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Exploring the epistemology of transdisciplinarity in public policy and administration in South Africa

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This article seeks to address and direct future research collaboration in public policy and administration from a transdisciplinary perspective in South Africa, by answering three major questions: Firstly, how can public administration be understood from a transdisciplinary perspective? To demonstrate the development of public administration *vis-a-vis* trends in contemporary public policy and administration in South Africa? And establish the scope for future collaborative research in public policy and administration from a transdisciplinarity perspective in South Africa? This article uses themes in the qualitative realm to provide answers to the research aims: two special editions of Future, Transdisciplinary Manifesto and over 100 journal articles were read and scanned to provide evidence for the arguments in this article. It concludes that the need for transdisciplinarity in public policy and administration cannot be undermined or overlooked as a result of depleting strategies, theories, models and frameworks in resolving complex society quagmires from a disciplinary or interdisciplinary nomenclature.

Introduction

The knowledge approach in public policy and administration studies and transdisciplinarity are largely interwoven. It is a general practice that issues relating to agenda setting, policy cycle and analysis are germane for institutional and state survival in that agenda setting and policy circle among others require dynamics and complexity in the policy processes involving several disciplinary taxonomies for problem solving, taking into cognizance the complexities that exist in the public domain such as depleting financial resources versus an increasing demand for government presence in communities, municipalities, agencies and departments all over South Africa.

This article aims to think around three issues as suggested in the abstract, how public administration can be understood from transdisciplinary perspective, the trends in contemporary public administration and finally the future of transdisciplinarity in public administration research in South Africa. In thinking around these issues, one needs to understand that the problems surrounding government operability, network governance, e-governance, decision-making, comparative public administration, policy cycle, agenda setting and policy analysis, conflict management, diplomacy, poverty, inequality, peace and security, and recently sustainable development require concerted engagement from several disciplinary perspectives. Hence, we talk of transdisciplinarity. Transdisciplinarity involves a deliberate contribution of both researchers and practitioners in various disciplines in shaping or providing solutions to contentious issues from disciplinary perspectives, while achieving a consensus.

From time immemorial, problem-solving techniques in public policy and administration have been interdisciplinary or multidisciplinary. Consider, for instance, the legislature, which is an arm of the public domain. The legislature is made up of individuals from diverse disciplinarities participating in a debate or argument with the intention to arrive at a common good. These arguments or engagements involve individuals and groups from diverse disciplinarities in the search for what would otherwise be described as a perfect government decision, policy or law.

Arguments and counterarguments in public administration as a discipline are numerous with the idea of interdisciplinarity clearly identified (see Berkley 1975; Greenfield 1986; Raadschelders 2009, 2011a, 2011b; Ringeling 2012; Riccucci 2012; Farazmand 2012; Wildavsky 1980). The maladies of

interdisciplinarity create a vacuum for a more comprehensive and inclusive methodology in addressing both global and local quagmires with the rise of 'transdisciplinarity'. Transdisciplinarity provides a methodology that incorporates several disciplinary perspectives into one, in tackling government inadequacies from a plethora of disciplinary perspectives such as democracy, good governance, public–private partnership, theory of change, change theory, among others.

This article is divided into three sections. The first section deals with the problem of public administration as an interdisciplinary concept. It goes further to clarify essential concepts such as disciplinarity, cross-disciplinarity, interdisciplinarity, multidisciplinarity and ultimately transdisciplinarity. From here the study moves towards the global epistemology of transdisciplinarity of public administration and then to trends in contemporary public administration, which tend to provide critical analysis for transdisciplinarity on two counts: typologies and indicators. The final section will then deal with the contribution of transdisciplinarity to public policy and administration or what public policy and administration could achieve by exploring the transdisciplinarity route. Hence, establishing and identifying fields in the discipline requires a transdisciplinary collaboration and integration in order to provide answers to several lingering government deficiencies. The article concludes with a postulation of what the future holds for transdisciplinarity in public policy and administration research in South Africa and also states three critical factors that will contribute greatly to the understudy of decolonisation in the field of public policy and administration. The idea for decolonisation in this study is routed in the notion of localisation and localism of concepts, constructs, frameworks, models and theories in the field of public policy and administration. In moving forward, the problem of public administration takes the centre stage.

Development of public administration in South Africa

Public administration is a field of study that deals with the functionality and non-functionality of government activities, events, projects and programmes on a daily basis (Appleby 1947; Clapp 1948; Kettl & Fessler 2009; Lodge 2014; McKinney & Howard 1998:62; Pommer & Van Houwelingen 2016:34; Rabin, Hildreth & Miller 1989:iii; Van Vuuren 2014) and also deals with justice, service provision, development and management, among others, that contribute to the liberty, self-worth and esteem of citizenry. The significance of the discipline is further recognised in Chapter 10 of the 1996 Constitution. Yet the discipline is not seen as cognate, scarce or critical skill in South Africa (see DHET Listing of Scarce and Critical Skill in South Africa). This despite issues of financial misappropriation, mismanagement, ineffectual policy implementation, poor monitoring frameworks, lack of depth in evaluation outcomes, problematic goal and agenda setting, state capture, non-interactive systems and institutional

failures (BusinessTech 2017; Chutel & Kuo 2016; Clark 2016; Co-Pierre 2016; De Vos 2016; Luke 2017).[1] In addition, there are protests resulting from ineffectual service provision to communities in a sustainable manner.[2,3] Worthy of the note is the discourse surrounding decolonisation of the academic space (teaching, learning, research and practice) of public administration in South Africa.

Understanding multi-complexity perspectives in public administration

As stated elsewhere, the methodological approach of discipline of public administration from puberty predominantly assumed an interdisciplinary and multidisciplinary narrative. From antiquity, it has been noted that the foremost proponents and theorists in the disciplines were mainly those from pure sciences; hence, their idea of measurability of the discipline premised on certain parameters and principles. This ushered in the ideas of do's and dont's as seen in the principle of public administration and Taylorism and the Weberian notion of bureaucracy.

Public administration though famously popularised by Woodrow in the late 19th century (1887 and before) gave a definition of the discipline from the perspective of disciplinarity. Woodrow argued then that public administration in 1887 is the implementation arm of government. By extension, an academic discipline studies both the implementation aspect and the training part of public servant (see Woodrow 1887). It could be argued even further that the philosophy of Woodrow's contention covers every segment of government activities as well as research in pure science, art and the social science because government activities cover all spectrum of academic spheres. In the same vein, public administration can also claim the right to cover all/every spectrum of academic discipline (see policy studies, policy analysis, agenda setting, implementation, monitoring and evaluation, corruption and anticorruption among others). Perhaps, Bach puts it more succinctly in his argument on urban planning in his booklets in 1722 and 1742 titled, *The Well-Tempered Clavier?* And Jonathan F.P. Rose in his 2016 publication on *The Well-tempered City* described urban planning as 'just about everything'. Therefore, we argue in a similar manner that public administration is an academic field that is concerned with *just about everything.* But this time, it is concerned with just about everything that pertains to government operability and non-operability. It can also be said that the field is that arm of knowledge that incorporates the engagement of individuals, groups, experts, communities and a nation in formulating perspectives in resolving a problem, which are not piquantly connected to a given discipline, for example, physics, political science, mass communication and computer science, among others. Disciplinarity tends to emphasise a group of professionals as evaluators, breeders and geneticists, among others.

1.http://www.news24.com/Tags/Topics/corruption for several evidences related to mismanagement and corruption in the public domain in South Africa.

2.http://www.infrastructurene.ws/2013/03/11/challenges-in-smaller-municipalities/

3.http://www.timeslive.co.za/thetimes/2017/02/27/Welfares-empty-coffers-a-sign-of-big-collapse-Kids-in-grave-danger

According to Frances and Karl (2011):

> The notion of academic disciplines is said to belong to an earlier age and a simpler world. Accelerating rates of scientific and technological innovation, increasingly globalized flows of knowledge, people and capital, evermore hybridized cultures, proliferation of new information and communication technologies and growing fluidity in employment are among many changes portrayed as harbingers of fundamental transformations in the social landscape. (p. 1)

The assertion from Frances and Karl (2011:1) and Forman (2012) contend 'disciplinarity is now an impossibility, both ideologically and practically'. Hence, their argument is that the philosophy of problem solving from a single epistemic viewpoint in the discourse is essentially utopia and it is necessary to consider the development of notions that advance the interplay of epistemological paradigms across disciplines as cross-disciplinarity.

Cross-disciplinary

Cross-disciplinary is a method that relates to engagement between two or more disciplines. It is a kind of knowledge that explains an aspect of a discipline in relation to another discipline, for example, administration of philosophy, culture of administration, administration of development, gender of administration, physics of music, administration of literature or politics of literature. The philosophy of cross-disciplinary is that a field of study is used to provide an explanation for another discipline. On the other hand, studies that engage with more than a discipline, that is, corroboration between two or more disciplines in the explanation of a given phenomenon, are referred to as interdisciplinary.

Interdisciplinary

As the name suggests, the word 'inter' means 'between'. The notion of interdisciplinarity is ceded in idealism of integrated science/studies, in which a discipline uses methods from a variety of interrelated disciplines in engaging a phenomenon but tends to harmonise the interrelated clusters of ideas to the viewpoint of the principal discipline for three main purpose: new analysis, new application and in generating an entirely new discipline. Therefore, interdisciplinarity involves a combination of two or more disciplines in engaging a phenomenon. The use of the interdisciplinary approach is appreciated when dealing with issues such as writing an academic research project, poverty issue, reasons for continuous inequality, formulating public policy, social policy and policy circle, and leadership. Hence, we argue that interdisciplinarity is an innovative methodology for the creation or exhibition of new knowledge through cutting-edge approaches across disciplines. It is neither using a discipline in the explanation of the other as seen with multidisciplinarity nor running a linear race as disciplinarity. In this case, it is a process through which various fields are entwined in the understanding of a phenomenon or research.

This methodology is traceable in the works of the 20th century Greek philosophers such as Ausburg (2006), Gunn (1992) and Andrés-Gallego (2015), where the authors argue that interdisciplinarity involves the broadmindedness of a discipline in problem solving by engaging other disciplines in other to gain perspectives in achieving a task or solving a problem. An example of such problems in contemporary philosophy is educational administration and poverty. Poverty is perceived, conceived, defined and understood from various disciplines and fields of engagement. However, the dominant perspectives have remained the economic perspective, which has its roots in the philosophies of the World Bank, International Monetary Fund and the United Nations; hence, global poverty is monitored and understood from the perspective of consumption.

In public administration, policy studies and development studies, poverty is viewed as a multidimensional process involving the general well-being of an individual and an individual in-group. From a food and animal science perspective, it is understood in light of food security; physicists see the concept through the prism of sustainable energy and geographers argue from the standpoint of climate change and global warming. Whatever the assumption, the ideal is that poverty must be eradicated anywhere and everywhere on all fronts as stated by the Goal 1 of the sustainable development goals. This study argues that in understanding such concepts as poverty more than just an interdisciplinary perspective will do. A typical example of a kind of study that transcends interdisciplinary was conducted by Leibniz on the system of universal justice, which used methodologies, theories, frameworks and approaches from economics, law, philosophy, sociology, sinology, management and linguistics in having a robust understanding of systems of universal justice (Andrés-Gallego 2015). However, interdisciplinary is limited premised on its assumption of having a standpoint through which it branches into other disciplines and therefore makes a case for a more complex and robust methodology called multidisciplinarity.

Multidisciplinarity

Multidisciplinarity is a case where a panel of different disciplines is used for the evaluation or processing of a given phenomenon, for instance, health care, decision-making and education; the idea is to ensure that ideas of every discipline formulate the basis for both a conceptual and a contextual argument in the field. This methodology was developed after the Second World War (Plsek & Greenhalgh 2001). The basis for the methodology was to draw multiple academia from various disciplines to redefine and reconstruct complex ideas outside the conventional methods. History has it that the first utilisation of this method was at the 'military–industrial complex, notably, the Lockheed Aircraft Company nicknamed the Skunk Works in 1943 develop the XP-80 jet fighter in just 143 days' (Green & Gordon 2001). The major challenge of multidisciplinarity and interdisciplinarity is that both methods uses thematic orientation in the diagnosis of a given problem from a

disciplinarity point of view (Balsiger 2004:412). Unlike transdisciplinarity, it ensures that universal knowledge production is acceptable from all sides of the chain.

Transdisciplinarity

Transdisciplinarity research is a research strategy that cuts across, transverses, zigzags and crisscrosses several disciplines towards designing a holistic perspective in the understanding of a phenomenon (Nègre 1999; Nicolescu 1997, 2014). According to Nicolescu, the object of transdisciplinarity research is to understand and solve real-world problems, and the complexities that come with transformation and technological advancement on the one hand and the unification of knowledge on the other, rather than being stereotypical about disciplinary egoism. Analysis on transdisciplinarity like multidisciplinarity and interdisciplinarity is focused on problem solving that cuts across several disciplinary boundaries between two or more, such as performance measurement, good governance and network governance, among others. The notion of transdisciplinarity according to François (2002) is that while interdisciplinarity teams, transdisciplinarity is needed to unify the existing and emerging knowledge across trenches, even beyond traditional nomenclature of a discipline. The reason is that its idea is to establish a common premise.

The legal foundation of the method was promulgated at the World Congress of Transdisciplinarity:

In 1994, a transdisciplinary charter was struck at the First World Congress of Transdisciplinarity in Portugal (15 articles). It says that transdisciplinary does not strive for the mastery of several disciplines, but rather to open all disciplines to that which they share and to that which lies beyond them, emergent as they interact. (McGregor 2004:6)

The argument of Kötter and Balsiger (1999:109) in their study between interdisciplinarity and transdisciplinarity opines that transdisciplinarity stems from four perspectives:

1. the problem is generated in an extra scientific field (human resource management, leadership, financial management in local government, economics, politics, the living world)
2. a solution to the problem is urgently required in this field
3. public opinion considers these fields relevant
4. when it is brought to science in an institutional way (research tasks, financing of project).

The aforementioned definitions and perspectives show that transdisciplinarity is concerned with the science of problem solving independent of any discipline. The idea of the methodology is to shape the society or provide a clearer understanding to social chaos. Transdisciplinarity methodologies in public policy and administration encompass the cosmos of an identified number of affected persons in need of the intervention, the degree and modus of which the intervention influences the society are established, and the elucidations at the time of intervention are highly

adequate. In a similar manner, Mittelstraß (1993:18) asserts, 'transdisciplinarity should be interpreted as a form of research which defines and finally solves its problem independently from any disciplinary background' (Balsiger 2001:413).

Issues in modernisation, public opinion and public choice, democracy, open government and e-governance systems including concerns surrounding transparency, accountability, efficiency, effectiveness and sustainability have to be understood from a transdisciplinary perspective oblivious of any individual or independent discipline, if such issues will ever be resolved.

Global epistemology of transdisciplinarity of public administration

The philosophy and notion of public administration outgrew disciplinary connotation[4] much leaning on an inter- and transdisciplinary field from inception. Earliest theories and frameworks in understanding public administration as a discipline were borrowed from engineering, sociology and psychology (see Taylorism, Weberianism, efficiency, motivation and bureaucracy). This goes to show that approaches and principles in the study of public administration from puberty were seldom of engineering, mathematics and human resource management to recently such fields as nursing (change theory), space science (see space administration), physics (see quantum administration), anthropology (ethnography) and many others. The raison d'etre this paper argues that the pioneering assemblage of the discipline by one of its frontrunners rather than the founder of public administration Woodrow Wilson in 1887 was built on multidisciplinary perspective.[5] The reason is that a multi-perspective discourse does not in all sense require a narrow view leading to no single theory for problem solving in the discipline, hence the use of concepts, constructs, frameworks, scenarios and analytical tools in providing an understanding to the discipline rather than relying on a single theory.
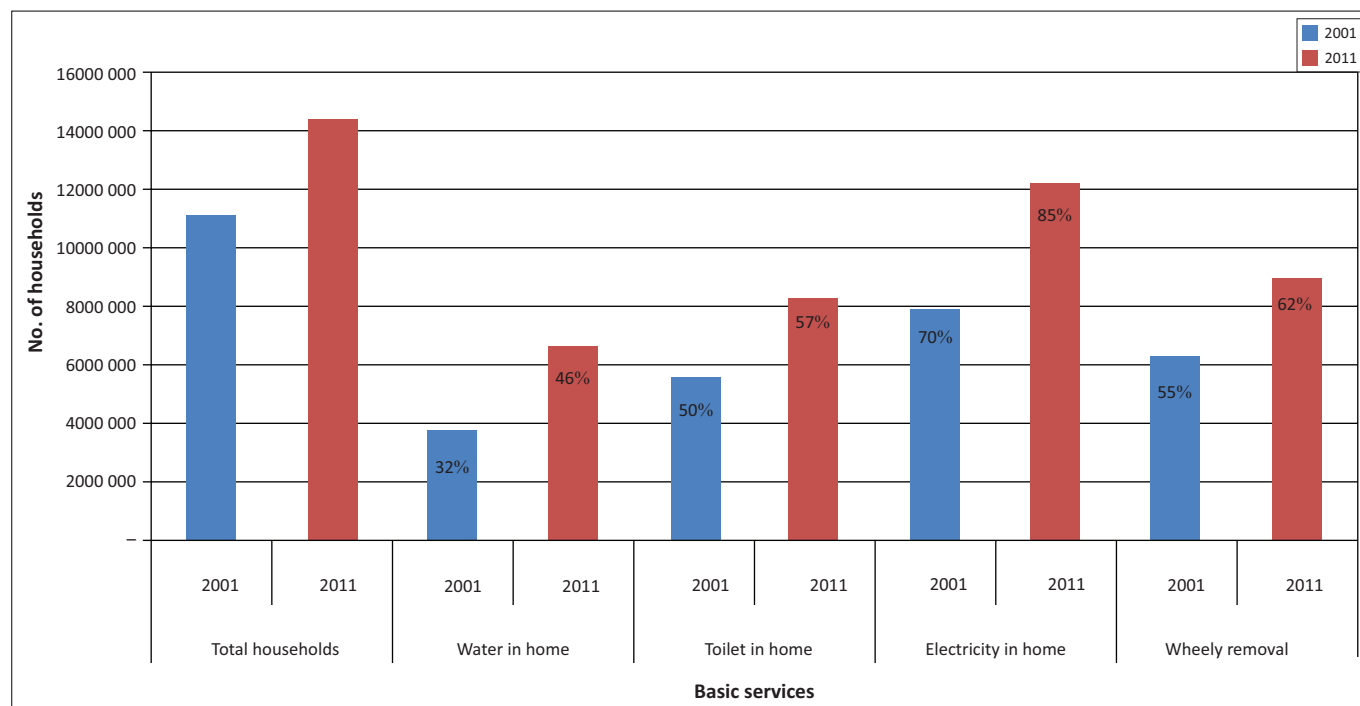
According to Wilson, public administration is envisaged as the total action and inaction of the central government (Wilson 1887). Drawing from Wilson's assertion, Dye provided a definition of a sub-field of the discipline called public policy as 'whatever governments choose to do or not to do' (Dye 1987; Huang 2002:276).[6,7] In addition, the Local Government White Paper (in CoGTA 1998) envisioned a municipality as 'a key component of the developmental state', since it is the

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4.Public administration is one of the limited fields of study that cannot be understood from just a disciplinary perspective, so it borrows most of its concepts and abstractions from other fields in providing solutions on effective functionality of government business.

5.This study refers to Woodrow Wilson as one of the frontrunners rather than the father of public administration (see Wu 1985) because the principles, construct, systems, and notions of PA have been seen in the ancient African traditional kingdom, which African studies have failed to explore (chain of command, scalar chain, impersonality among others are what Africans know elders for in the ancient times).

6.http://profwork.org/pp/study/define.html

7.http://www.civiced.org/pc-program/instructional-component/public-policy

Source: StatSA 2015

FIGURE 1: Access to basic services.

vehicle that drives the transformation agenda of the state with the intent of extending progressively to cover more citizens (Figure 1). Both definitions of Woodrow Wilson and Thomas Dye seem very similar and simple. The idea according to both the authors and the White Paper is that the functionality, operability and life span of any government are dependent on the policy choice, project and programme it executes. Hence, my earlier assertion that public administration deals with the wholeness of government activities, events, actions and inactions. Therefore, the failure or success of a government is much dependent on the nature and calibre of administration provided. From the definition, one will agree that public administration covers every aspect of government activities, events, programmes and fields such as psychology, oncology, microbiology, space science, medicine, animal science, health sciences and other action or inaction the government engages in.

For governments (local, provincial and national) in South Africa to make significant strides in providing solutions to the quagmires, decay and deficiencies in government in terms of potable water, drainage systems, roads and road networks, technology, schools, smart cities and economies, and recreational facilities, among others.

Trends in contemporary public administration

As the world becomes more sophisticated, the challenges of government become more complex with tighter finances. Hence, government must seek the best means through which services are provided in a cost-effective and sustainable manner. In recent times, certain concepts and theories have either been revisited or proposed. Several scholars have identified some of the recent trends to be included in public administration: Smart and Innovative Cities, New Governance, Technological Boom, New Leadership Styles, Grassroots Campaigns, Ethics and Transparency, Innovation, New Thinking about Service Delivery, E-Government, Open Government and E-Democracy, Reorganising Work Structure and Process, Sustainable Transition and Sustainable Development, Citizen Centric, Strategic Management or Performance Measurement, Generational Change and Succession Planning, Sustainable Institutions and Systems, Programmes and Projects, Environmental and Health Policy, Water Policy, Global Thinking and Localisation, Climate Change, Disaster Risk Reduction and Management and Global Warming, Aid Effectiveness, Institutional Development, Democratisation, Post-Conflict Environments and Peacebuilding, Gender Studies, Urbanisation and Population Studies, Land Governance, Tenure System and Natural Resource, and Area-Based Development. In South Africa, the most trending issue in public administration revolves around decolonisation (Barnes 2010; UNDP 2010).[8] In that, these issues encompass all forms and fabric social chaos in society, which cut across several disciplines in problem solving including public policy and administration in South Africa and elsewhere.

Analysing transdisciplinarity: Typologies and indicators

Transdisciplinarity research methodologies are researches carried out to solve real-world conditions. Article 2 of the 1994 Charter for Transdisciplinarity recognises:

8.http://publicadmin.usc.edu/resources/news/public-management/5-global-trends-affecting-the-public-administration-landscape-today/

the existence of different levels of reality governed by different types of logic is inherent in the transdisciplinary attitude. Any attempt to reduce reality to a single level governed by a single form of logic does not lie within the scope of Transdisciplinarity (Nicolescu 1997).

In addition, Article 5 corroborates this assumption that involves other fields categorically in the transdisciplinarity agenda (Nicolescu 2002). It must be noted that arguments from the inception of public administration have always favoured a multidimensional perspective in tackling deficiencies and chaos in public administration (see the parliamentary system, agenda setting, conflict management, high powered delegations and diplomacy).

Therefore, it is reasonable to assert that the concept of transdisciplinarity is essential to establishing certain baselines. The ideas and assumptions of Klein Thompson (1990) in *Unity of Knowledge and Transdisciplinarity: Contexts of Definition, Theory and the New Discourse of Problem Solving (see Unity of Knowledge in Transdisciplinary Research for Sustainability)* establish the baseline for a discipline to be qualified as transdisciplinary if it deals with the following conditions:

Whether or not transdisciplinary research aims to achieve a holistic view of the problem being studied (holism);

Whether or not it relates to real-world problems (i.e. problems external to science) (problem orientation or issue orientation);

Whether or not it involves actors from non-scientific fields (participation);

Whether or not it primarily serves the implementation of research results and the development of concrete solutions for practice (practical knowledge); and

Whether repeated cyclical modification of basic observations in relation to research issues, study methods and interpretation concepts arise in the course of the research (process nature of research) (Hadorn, Pohl & Scheringer 2009:5).

These assumptions towards a discipline that has the potential in harnessing the gains of transdisciplinarity can be summed up in a definition for transdisciplinarity. It could therefore be said that transdisciplinarity involves an integrative and holistic approach in the creation of new knowledge in tackling real-world situations, consistent with repeatable methodologies that are validated in the development involving practical solutions between scholars and practitioners from various disciplines. Just like public administration, transdisciplinarity does not have a generally acceptable definition like most concepts in the social science and unlike the pure sciences. Therefore, it could be argued even further that the methodology of transdisciplinarity is well suited in the social science domain rather than the pure sciences where there is a high need for specialisation and professionalism from methodological perspectives.

According to Hadorn et al. (2009), there are three main typologies of transdisciplinary research in the social sciences: systematicity approach, negotiate and trade approach, and

BOX 1: Typology of approaches in transdisciplinary.

Systematicity approach	• Context: academic research • Focus: the orientation is science inclined (building theory) • Aim: concepts that cannot be understood from a disciplinary standpoint • Level: methods and concepts requiring synthesis and analysis • Challenge: designing or developing new knowledge, knowledge that is transformational, systemic and reliable from a diverse disciplinary standpoint
Trade and negotiate approach	• Context: technology and science studies • Focus: productive knowledge that informs new technologies • Aim: ascertain consequences of social condition in relation to technologies and knowledge management • Level: social implications of every intention • Challenge: organised sceneries for 'socially robust knowledge'
Learning	• Context: public relations, agenda setting, IDAM project, etc. • Focus: action and actor oriented • Aim: practical and mutual learnership of actors or learners • Level: competencies of individuals • Challenge: to contextualise knowledge and develop new paradigms of knowledge

Source: Hadorn et al. 2009:6

learning approaches (see Box 1); these approaches are dealt with in Van der Waldt (2014).

Contribution of transdisciplinarity for public administration

The transdisciplinarity approach enables researchers to discover the resurrection of man as subject of his own discourse, and not the end of history. It stretches to assess the beginning of a new stage in human history. Transdisciplinary researchers are new breeds of contemporary knight-errant, utterly irrepressible rekindles of hope (Nicolescu 2002:2). They tend to solve real societal problems and deficiencies from a multiple disciplinarily standpoint. Hence, transdisciplinary research portends enormous opportunity for public policy and administration especially in Africa and South Africa, where the discipline is not fully established. For instance, little research in South Africa has been conducted in harnessing the opportunities and challenges of smart and innovative cities in ensuring sustainable economic development in municipal government or the importance of e-governance to gender empowerment. Other factors of weakness include the following.

The opportunities open to digital government give a notion of cost saving, which is largely lacking in academic discourse in South Africa.

In South Africa as well, there are few studies and departments offering health policy and administration, and educational administration between other rebranded spheres towards educational and health development.

Again, monitoring and evaluation have clearly not been fully established in the country in tracking and measuring economic growth, development and transformation.

The idea of localisation, localism and indigenous content in public administration research is far from being realised,

because there is skewer information from a disciplinary perspective to comprehend. Hence, there is a higher need for anthropological and sociological antecedents in public administration.

The lack of localisation and local content has brought about the clamour for decolonisation of the scholarly space in South Africa. All these transdisciplinarity can solve, thereby strengthening government and governance networks in becoming much effective and efficient.

Transdisciplinarity approach as shown above brings light to new understanding of concepts, especially contentious ones, such as poverty, development, democracy and inequality among several others. Van der Waldt (2014) was apropos in describing the contribution of transdisciplinary research to public administration research in the mildest and modest way (Table 1).

The philosophy surrounding Van der Waldt's (2014) contribution of transdisciplinarity to public administration was embedded in Dooyeweerd's (1958) idea in his study *A New Critique of Theoretical Thought*. Dooyeweerd argued that the state is structured on foundational modalities to perform for major functions as social, economic, juridical and ethical. This assumption of the four modalities is drawn from Woodrow's definition of public administration as the implementation arm of the executives. The reason is that these were the primary functions of the government at that time.

However, the realities of government in the 21st century have gone beyond merely the four foundational functions to involve more complex fundamentals such as corporate and intergovernmentalism, global governance and international development, humanitarianism and peace operation support, security and terrorism issues, peace and peace management, monitoring and evaluation, and urbanisation and sustainable development among a proliferated list of policy activities. Therefore, to fully grasp what transdisciplinarity holds for public administration will be to understand the diverse and emerging nature of public administration in the 21st century.

TABLE 1: Synopsis of public administration modal contribution to transdisciplinarity.

Modality	Public administration's knowledge domain contribution
Social	• government–society interaction, public participation, networks • governance and politics • social dynamics • public sector organisations • institutionalisation of socioeconomic changes and development
Economic	• management of large-scale services • value-for-money approach • government performance (i.e. efficiency, effectiveness and productivity) • ensuring growth and economic development • policy implementation
Juridical	• policy design and formulation • the preservation of the polity • the maintenance of stability and order • protection of the weaker sections of society • interpretation of public opinion
Ethical	• normative, public sector values • professional and ethical standards • good governance, administrative fairness and reasonableness • service liability, responsiveness and accountability • transparency

Source: Van der Waldt (2014:131)

The future of public administration from a transdisciplinarity perspective

In understanding the potential and the need to view public policy and administration from a transdisciplinary perspective, we offer the long-standing argument of whether or not public administration is an art, a craft or a science (Raadschelders 2011b). According to Farazmand (2012:499), the major problem with public administration is the notion of professionalism outside academic institutions. This has continually ridiculed the discipline in a number of ways. The debate about the nature, coverage or scope of public administration exists from puberty and will continue to stigmatise the discipline (Berkley 1975:3–8; Dubnick 1999:7; Lynn 1994 1996:149–166; Majone 1989:42–68). Dwight Waldo (1948) was among the very first to have published an empirical study that separated public administration as a subfield of political science. In two separate essays in 1968, he rejected the hypothesis that public administration is a sub-discipline of political science. However, Waldo did not conceive or grant disciplinary status to public administration either. Arguing in tandem with a recent publication by Farazmand, the philosophy of public administration is seen as a de-professionalised field. An essential characteristic is that de-professionalists apply their knowledge in a routinised and predictable manner usually dependent on compliance documented in a generalised fashion (Dionne 2009).

Among the first to argue for the science of public administration was Herbert Simons in 1957. His argument was premised on the understanding that public administration is at the heart of decision-making in government, which is arguably a science in its own right. Hence, the machinery for decision-making in government as agenda setting and subsequent readings in policymaking is predominantly the same in most countries around the world. This notion however united the discipline around a central concept (Raadschelders 2009:3). Greenfield (1986), Riccucci (2010) and Raadschelders (2011a) highlighted the grievous consequences of Simon's assertion, which created a shift from the nature and scope to an obsession for inquiry in tone with the one best way. Raadschelders (2011b:920) argued that the ontology of public administration cannot be fathomed via a single narrative or methodology. Hence, the use and adoption of the interdisciplinary route from inception in public policy and administration studies in theory and practice. Ringeling (2012:2) further argued that public administration is much more than management and organisational sciences; he argued that it is a cognate discipline that concentrates little attention on politics, law and normative questions.

From the foregoing, it is crystal and well established that while some academics support the narrow narrative (i.e. the narrow conception of analytical rigor and science as commonly used in pure and natural science) others prefer the silkier approach mainly used in the humanities and social

sciences (Zalmanotovitch 2014). Wildavsky (1980:15) refers to art as 'the solving of problems that cannot be expressed until they are solved'. Since its inception, public administration has been an applied field, seeking to ensure that its findings are based on evidence, experience and relevance to practice (art) and also highly empirical and engaging in the critical thinking process (Dodge, Ospina & Foldy 2005:287).

The idea portrayed from the heyday of public administration to its present form only shows that public administration cannot be understood from one perspective, that is, a disciplinary perspective. More so, that interdisciplinarity, which was the foundation of public administration in the USA, is still not able to solve several maladies and quagmires in government business in the USA, presently, and South Africa. Therefore, there is a need for a new methodology in both the understanding of growing trends in governance complexity and the adaptation of the new technologies in government palace. These views have given rise to the need for a comprehensive manipulation of realities in resolving systemic issues of government and government in the 21st century from an angle termed transdisciplinarity.

In South Africa, the story is similar to that of the world stage. However, the future of public policy and administration in Africa, in general, and South Africa, in particular, in relation to its expansion in the recent past is yet untapped. This is because South Africa and Africa in general have failed to test, formulate and implement workable principles and doctrines in administering sustainable services delivery, methodologies that lead to the promotion of individuals and citizens, and that could eliminate poverty, inequalities, corruption, nepotism, racism and favouritism, among others. The dependence on Western and Eurocentric philosophies has largely failed the discipline, because the structures, systems, institutions, support and empowerment are not on par. So, transferring Western theories and frameworks without localising or Africanising or decolonising such concepts and frameworks have set the continent back. These are some of the reasons why Western, Orthodox and Eastern theories have not proved their workability in South Africa, as a result of the disparity in capacity, network, finance, morale and culture among others.

As seen in Van der Waldt's study on the contribution of public administration to transdisciplinary inquiry (as stated above), we argue that public policy and administration has gone beyond the nomenclature of the four foundational functions (social, ethical, juridical and economic) to issues relating to compliance and adaptability as seen in the core science disciplines such as physics and mathematics. The new school of public policy and administration researchers in South Africa (as Kambidima Wotela of the Wits School, University of the Witwatersrand and Michel Tshiyoyo of School of Public Management and Administration, University of Pretoria) are currently exploring the potential benefits of thermodynamics, chaos theory, game theory and quantum administration in strengthening government's functionality in the provision of services to communities in a sustainable manner. As Zalmanotovitch (2014:808) noted, public administration is the tool that politicians use to solve problems of citizens within a given territory. Therefore, the understanding, interaction and proper integration of the three pillars of public administration, that is, the managerial, the political and the legal, are configurative imperatives (see Rosenbloom 1983; Rosenbloom, Kravchuk, & Clerkin, 2009). In that, the three pillars need to function in unionism and optimally, if citizens are to harvest bountifully from the government in a sustainable manner. Where these fail, the nation fails, and the state is either seen as a failed state or a fragile state.

The future of public administration is no doubt silkier; rather the major problem that constitutes essential argument is the 'how' part of the story, as well as ways to innovate and change what was considered historical facts. As a society, we live in an ever changing landscape be it economics, business, politics or society. Public administration as a field of discourse must also reinvent itself to suit present realities and not stand akimbo. So, we argue that as the society changes, there should be equal, proportional or correlational adjustment on the part of public administration scholars in teaching and learning.

Unpacking the future of transdisciplinarity for public policy and administration in South Africa

In Figure 2, we have provided 11 perspectives, which can also be seen as 11 fields or subfields that give a proper or holistic interplay towards an effective government system. However, it must be recounted that these are not exhaustive; rather it presents a baseline through which the discipline can begin to reach out towards other disciplines for research collaboration. In South Africa, little has been done in most of these fields especially in relation to physics, engineering and mathematics. It is a truism that while the power dynamics or power cube could be understood better using the game theory in mathematics, instability and conflict escalation can be understood through an integrated research with a quantum specialist and analyst in chaotic theory in both physics and mathematics. Yet no research in South Africa has reached out to these scientists towards solving such contentious problems as racism and xenophobia and widespread violence in the country. This is the reason we argue that the future of transdisciplinarity in the context of public policy and administration will afford the discipline the leverage to reinvent itself in the area of problem solving. Einstein's assertion or a quote largely attributed to Einstein is appropriate in this discourse. 'Repeating the same thing over and over again with negative result is insanity'. This statement is true of practitioners and scholars in the discipline. While the latter have continued to use same aged methodologies, approaches and theories in most universities have left most graduates of the discipline underemployed because while workplace standards have changed curriculum
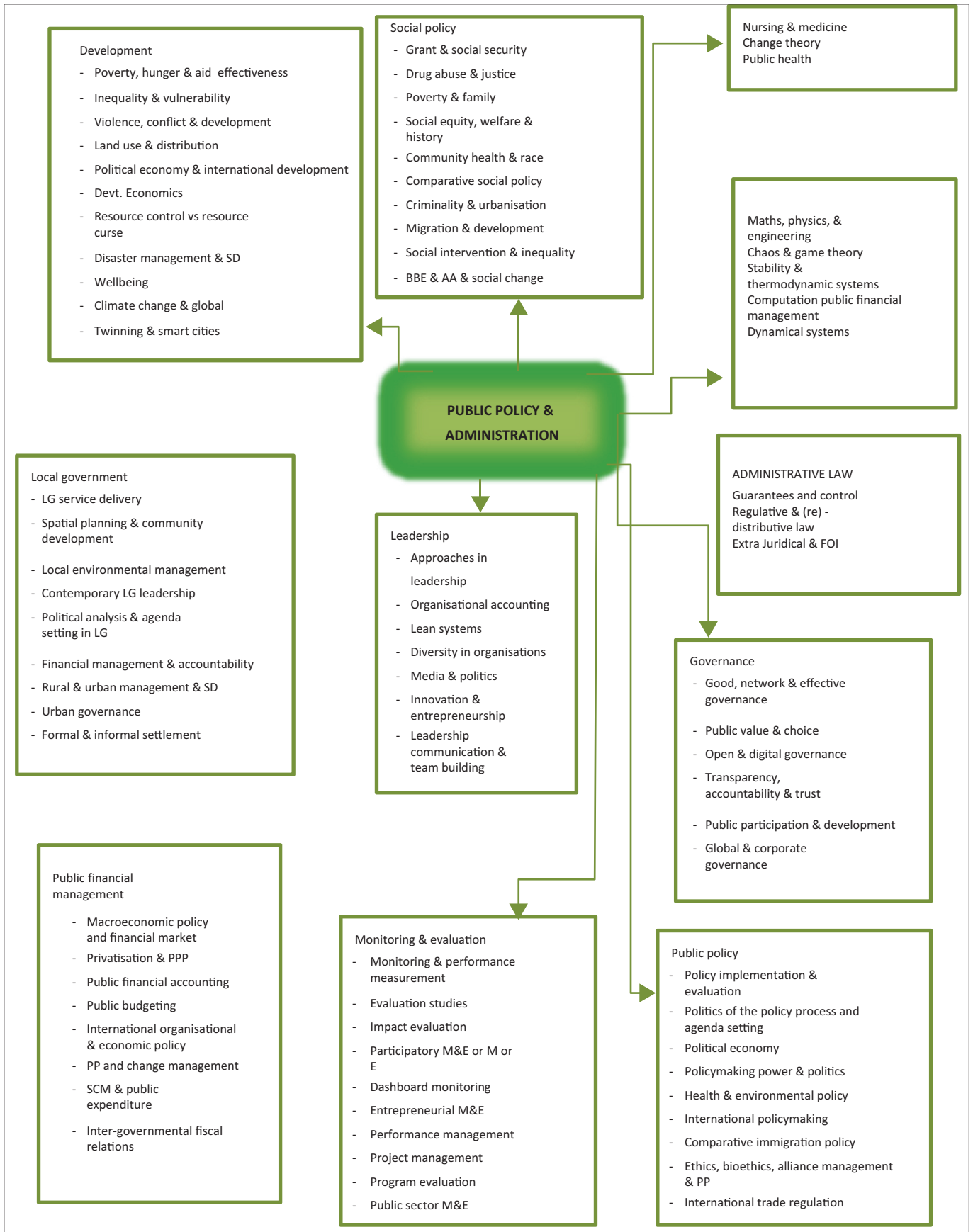
Development

- Poverty, hunger & aid effectiveness
- Inequality & vulnerability
- Violence, conflict & development
- Land use & distribution
- Political economy & international development
- Devt. Economics
- Resource control vs resource curse
- Disaster management & SD
- Wellbeing
- Climate change & global
- Twinning & smart cities

Social policy

- Grant & social security
- Drug abuse & justice
- Poverty & family
- Social equity, welfare & history
- Community health & race
- Comparative social policy
- Criminality & urbanisation
- Migration & development
- Social intervention & inequality
- BBE & AA & social change

Nursing & medicine
Change theory
Public health

Maths, physics, & engineering
Chaos & game theory
Stability & thermodynamic systems
Computation public financial management
Dynamical systems

PUBLIC POLICY & ADMINISTRATION

Local government

- LG service delivery
- Spatial planning & community development
- Local environmental management
- Contemporary LG leadership
- Political analysis & agenda setting in LG
- Financial management & accountability
- Rural & urban management & SD
- Urban governance
- Formal & informal settlement

Leadership

- Approaches in leadership
- Organisational accounting
- Lean systems
- Diversity in organisations
- Media & politics
- Innovation & entrepreneurship
- Leadership communication & team building

ADMINISTRATIVE LAW
Guarantees and control
Regulative & (re) - distributive law
Extra Juridical & FOI

Governance

- Good, network & effective governance
- Public value & choice
- Open & digital governance
- Transparency, accountability & trust
- Public participation & development
- Global & corporate governance

Public financial management

- Macroeconomic policy and financial market
- Privatisation & PPP
- Public financial accounting
- Public budgeting
- International organisational & economic policy
- PP and change management
- SCM & public expenditure
- Inter-governmental fiscal relations

Monitoring & evaluation

- Monitoring & performance measurement
- Evaluation studies
- Impact evaluation
- Participatory M&E or M or E
- Dashboard monitoring
- Entrepreneurial M&E
- Performance management
- Project management
- Program evaluation
- Public sector M&E

Public policy

- Policy implementation & evaluation
- Politics of the policy process and agenda setting
- Political economy
- Policymaking power & politics
- Health & environmental policy
- International policymaking
- Comparative immigration policy
- Ethics, bioethics, alliance management & PP
- International trade regulation

FIGURE 2: The future of transdisciplinarity for public policy and administration.

in the discipline remains largely the same, thereby producing similar candidates and the practitioners that have failed to live up to the expectations of the communities or to keep a clean audit outcome.

The idea that public administration from a global perspective gives is very enticing. However, South Africa has failed to tap this opportunity because of overreliance on orthodox and Western theories, which do not reflect current realities nor provide solutions to pertinent quagmires in the country. For instance, from the 11 perspectives shown in Figure 2, only research in local government could be argued as thoroughly researched but with Western and dated theories. This is the reason why the myriads of problems in local government continue to persist. It is on this note that this study categorically states that the lack of evidence from research cannot solve the problems of the local government because most researchers do not take into account variance between the borrowed theories or framework and the place or municipality where these theories and frameworks are implemented. Therefore, there is a need for home-grown theories, approaches and frameworks or the Africanisation of the concepts, theories and approaches of Western philosophers to fix into the mix the realities of research in public administration in South Africa. In other words, localising these ideas to fit into present realities such as the culture, capacity and expertise among others is necessary. It is on this note that the study concludes that the major challenge of public administration in present day South Africa is decolonisation, which is explained in Figure 3.

To solve the problem of public administration in South Africa is to decolonise, which involves three essential and vital elements: Africanisation, knowledge management and integration,[9] and Openness, Truth, Transparency and Accountability (OTTA).[10] With these resolved from a transdisciplinary perspective, it is a surety that smooth implementation of government programmes and projects is guaranteed, and a corresponding reduction in nepotism, corruption, godfatherism and favouritism is assured.

Limitations

Although this research was carefully prepared, there are several limitations that we are aware of. Firstly, the study is based on the South African narrative, hence the inclusion of

9. Knowledge management is a discipline that promotes an integrated approach to identifying, capturing, evaluating, retrieving and sharing all of an enterprise's information assets. These assets may include databases, documents, policies, procedures and previously uncaptured expertise and experience in individual workers. (Koenig 2012)
Because, according to Nicolescu (2014:188), the idea of transdisciplinarity is to identify knowledge and produce new knowledge towards building a better science.

10. See works of Falola and Jennings (2002), the Introduction in *Africanizing Knowledge: African Studies across the Disciplines* and others studies of Falola. Including several studies of Asante (2001) on the Afrocentric Idea. Mazama (2002) on Afrocentric paradigms (Brizuela-García 2006:87–88). These studies form the basis for rewriting Africa's history from the African standpoint. It also brings to the fore the need for debate in public administration and accuses the discipline of running on parochial avalanche, which are too parochial in dealing with realities of the 21st century. The reason for the choice of these essential three element towards an understanding of the concept of decolonisation is premised on the fact that most theories, philosophies, frameworks and models are Western and do not reflect the realities. Therefore, it does not offer solution to new and emerging problems with regard, for instance, to technology and land empowerment among others.
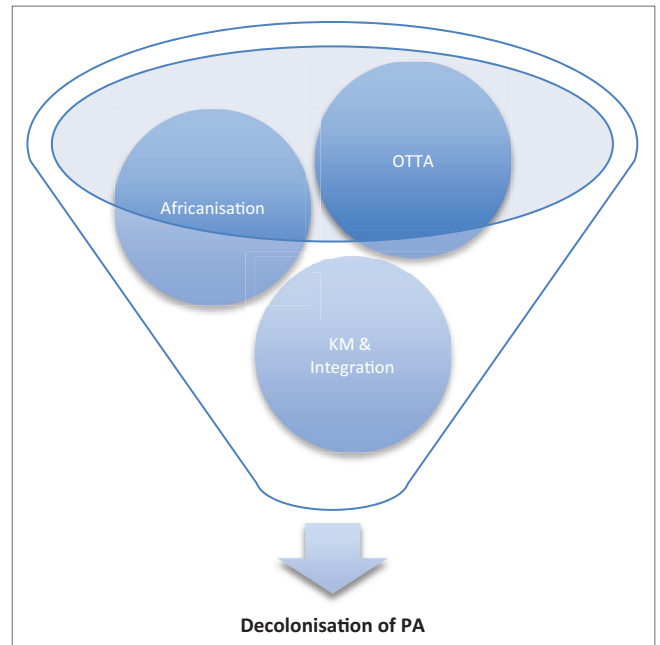
OTTA, Open Government Transparency Trust and Accountability.
KM, knowledge management.
FIGURE 3: Major challenges in public administration in South Africa.

talks on scarce and critical skill by the Directorate of Higher Education and Technology in South Africa. Secondly, the study did not cover every aspect of transdisciplinarity but those aspects relating to public policy and administration in the South African context. OTTA, KM, Africanisation, and decolonisation were not discussed in this article but introduced as a means through which localisation of public administration can be enriched. More so, a qualitative paradigm was favoured to gain the idea for this article because it is an exploratory article to test the grounds for good fit of transdisciplinary research in PA. It does not also explain the concepts introduced in Figure 2. The reason is that Figure 2 is a proposition through which we believe transdisciplinary research can be accessible to public administration researchers. Hopefully, we believe we would demystify Figure 2 in another article in this journal.

Summary of findings and conclusion

The idea of Martinuzzi and Sedlacko (2016) unequivocally gives credence to the science of mankind in resolving problems in the society and public administration. Their argument is that:

> knowledge brokerage … is more than a simple question-and-answer game: … is a process of co-creating and re-framing knowledge … trade-offs and ambiguities, as well as world-views, cultures and the preferences of stakeholder groups. (p. i)

This confirms the idea that knowledge, ambiguity and world view of a single discipline among others limit the understanding of any given discipline. In that, knowledge tends to re-create and re-frame itself to suit present realities rather than relying on utopian ideas, which do not in any way create advancement for any disciplinarity. For public administration, for instance, the use of theories and framework, which are not re-framed and re-conceptualised to fit into

realities of the 21st century on the one hand, and the realities of institutional failures, capacity and experience, has limited several theories and concepts from improving governance and governance frameworks among others in the discipline.

From the foregoing, it is perhaps safe to say that the idea of public policy and administration has moved from trash collection to space exploration, from the regulation of complicated economies to aiding fragile economies move beyond subsistence farming, and from biomedical technological advancement to census accuracy, as well as from Taylorism to bioethical conduct of administrative personnel in government palaces. Contemporary public administration is thus amazingly complex and will become even much complicated in the coming *era*. For instance, the idea of due process and equal protection, gender and feminism, migration and litigation, refugees and deportation portend severe rethinking in the discourse of public policy and administration and similar fields of studies in South Africa.

However, it must be noted that traditional public administration evolved from a regimented, rule-bound notion, having more a prescripted catalogue in the do's and don'ts of public administration pinned in the philosophy of 'trait theory'. Hence, the proliferation of the top-down management approach for decision-making, employee administration and implementation of projects and programmes on a global scale has plundered to a large extent (non-existence perhaps) the notions and ideas of motivation and emotional intelligence, team building, collaboration and shared precepts in government functionality. Having massive size and structure of a depersonalised and market-driven approach, these are perhaps idealisms that shape the old thinking of public administration where citizen participation was also non-existent.

In conclusion, it is imperative that public policy and administration inclines to the use of transdisciplinarity in research in the future. In that, the transdisciplinarity approach is critical in offering broader universal vision from diverse disciplinary angles in order to arrive at a single conclusion. The need for transdisciplinarity in public policy and administration cannot be overlooked, considering the complexities in service delivery protest all over the country. Also through this approach an antidote for solving the cancer of government corruption and the cancer of human existence 'poverty' might be found. More so, transdisciplinarity could help public administration in realising a developmental state and the concept of a developmental local government, including sustainable livelihood for the destitute.

It is anticipated that issues relating to inept and poor governance structures and ill-informed institutions, poor administrative capacity and the lack of adherence to organisational instructions, procedures and processes, ineffective and mal-functional implementation of framework and poor evaluation patterns can be bridged by engaging diverse disciplines in understanding these complexities from individual disciplinary vision.

The complexities that exist in government leading to several protests in South Africa call for not just a narrative or single dimension in solving these quagmires. Therefore, there is a need to embrace any methodology that integrates emotions, actions and thought in problem solving.

Also, any methodology that can overlook the specific and the particular by rising beyond the staffing room of any individual disciplinary vision towards finding a caveat through which disciplinary perspectives can integrate and merge ideas of diverse disciplines into developing a creative capacity from all human disciplinary dimensions in solving these problems. This methodology is what is known as the science of mankind.[11,12]

This science of mankind must be able to integrate every discipline into solving the world's problems in general, and the most pressing need of South Africa (decolonisation), which several authors and schools have referred to as transdisciplinarity.[13] Hence, transdisciplinarity connotes a research strategy that intersects diverse disciplinary borders to establish a holistic perspective to problem solving in research and real-life situations. The idea cut across diverse disciplinary boundaries (two or more) such as bioethics, anti-corruption, poverty, inequality, social policy, governance, management and development administration. To create an understanding not from a particular world view, but by re-crafting, re-framing, re-conceptualising, re-theorising, and re-modelling of ideas from different disciplinary standpoints with the intent of arriving at a common solution to resolve societal quagmires. This notion we are hopeful would revolutionise and put public policy and administration in South Africa in its rightful place as the implementing arm of the executive, a scarce and critical skill in South Africa and a cognate department around Africa.[14]

To avoid leaving this study without contending questions from which public administration can benefit, we therefore share the following sentiments:

- How can sustainable development be understood from a transdisciplinary perspective with public administration leading the pack?
- How can local twinning be used in the realisation of local economic development, disaster management and consequence management?

11. According to Wilson (1999), Heilbron (2003:vii), Newton (1687) and the Encyclopædia Britannica (2016), 'science is a systematic enterprise that builds and organizes knowledge in the form of testable explanations and predictions about the universe'.

12. 'Contemporary science is typically subdivided into the natural sciences, which study the material universe; the social sciences, which study people and societies; and the formal sciences, which study logic and mathematics. The formal sciences are often excluded as they do not depend on empirical observations' (http://www.cnrt.scsu.edu/~psc152/A/branches.htm).

13. Isaac Newton's *Philosophiae Naturalis Principia Mathematica* (1687), for example, is translated 'Mathematical Principles of Natural Philosophy', and reflects the then-current use of the words 'natural philosophy', akin to 'systematic study of nature'.

14. See the original definition of Woodrow Wilson of public administration in 1887.

- Have grants helped in improving the living condition of the poor? What are other means through which the poor can be aided to fulfil to the height of their ability?
- How can leadership be re-conceptualised in the notion of materialism, nepotism and favouritism as currently seen the geopolitics and geo-administration of South Africa?
- To what extent can monitoring and evaluation save cost? And what must we do next after evaluation?
- How can dynamic theory be understood in fighting corruption in the context of chaos and quantum theories in public administration?
- Premised on the understanding of decolonisation, how can KM, Africanisation and OTTA help to pave the way for new thinking in public policy and administration using system thinking?

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The authors declare that they have no financial or personal relationships that may have inappropriately influenced them in writing this article.

Authors' contributions

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