

Public Administration and Complexity – or how to teach things we can't predict?

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1. Introduction

Since the beginning of the 21st C, a group of public administration scholars have been researching complexity theory and its application in the public administration and policy contexts (Koliba et al 2016, Rhodes et al 2011, Head 2010, Morcol 2013). In spite of calls encouraging the application of complexity theory to practice (OECD 2009) and opposing claims that it would remain a 'fringe interest' (Pollitt 2009), there has been little attention paid to how this research has translated into practice or into the teaching of public administration that would facilitate this translation.

Initial forays into literature regarding the teaching of public administration makes it abundantly clear that academics (and practitioners who published in academic journals) perceived a fundamental and growing gap between theory and practice in public administration going back decades, which was made particularly evident at the turn of this century in a series of articles in *Public Administration Review* (Bolton & Stolcis 2003; Newland 2000; Stivers 2000). Hartmann & Raadschelders (2011) explain: "The general, and rather stereotypical, explanation is that of a growing gap between practitioners and academicians, with the former being interested in usable knowledge while the latter are concerned with advancing science (p.1)". Closing this gap is an important area of interest for both scholars and practitioners.

With this in mind, a group of complexity and public administration scholars convened a panel in IRSPM 2015 to discuss how complexity theory could help to close this gap and how they were - or were not - incorporating complex systems and complexity into their teaching. This panel turned into a 'call for inputs' from attendees and other interested parties in 2016 for information on how complexity ideas were being taught in the classroom. That call evolved into this special issue on Teaching Complexity to Public Administration students and practitioners – to put an initial 'stake in the ground' regarding how theory is beginning to be translated into practice-relevant learning.

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We begin this editorial with the story of how one of the editor's public policy experience and research led her to teaching complexity to practitioners and how respondents to our call for inputs came to a similar conclusion, albeit via different paths. The main body of this editorial is a reflection on the key points from the articles. They have inspired us to examine why & how we teach complexity and how the budding 'community of practice' of scholars and practitioners might evolve over time and impact on the practice of public administration.

Why teach complexity to public administration students?

As noted above, the first attempt by the authors to solicit input from other complexity scholars on how they were - or were not - using complexity theory in the classroom was during a panel at IRSPM 2015 in Birmingham, UK. The panel topic was "Complexity theory in Public Administration: state of Theory and Practice" and the range of papers presented there suggested that although complexity theory had certainly made inroads into public management scholarship - indeed it was being incorporated into a wide range of theoretical and practical investigations - there was little convergence on which aspects of complexity theory were generating the most interest or had been tried and rejected as not relevant. Furthermore, a facilitated discussion on the use of complexity theory in general in the classroom did not generate much enthusiasm and the panel chairs resolved to consider whether or not there was a critical mass of public administration scholars attempting to use complexity in the classroom given the still emerging state of relevant theory.

The editors of this issue then examined their own experiences to discover key decision points in their journey to the teaching of complexity to public management students. One of us had decades of practical experience of policy development and public management and her frustration is described below:

"I was acutely aware that theories of public policy and public management were limited for understanding the world in which I worked. Generally they focused on only part of the world such as the economic efficiencies of the design of a funding system, or the ideal institutional arrangements, ignoring the interactions these changes would have on existing patterns and behaviours of other actors. The explanation these various extant theories provided was a static one that took little account of interactions among multiple actors, layers of institutions or reflexive changes over time. Worse still, when it came to how to work with the multiple scales of this world from the individual to the organisation, the institutions and the system level, the theories usually only focused at one level. They left me as a practitioner to work out how change at one level interacted as a whole to produce the patterns we experienced."

Leading on an education policy development project at the time, she encountered the Cynefin framework (e.g. Kurtz & Snowden, 2003; Snowden, 2001; Snowden, 2002, 2005; Snowden, 2010) which provided a sense-making device for examining information from a range of perspectives such as the different system views identified above and the various layers of organisations within each of those systems. A Cynefin-based workshop for around 70 stakeholders was held and it became evident to participants that current patterns and pathologies in the education system had their origins in decisions made by various political, sector and policy actors in previous periods. Taking these 'path-dependencies' into account made it both more likely that policy would have its intended effect and less likely that public administrators could



assume that it would. In other words, monitoring and responding to feedback over time was just as important as the initial policy intervention choice.

However, the recommendations arising from the Cynefin-based workshops were largely ignored. The tertiary education policy interventions that ensued resulted in a number of surprises and not the result the Minister intended (Eppel, 2012). It also gave rise to PhD research on how complexity theory might help us to better understand public policy processes and their implementation.

By the time she was finishing her research on the tertiary education policy processes, the public policy and public management use of complexity theory as an explicit theoretical lens seemed to be everywhere (Geyer & Rihani, 2010; Innes & Booher, 2010; Rhodes, Murphy, Muir, & Murray, 2011; Teisman, van Buuren, & Gerrits, 2009). Since then, and assisted by forums such as COMPACT (Gerrits & Marks, 2012; Meek & Marshall, 2014), special editions (e.g. Teisman & Klijn, 2008) and conference panels (e.g. IRSPM 2013 and 2015), the complexity scholarship has grown and more use of it has been made in theory. The combination of a critical mass of theoretical insights, personal experience and perceived need led her to incorporate the teaching of complexity to DGOV (Doctor in Government) students at Victoria University in Wellington. Specifically, she structured her approach to orienting complexity theory towards practice under the broad themes of policy processes and governance - in particular the treatment of multiple actors, nonlinear interactions and dynamism over time.

Having re-examined our own journeys to adopt complexity for the study and practice of public administration, we issued a “call for inputs” in 2016 that asked scholars in our network seven questions about their teaching of complexity to public administration students. This call was designed to gather comparable data across the group, but also allowed for considerable elaboration in the responses as desired. Of the 26 people contacted, ten responded to the call - which was rather more than we had expected given the relatively low level of engagement with the topic just one year earlier. Responses varied from short (sometimes one word) answers to full course syllabi and commentary on the effectiveness of the module and teaching approach. In the Appendix to this editorial we have provided a summary of the call and the responses received.

Our respondents had similar motivations for incorporating complexity into their curricula as we did (see summary of *motivation* below), although some would have come from quite different starting points. Problems in the real world were not getting solved and complexity appeared to offer a more aligned and comprehensive theoretical lens with which to perceive and develop solutions. Combined with expanding research and communities of knowledge, this provided the scholarly and social impetus for a change in what and how we taught.

Overview of Teaching Complexity to Public Administration students

The range of responses from this initial data gathering exercise was fed back to contributors and they were asked to contribute more substantive papers on their experiences with teaching complexity to public policy and management students. In addition, we received a proposal to undertake a search on the Internet for higher education programmes incorporating complexity into curricula aimed at public administration students, the results of which follow this editorial. The process of writing reviewing and revising the resulting papers further enriched our understanding of the pedagogy of complexity teaching when we saw the variety of ways scholars

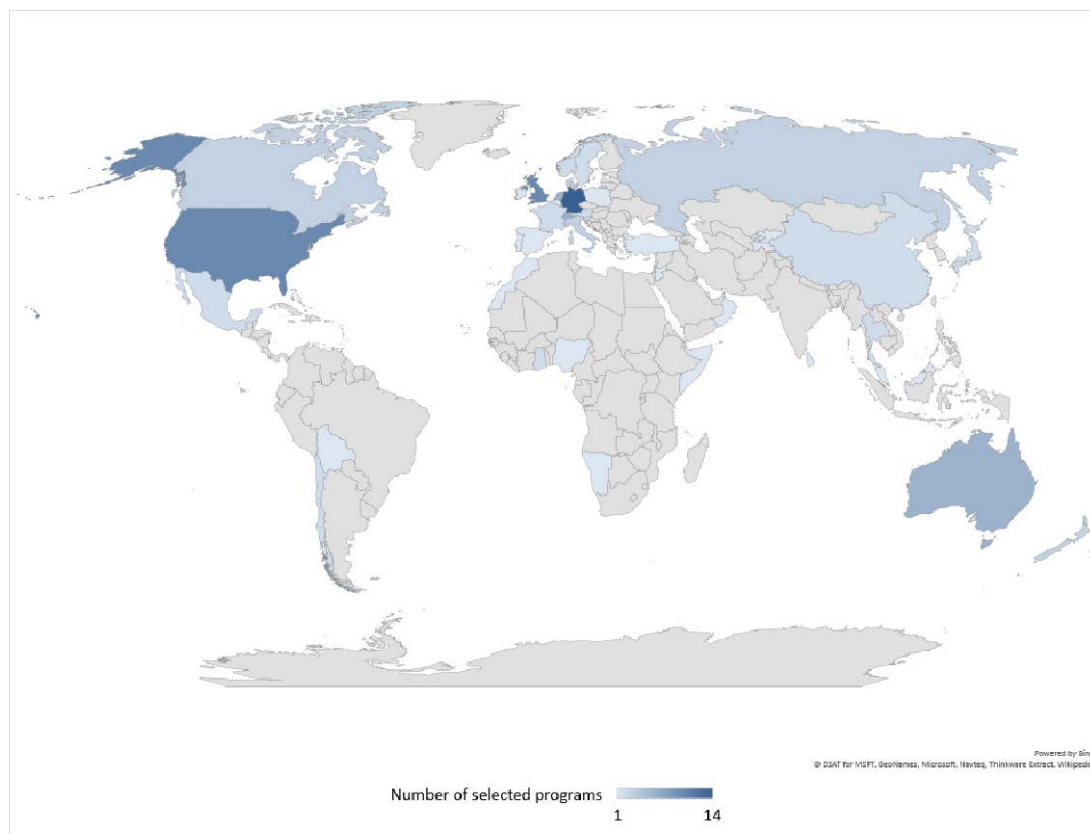


had integrated their personal learning about complexity and tried to embrace it in their teaching. We summarise some of the key learning points below.

Level / location of students taught: Complexity appears to be taught principally at the Masters level as indicated in the survey results (**Ivanovic & Gerrits**) and in the contributions in this issue. However, we have aimed to include as broad a spectrum as possible in this issue and we have examples of teaching that include workshops embedded in professional / vocational education and training (**Raisio et al** and **Van der Cingel**) through to Executive Education short courses (**Hazy**); from engaging with the public through podcasts and ‘newspaper university’ programmes (**Raisio et al**) to developing communities of practice involving scholars and practitioners to develop a toolkit for intervening in complex public systems (**Haynes et al**). Unfortunately, we were not able to include an article on the approach to developing and delivering a full-fledged complexity-led programme, but we are aware that these exist and hope in the future to publish more detailed information and analyses of these.

Ivanovic & Gerrits report that countries with the most programmes (that could be found via an internet search) were in Germany (14), the UK (10) and the USA (10), but that the spread of these programmes around the world was surprisingly broad. 53% of the programmes identified were in Europe, however. See the ‘heatmap’ in Figure 1 below.

Figure 1: “Heatmap” of location of complexity programmes globally in 2017



Motivation for incorporating complexity in the curriculum: The introduction of complexity into the curriculum is largely problem-driven, with reference to the ambiguity, unpredictability, ‘open-endedness’ of public administration policy and service problems.

Teachers and students perceive that the world in which public policy makers and administrators operate is not stable or controllable, and that traditional theories, models and management tools assume (to a greater or lesser extent) that it is. The inevitable failures that arise from this mismatch drives dissatisfaction with theory and the search for better models to fit the experience of practitioners and the empirical observations of scholars. There is also an undercurrent of psychological distress mitigation in the motivation for the teachers' adoption of complexity perspectives and the students' embracing of these by the end of the learning experience. **Raisio et al** call this "easing the pain of dealing with a rapidly moving, constantly changing environment".

Pedagogy: Case studies referenced in the first round of 'inputs' gave way to more formal / informal problem based learning (PBL) approaches in the articles contained herein. **Gerrits & Wirtz** describe this in detail as the fundamental architecture of their pedagogical approach, and **Haynes et al** reference PBL explicitly as informing their approach to developing a community of practice, interrogating case studies and developing the toolkit for systemic interventions. **Wolf's** use of 'prospective case studies' is an innovative combination of a traditional case study approach and problem-solving, underpinned by the application of complexity lenses.

In several of the contributions to this issue there are specific recommendations of which complexity frameworks, models and theories work best within the learning objectives and pedagogies described. **Hazy** incorporates a rich set of theoretical contributions into his Executive Education programme on Leadership, while **Wolf** summarises three useful lenses for students to apply to the public policy domain they encounter and seek to influence.

In all of the papers, authors make reference to the need to shake up students' belief systems (i.e., challenging their assumptions about public management systems and strategies) and to get students to consider a range of different perspectives on problems that are not easily analysed or categorised. This need to 'activate doubt' (**Wolf**) in students is done in various ways, sometimes simply by encouraging participants to share their stories (**Hazy, Haynes**) – which tends to be effective with more experienced students – and other times by actively challenging students assumptions about how things work and how to intervene to achieve outcomes (**Wolf**). **Raisio et al** suggest that introducing students to the concept of 'wicked problems' (Rittel & Webber 1973) is a good way to "concretize the difference between the mechanical worldview and the worldview of complexity".

Finally, there is a distinct pattern in the description of the role of the teacher in a complexity-informed classroom. **Raisio et al** describe this role as being a "mediator between abstract theory and real-life phenomena". This description resonates within each of the contributions to this issue as teachers help students understand better the world they live and work without prescription – just a different perception. This role is fundamentally linked with the role of facilitating a student-led learning process – which is clearly described in **Gerrits & Wirtz**, and is present in each of the contributions in this issue.

Assessment: In the initial call for inputs we were struck by the plethora of assessment approaches mentioned and this was borne out by the articles in this issue. While examinations do make an appearance, the range of assessment approaches is something to warm the heart of any 21st C pedagogue. Action-learning tools such as journals, diaries, and reflective essays play a prominent role, as do issue, scenario- and 'futures' analyses of cases and current issues in public management. Role-play, games and simulations are used, but it is not clear how these are or are not incorporated into formative or substantive assessment. The overall sense we get from these

articles and the response to the original call is that assessment is not at the core of the planning, development and implementation of complexity-oriented education – and this may not be a bad thing. In fact, it may only be possible to assess students' comprehension and/or 'mastery' of the concepts of complexity as they apply to public administration when they are faced with real issues in real-time. We are aware of a complexity-led Masters programme in the Netherlands that incorporates an internship-based masters thesis, as well as a case-based consulting type project for a 'commissioning' public organization along the lines of what is normally seen in experiential MBA programmes. This would appear to be the most appropriate approach to assessing students' facility overall with the concepts and practices of complexity-informed public policy development and management.

Learning outcomes / feedback: Perhaps due to the broad range of pedagogies and assessments, there is little in the way of patterns in learning outcomes. This is an area that could benefit from further research and reporting. Student feedback is also difficult to get a clear view of based on these articles although most report that students 'value' what they have learned and feel that the material is relevant to the practice of public management. In the case of **Haynes et al**, the community of practice developed an action & intervention 'toolkit' that is an excellent example of how scholar-practitioner interaction can result in theory-based practice. Many of the authors here report that students initially feel uncomfortable with either (or both) the theories and the pedagogy, but they tend to come around by the end of the module to the view that "teaching methods are well suited to the subject matter" (**Gerrits & Wirtz: p. 43**). Echoing the observation made above, it is perhaps impossible to know the immediate learning impact of these courses on students or indeed on the organisations that employ them.

Conclusion

This Special Edition began with the question, 'How do we teach things we can't predict?' and along the way also answered the question, 'Why teach complexity?'. The answer to 'Why' is firmly rooted in the challenges of increasingly wicked problems in the public sphere and the apparent alignment of the principles, processes and perspectives of complexity theory with the problem domains. The jury is out as to whether or not public administration professionals who are exposed to complexity theory in an academic environment are more likely to succeed and/or thrive when faced with such problems, but at least, for some, it "eases the pain of dealing with the rapidly moving, constantly changing environment, where nothing is for certain" (**Raisio et al: p. 85**).

We were both struck in reviewing the responses to the previous call and these contributions how many people had started alone in their search for explanations and had gradually moved towards like-minded colleagues to build communities of practice in both researching and teaching complexity. It appears that there is a need for a critical mass of committed scholars and teachers in close proximity to get a foothold in existing curricula. Students and practitioners appear to like and appreciate the learning, however, we have little information as to the success of these courses within the wider curricula in which they operate. The high-level scan of programmes around the world suggests complexity elements are fairly marginal, but it would be instructive to understand if this is a growing or static proportion (**Ivanovic & Gerrits**). Our view at this point in time, is that in order to further develop the teaching of complexity to practitioners, the process described by **Haynes et al** seems to be the most viable, with the most likely audience being healthcare managers or urban planners / city managers.



Complexity theory is making headway – but still struggles with credibility in the face of more linear, quantitative, hierarchy based theories—in the academy and even more so in practitioner’s world. Nevertheless, the evolution of theory into the classroom is underway and may be gathering steam. We need to undertake more focused research to understand the full cycle of relevant teaching and learning and to examine how (if) this teaching is translating into practice more explicitly. Finally, we need to assess whether those students who go into public administration or work in organisations that are engaged in delivering public services are using complexity-informed approaches successfully in a world where uncertainty and path-dependency are the norm. This is a massive research challenge and will require ongoing collaboration among scholars, practitioners and governments to address effectively.

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Appendix: 'Call for Inputs' and summary of responses

Edited text of Call for Inputs: As part of our special issues in *Public Management Review* (2017) and *Complexity Governance & Networks* (2018) on complexity in public administration, we would like to gather data from our network about if and how researchers in complexity teach their students about complexity.

In order to participate in this project, we would ask that you respond to the following questions if you have in the past, are currently, or are planning in the near future to teach complexity and/or complex systems to a group of students:

- What led to your decision to teach complexity and/or complex systems?
- At what 'level' did you teach this topic?
- What part does the complexity component play in the curriculum?
- What complexity and/or complex system concepts do you cover?
- What pedagogical techniques do you use to teach complexity, e.g., case studies, simulations, role play, 'chalk & talk', etc.?
- Please describe the students' role in the learning process and how you assess their learning outcomes.
- What sort of feedback have you received from students and/or colleagues about the material taught, either during the course or perhaps subsequently?

Why teach complexity: a mix of problem-driven reasons and being exposed to complexity in MSc/PhD studies "I want my students to be better prepared to select, adapt and justify policy [choices]."

Teaching Level: primarily MSc/MPA, but may also be taught in final year UG, PhD and professional doctorate levels.

Which concepts / role in curriculum: huge range in curriculum role - from the basis for a full masters programme in "governance and management of complex systems" to a brief introduction in a lecture (or two) to highlight how a complexity perspective might frame analysis. Complexity content is equally diffuse - difficult to discern a pattern across respondents.

Pedagogy / assessment: case studies are prominent in the pedagogy described. Students are encouraged to engage with the material early on and find their own way through it. Readings are different across every respondent/module. Students demonstrate their understanding through class discussion and essays - often related to the case studies, but not exclusively. There were one or two respondents who used simulations / role-play / field work. Less use of 'chalk & talk' and exam-based teaching/assessment than would traditionally be seen in a taught Masters (IMHO).

Feedback / other: Students were reported as being uncomfortable at first with the content / teaching style(s), but over time (if they stayed in the module) they came to like/appreciate the material and its relevance in the 'real world'. Comments include: "They either love it or hate it"; "Students are eager to learn about ways of thinking that can move us beyond traditional strategies that are not working"; "The framing of issues is so helpful - why has no one ever introduced us to these ideas before?"