of knowledge: *episteme*. An approach which privileges one form of causation leads to adequately stabilised and secure knowledge “about external things that display to a large extent some regularity” (Papastephanou, 2013). But in our complex world such regularity is rapidly changing and the problems professionals face are often bereft of such assurance.

For Aristotle however, the causes lead to a wide range of ways of knowing including of *endoxa*, *khresis* and *pathos*, although these ways of knowing are not necessarily separable in coming to conclusions. This has led Eikeland (2007) to suggest that it is more accurate to refer to Aristotle’s notion of knowledge as gnoseology rather than epistemology. I will promote that the relational interwoven-ness of understanding of four causes and gnoseology provide a better conceptual frame for understanding transdisciplinarity than extending the notion of epistemology, praxis or phronesis as a dominating propriety of theory and or praxis in ways that reflect Eikeland, (2008), Kristjansson (2005) and Papastephanou’s (2013) reading of respecting the underlying generative mechanisms and structures which lie at the heart of scientific discovery. In combining the four forces and gnoseology we have a framework within which a differentiated, stratified and non-reductionist view of the world can be explored. Investigations of this unity may be located outside of discipline-based discrete epistemic practices, thus countering a paradigm that Morin has called “a paradigm separation” (2008).

We can then draw a distinction between knowledge that is propositional (the kind of knowledge that we have when we know that something is the case), knowledge that is about processes (when we know how to do something) and what is sometimes referred to as knowledge with a direct object (when we know something or someone directly or through immediate experience). This might indicate that these forms of knowledge are fundamentally different, with strong and impermeable boundaries between them. As Scott (2017) suggests, this is may be misleading.

### *Paul Gibbs: A Transdisciplinary Currere*

According to Papastephanou (2013), in addition to Aristotle's theory of knowledge as comprising *theoria*, *poiesis*, *praxis*, there is textual evidence that he considered *khresis* (using) and *pathos* (passivity, receptivity or reactivity) as primarily complementary knowledge forms. Indeed, a transdisciplinary unification is possible, and is even indicated in Aristotle's gnoseology.

If we can accept this, then the highest level of all, transdisciplinarity, is framed in foundational terms and not, as might be stated, in some sense of an extension, completion or perfection of framings at lower levels – although one may have to go through the lower levels to arrive at the higher levels. This is a deeper understanding of being, of ourselves within the otherness of a presenting world, which may be outside the language of the rational. What this also means is that disciplinary knowledge, discipline-derived rationales for knowledge and discipline-based epistemic practices are, in some important

#### **Grounding of Transdisciplinarity in its own History**

If knowledge is understood as transdisciplinary, then its mode of production and its creativity are dependent on all four of Aristotelian forces located, so transcending disciplinary epistemological rationales, not replacing them, and might be revealed in modes of truth that are dependent on poetics, metaphors and analogies, of folk knowledges and of the spiritual, mystical and the profound. To reach this point I borrow mainly from the contemporary philosophical engagement with the transdisciplinarity of Nicolescu (2002, 2006, 2015), and Scott (2017).

According to Scott (2017) for instance, the case for interdisciplinarity begins with the consideration that, outside of closed contexts, a multiplicity of causes, mechanisms and potentially theories is always involved in the explanation of any event or concrete phenomenon. To move to transdisciplinarity, we have to add considerations of emergence to those of complexity, which emerges in open systems. An emergent level of reality is unilaterally dependent on a more basic one; irreducible to the more basic one and, additionally, causally irreducible in the domain in which the basic one operates. When such emergence is involved, knowledge can no longer be generated by the additive pooling of the knowledges of the various disciplines concerned, but requires a whole integration or genuine transcendence of disciplinarity arrived at through “constructing new concepts through the transformation of problems” (Osborne, 2015).

The emergence of transdisciplinarity as a concept can be traced to the Organisation of Economic Cooperation and Development (OECD) International Conference on Interdisciplinary Research and Education in 1970. Influential researchers assembled in Paris to explore approaches to support universities in their quest to generate innovative solutions to society's challenges of the time. While interdisciplinarity was the focus of the seminar, TD was defined by a group of distinguished scholars using an axiomatic approach that transcends the narrow scope of disciplinary worldviews through an overarching synthesis. Three key researchers are generally attributed with leading the discourse: Jean Piaget, Erich Jantsch and Andre Lichnerowicz:

Finally, we hope to see succeeding to the stage of interdisciplinary relations a superior stage, which should be 'transdisciplinary,' i.e. which will not be limited to recognize the interactions and/or reciprocities between the specialized researches, but which will locate these links inside a total system without stable boundaries between the disciplines. (Piaget, 1972).

While Piaget and Jantsch positioned transdisciplinarity in terms of overarching systems and structures and patterns of thought, Lichnerowicz advocated for a common structure anchored in the deductive sciences of logic, utilising 'the mathematic' as a universal interlanguage (Lichnerowicz, 1972). Jantsch described a multidimensional approach to education, structured as a multi-level and multi-goal system. Coordination was the key element across the purposive, normative, pragmatic and empirical levels. He also emphasised a strong association of TD and social purpose: the essential characteristic of a transdisciplinary approach is the coordination of activities at all levels of the education/innovation system towards a common purpose (Jantsch, 1972).

We believe that this ground-breaking meeting in 1970 served to initiate significant future discussions, and the definitions by Piaget and Jantsch are often claimed to be the most influential and widely cited (Augsberg, 2014). It is noted that Piaget was fully conscious of this alteration of transdisciplinarity, but the intellectual climate was not yet prepared for the shock of contemplating the possibility of a space of knowledge beyond the disciplines, with some suggesting that there had been a conscious decision to stage the evolution of the thinking. Ultimately, these seminal publications have helped to shape the subsequent divergence of ideas in the literature (Klein, 2004), although there is still a notion that 'transdisciplinarity remains "a rather elusive concept" that continues to evolve' (Jahn, Bergman & Keil, 2012; see also Balsiger, 2004; Klein, 2004).

## **Contemporary Themes**

### ***Divergence***

As described previously, transdisciplinarity is often cited as lacking a common description. There are multiple definitions and approaches (but it is arguably the Nicolescuian and the Zurich perspectives that feature most prominently (McGregor, 2015)). The approach championed by physicist Basarab Nicolescu (2002) positions transdisciplinarity as a novel method to create knowledge aligned with three axioms, to be discussed below. The other, known as the Zurich approach, was formulated at the International Transdisciplinary Conference held there in 2000. At its core, it calls for the collaboration of experts from diverse fields on specific projects that transcend the boundaries of specific disciplines, conceptualising transdisciplinarity as an emergent form of research informed by the post-normal science perspective (Ravetz, 1999). In contrast to the Nicolescuian approach, the express intent is not the construction of new knowledge forms or realities.



### ***Dispositions for Transdisciplinarity***

Another discourse that features prominently in the literature is the concept of a dispositional orientation to transdisciplinarity (de Freitas, Nicolescu & Augsberg, 1994). Considerable discourse around transdisciplinary skills, characteristics and traits, as well as its virtues and practices, has been previously presented by Augsberg, Derry and Fischer (2005) and Mishra, Koehler and Heniksen (2011). While these authors may present different sets of habits, dispositions and cognitive skills, there is a recognition that complex, wicked societal challenges demand perseverance, tolerance, creativity, insightfulness and a comfort with uncertainty (Costa & Kallick, 2008). Additional 'ideal qualities' include curiosity about, and a willingness to learn from, other disciplines; flexibility; adaptability; good communication and listening skills; and teamwork (Bruce et al., 2004). Exploring specifically the skills necessary for academic research, Godemann (2008) identified the ability to look beyond one's own disciplinary boundaries, take on new ideas and reflect on knowledge integration processes, and a capacity for disciplined self-reflexivity.

Additional research in exploring the cognitive tools that underpin TD approaches to thinking was conducted by Mishra et al. (2011). This work described seven habits of mind: perceiving; patterning; abstracting; embodied thinking; modelling; playing; and synthesising.

### ***The Politics of Disciplinarity***

It can be argued that knowledge sits at the heart of every discipline; and knowledge, as we know, is power. By extension, at the heart of every discipline, then, is its *politics of knowledge production*. What constitutes knowledge and, importantly, how do we evaluate the credibility of a claim to know? This concept will be explored in greater detail in both the interviews with key thinkers and later in this chapter.

It has been discussed that there is a 'growing acknowledgement of the internal complexity of the concept of an academic discipline, with often discrete intellectual, institutional and political aspects'. (Simpson, 2015) A key driver for the continuing dominance of the disciplinary approach in the university is the need for effective and efficient institutional structures for training students and facilitating an assembly of academics. By compartmentalising knowledge in separate disciplines, we risk being unable to 'recognize the inseparability of the separable' (Morin, 2006). While disciplinary knowledge *can* be separated, any opportunity to address the open, networked and complex problems facing society will remain unrealised unless we reconceive of them as inseparable. Transdisciplinarity confronts the hegemony of disciplinary power, speaking truth to holders of powers, whether disciplinary elites, academic managers or policy makers. It challenges the knowledge culture and, as such, has at its core an educative purpose. We discuss this more later.

## **Two Approaches: One Transcendent, the Other Recursive**

Several approaches have been developed to answer the question of what knowledge is (its function, its constitution, its genealogy and its rationale) and, though parts of these theories are understood as useful for the task in hand, on their own they do not amount to a complete theory of knowledge and therefore of learning. These failures are often contingent upon disaggregated notions of knowledge (*gnosis*), turning into epistemology and ontology, creating an onto-epistemological narrative that is intent on informing practice but is often restrictive of freedom of thought, expression and innovation, which are the consequences of the ontological incongruities evident in discipline-based knowledge approaches. The need to change such knowledge positions applies equally well to the issues in emergent worlds that seemingly defy traditional, methodologically-inspired empirical investigation.

Amid the boundary-spanning definitions of transdisciplinary knowledge that emerge from, and are applied to, transdisciplinary problems, any attempt to resolve value-laden issues requires judgement on the practical alternatives that affect others. They are not theoretical but practical, and are informed by the onto-epistemic principles contextualised in ethical and political contexts. These concerns are too important to be hampered by the constraints of disciplines and the forms of knowledge and the veracity that they sanction. The knowledge needed is both of the means to solve the problem and the goal of the solution. Knowledge is in the liberation of new and imaginative understanding from those meanings available under a notion of causality-predicated epistemologies within the closed system of the presenting problem. It is the understanding of the objects and the structured reality of open social systems that gives rise to the causal powers to which we attribute the relationship of agency and structure. It is in this sense that we explore knowledge that seems to us transformative – translational, as well as transdisciplinary – and with resonance with the claims that we make for the leaders in this academic field in this volume. We say academic, by way of acknowledging the many whose activities are not codified as transdisciplinary yet whose presence in a work of complexity of many other worlds and realities shows an agentic knowledge that is beyond this book.

As we have seen, concerns about the nature of transdisciplinary knowledge vary. As Mercier (2015) suggests, drawing on the work of Serres uncovers two principal transdisciplinary logics: one tied to ideologies (abstract forms), the other tied to the empirical domain (concrete information). For Serres (1974), ‘transdisciplinarity’ can also be described as a general theory and practice of translation, textual or empirical. It provides opportunities to explore different ways of thinking through deep inquiry into complex world issues. The concept of transdisciplinary knowledge can be reviewed through two major and, perhaps, complementary orientations. According to the first, which has an epistemological and theoretical accent, transdisciplinarity is the process of knowing that which transcends disciplinary boundaries, and it entails a major reconfiguring of disciplinary divisions within a multi-reality, complex world.

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According to the second orientation, which is more pragmatic, participative and applied, transdisciplinarity can be thought of as a method of research that brings political, social and economic actors, as well as ordinary citizens, into the research process itself from a problem-solving perspective. Actors from outside the scientific field contribute to the construction of knowledge and solution of social problems that fall outside disciplinary boundaries. Transdisciplinarity is, perhaps above all, a new way of thinking about and engaging in inquiry. And transdisciplinary knowledge is created as a process of continuous refinement of multidisciplinary modes of knowledge aligned with features of the notion of Mode 2 knowledge (Gibbons et al., 1994).

The emergence initially created tensions in those institutions that may have profited from the decoupling of the forms of knowledge. Not least, this included universities that may have seen their mission to be the pursuit knowledge for its own sake, yet that are now recognising and actively embracing a more explicit economic role in the creation and transfer of knowledge. However, the dynamics of relationships and the forms of assessment of the nature of knowledge remain the same, even if the rational nature of the creator and use has become blurred. It embraces doing things differentially, not conceiving of the nature of knowledge in different multi-realities in a discontinuous form, in the way of being that we are ultimately comfortable with. Whereas Scott (2017) has argued for a discontinuity in the way in which we enframe disciplinarity and transdisciplinarity, in that to get from multi-mechanismicity to interdisciplinarity,<sup>1</sup> and thence to transdisciplinarity, we have to add considerations of emergence to those of complexity. A qualitatively new or emergent outcome is involved in the causal nexus at work, and then the knowledge required can no longer be generated by additive pooling of the knowledges of the various disciplines concerned but it requires a synthetic integration, or genuine transdisciplinarity. If knowledge is understood as transdisciplinary, then its mode of production and its justificatory rationale are located outside those different academic disciplines altogether and might be revealed in modes of truth that are dependent on poetics, metaphors and analogies, of folk knowledges and of the spiritual, mystical and profound.

We can thus draw a distinction between knowledge that is propositional (the kind of knowledge that we have when we know that something is the case), knowledge that is about processes (when we know how to do something) and what is sometimes referred to as knowledge with a direct object (when we know something or someone directly or through immediate experience). This might indicate that these forms of knowledge are fundamentally different, with strong and impermeable boundaries between them. As Scott (2017) suggests, this is may be misleading. According to Papastephanou (2013), in addition to Aristotle's theory of knowledge as comprising of *theoria*, *poiesis*, *praxis*, there is textual evidence that he considered *khresis* (using) and *pathos* (passivity, receptivity or reactivity) as primarily complementary knowledge forms. Indeed, a transdisciplinary unification is possible, and is even indicated in Aristotle's gnoseology.

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<sup>1</sup> A Bhaskar (2016) term that embraces a multiplicity of causes, mechanisms and theories.

If we can accept this, then the highest level of all, transdisciplinarity, is framed in foundational terms and not, as might be stated, in some sense of an extension, completion or perfection of framings at lower levels – although one may have to go through the lower levels to arrive at the higher levels. This is a deeper understanding of being, of ourselves within the otherness of a presenting world, which may be outside the language of the rational. What this also means is that disciplinary knowledge, discipline-derived rationales for knowledge and discipline-based epistemic practices are, in some important ways, insufficient and undeveloped. The different levels necessary to the understanding of the result may be conceived as interacting or coalescing as a continuum or in a woven system of levels of reality.

The initial task then, is to understand what transdisciplinarity knowledge might be. The premise here is that transdisciplinarity, monodisciplinarity, interdisciplinarity and disciplinarity constitute different forms of knowledge. For providers of education, their traditional role has been expressed in terms of producing autonomous individuals able to forge a self-sufficient way within a world, determined for the most part by their ability to grasp propositional knowledge. Might transdisciplinary knowledge be a space in which conceptual propositional knowledge is shared with activity-dependent concepts, revealed by engagement in the context of the action? It is where idealism and realism are realised, by many, for the first time.

### **A Transdisciplinary Currere**

Education systems that lead to professional activities have been discipline based since the Middle Ages, whereby in the context of higher education the institution that offered this level of education; the universities were organised by academic disciplines such as medicine, law and theology. To accommodate the evolution of new knowledge, disciplines such as the physical and life sciences emerged in the nineteenth century and, a century later, in the social sciences. With curricula typically constructed around disciplinary structures, it is clear that disruption to such models has never been so necessary. In an address to the 2018 World Economic Forum, Justin Trudeau beautifully articulated this sentiment: ‘The pace of change has never been this fast, yet it will never be this slow again’ The context of this statement relates to the need for radically different business models, yet it applies equally to education models. Today’s students will move into a professional space dominated by new ways of working and jobs that did not exist when they commenced education and it is a transdisciplinary approach to curriculum which is designed for their life in a context of complexity which has the best chance to sustain their contribution and economic value to society. As Albright suggests that “complex problems frame learning, knowledge is unknown and uncertain, the curriculum is set in the real world context, it is contested, and there are consequences for learners” (Albright, 2016). By anchoring learning to standard disciplinary structures could be argued as limiting the agility needed for cross-disciplinary creativity to emerge. Considerable research suggests that students are challenged by transferring academic knowledge across fields and do not feel comfortable applying knowledge gained in one field to another, or to real situations (Wagner, 2008).

### *Paul Gibbs: A Transdisciplinary Currere*

It is argued by McGregor, 2017 that a transdisciplinary curriculum facilitates the co-creation, co-dissemination and integration of transdisciplinary knowledges that emerge from the interaction between disciplines: this has many of the features of the envisioned *transdisciplinary currere*.

This leads to a problem-oriented curriculum where students and lecturer are expected to “conceptually, empirically, methodologically and collaboratively engage with and [be] open to potentially relevant domains of human knowledge” (Albright, 2016) to improve our understanding and create novel solutions able to sustain functioning in socio-ecological open and complex systems. This is evident and the literature offers many examples in fields of study such as; health, economics, sustainability, engineering and education where a transdisciplinary path is pursued, frequently within the often very powerful disciplinary departments and faculties.

Transdisciplinary learning has been presented by Pohl et al. (2011) as possessing four features: (a) it relates to socially relevant issues; (b) it transcends and integrates disciplinary paradigms; (c) it involves participatory research; and (d) it entails a deep search for a unity of knowledge. Such approaches to higher education are beginning to emerge globally, with a range of approaches from single, isolated learning experiences to degree-level education programmes.

The following preliminary idea of how such a curriculum might proceed framed as a *transdisciplinary currere* is not to be found in separating out the preparation of professional candidature from the context of the working environment of that profession (the assumption is that graduate employment may be termed higher-level engagement in society and may be considered as professional endeavour). The preparation has to be flexible in duration, location and practice. It needs assessment by achievement and by all those whose judgement on the professional candidate practice is required for admittance to a particular community of practice. It requires the deconstruction of the role of the institution of higher education as a sole provider of higher conceptual learning and of the corporation as self-servicing, profit optimising entity. Working as one, these two bodies could enable the development of new, professionally accredited candidates who are fit for purpose now and have developed disposition within a transdisciplinary attitude towards life where their learning matches the demands of the tempo of becoming professional throughout their lives.

Professional practice becomes the core of the educational endeavour. Students are involved in a process of edification that includes civic liberal studies with the aim of ensuring an awareness of basic shared responsibilities to others, of respect, duty and gratitude. This sets the standard of a higher-level analytical and critical education. This is within the short-term goal of the curriculum that is to qualify the student as a professional candidate for their community of practice. This involves mixing the conceptual with everyday practice in the shaping of the experiences of the potential professional candidate. This may require a prolonged formal process of learning established knowledge or may require extended engagement with practices in the workplace, yet the provision of both aspects of the professional practice is designed together through a conversation that stretches from the past into the future.

Students cease to be students of accountancy and start becoming candidates for professional accountancy; instead of students in tourist management or nursing, they begin a process through which they become candidates for admittance to the community of practice of tourist managers or nurses. In doing so the real work complexity of the professions need to be introduced into the curriculum, and perhaps even underpin the way in which the professional context is framed. A *transdisciplinary currere* envisions the world as a whole, as an open system where all is interrelated and often indeterminate. It requires an openness to ideas and imagination where there is respect of the values and values of others. It is rigorous without denying worth to the rationality of others whose truth systems differed from one's own. It provides a context, focuses on the final course; in Aristotelian terms, the cause for action not just the causal focus that effects change but the reason for such change. These principles scaffold the way we present knowledge and offer a chance to deal with the huge issues the world faces; it develops a transdisciplinary attitude to being.

This has clear issues for our understanding of higher education and work, for this model does not restrict higher education to a formal institution, nor does it leave workplaces solely as places for profit and surveillance but as places for emancipation and challenge. Of course, these caricatures do not reflect the reality that higher education and learning are not restricted to locations of time and space. Naturally, professional candidates have the scope to influence the values of their profession. However, the full integration of each world means both domains giving up the hegemony of knowledge or economic enhancement for the wider common good.

## **Conclusions**

The role of teaching is to help the will to harness the intellect to exist with others, to influence the world for the betterment of all whilst maintaining an identity of self-worth. In transdisciplinary terms, this is revealed within the concept of the univocity of Being in all things in order to develop abilities of individual self-observation, to be self-critical and to confront our illusions of who we might be and what we might become. It is about confronting self-deception when making truth statements achieved through self-referential truth seeking and finding strength to honour what one finds through such examination, for self-deception might be expedient to protect ourselves from pain but it can lead us from despair to dread and thwarts our courage to be.

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