# Adaptive methodology. Topic, theory, method and data in ongoing conversation

## Kristof van Assche, Raoul Beunen, Martijn Duineveld & Monica Gruezmacher

Published online: 24 Aug 2021.

Submit your article to this journal ⌐

Article views: 415

View related articles ⌐

View Crossmark data ⌐

Routledge
Taylor & Francis Group

# Adaptive methodology. Topic, theory, method and data in ongoing conversation

Kristof van Assche [iD][a,b], Raoul Beunen [iD][c], Martijn Duineveld[d] and Monica Gruezmacher [iD][a,e]

[a]Department of Earth and Atmospheric Sciences, Faculty of Science, University of Alberta, Edmonton, Canada; [b]ZEF/Center for Development Research, Bonn University, Bonn, Germany; [c]Department of Environmental Sciences, Faculty of Science, Open University, Heerlen, The Netherlands; [d]Department of Environmental Sciences, Cultural Geography Group, Wageningen University, The Netherlands; [e]Canada and School of Science & the Environment, Memorial University

**ABSTRACT**

This paper explores the concept of adaptive research design, in which topic, theoretical framing, method, and data are *in principle* open to adaptation during the research process. The main premise is that adaptations in one element of the research process can trigger changes in other elements. Both positive and negative reasons for adaptivity are discussed along with various valid reasons for limiting adaptivity in particular cases. Grasping the different couplings between concepts, theories and methods is useful to discern the possibilities and limits of adaptive methodology *in situ*. To deepen the understanding of the adaptive capacity of methodology, we broaden the discussion to look at the embedding of methodology in academia and its disciplines. In our perspective, methods appear as devices structuring thinking and observation and are well used and placed if they enhance and enable the continuation of observation and reflection and if they allow the researcher to remain open for alternative observations and interpretations.

## Introduction

Good research has to be rigorous is the mantra in books and classes about research methods and methodology and design. Rigour entails cohesion in the design and implementation of the research project. Research design crystallizes after a question is asked and a topic has been recognized, a theoretical angle is chosen, and a method has been picked. Then it has to be implemented by following the articulated steps conscientiously and relentlessly (Blaikie & Priest, 2019; Graziano & Raulin, 1993; Peirce, 1995). In more positivist versions of methodology, the concept of hypothesis might take a central place, and the aim of research can appear as rejecting or accepting the hypothesis. Certainly, academia is big and diverse, and variations occur, but the mantra is real for many, especially for students and young researchers. As Alvesson and Gabriel (2013, p. 250) have it: 'Qualitative [methodologies] tend to give the impression of clear design, rational and linear procedures, separation of theory and data, and a logical step-by- step process from research question to delivery of result. They generally out finesse the actual research process, which usually involves ambiguity, messiness, theory-impregnated data, and leaps of intuition with a post-facto invention of rational methodology'.

Although 'rigorous research' offers the impression of clarity and structure, the mantra can also be experienced as oppressive and disheartening. It can produce repetition of existing approaches and ideas, suffocate creativity and lead to missed opportunities. Scientific innovation requires research to push its boundaries, to scrutinize very critically the identities of disciplines and their methodological assumptions, and to explore novel research approaches and methods (cf. Bourdieu, 2003; Brierley, 2017; Stoecker & Avila, 2020; Van Assche, 2003). Furthermore, the complexity of many research topics and the unpredictable elements in research processes require a reflexive approach that allows for a research approach that is open to necessary adaptions without undermining rigour and credibility (Alvesson & Skoldberg, 2017; Hedgcock & Lee, 2016; Rabbidge, 2017).

In this paper, we explore a novel approach we call *adaptive methodology*. The general tenet is that more productive, creative and innovative research has to embrace a perspective on method that spurs continued and ever sharpening observation and reflection (cf. Fox & Alldred, 2018; Fuchs, 2001; Latour, 1980, 1998, 2004; Nicholas & Foote, 2020). This can be achieved by an iterative approach to research design, continuously adapting the different elements of the research design to each. An iterative approach creates a different position of method in the idea of methodology (cf. Lather, 1993; Rennie, 2012; Springgay & Truman, 2018). Our approach is inspired by the works of Mats Alvesson (Alvesson, 2003; Alvesson & Skoldberg, 2017) and (Czarniawska, 1997, 2002, 2004) on reflexive method and methodology as well as the interpretive methodologies developed by Dvora Yanow (2000). It also leans on the semiotically inspired meta-methods developed by Umberto Eco (1983, 1986, 2015), and one of his inspirations C.S. Peirce and the American pragmatists. As we will argue later our approach differs from pragmatism and the subsequent pragmatist approaches to research (see Kaushik & Walsh, 2019 for the methodological implications of pragmatism; cf. Onwuegbuzie & Leech, 2005). The development of the concept of adaptive methodology was furthermore influenced by the actor network theorists (Latour, 2004) and in general post-structuralism (Lather, 1993).

Although adaptive methodology is rooted in these approaches, it is also relevant for the different other branches of the social sciences and the humanities. It could also help to rethink methodologies and methods in the natural sciences, where the gap between how facts are produced and how methods appear in scientific papers is not always productive for revisioning methods and for the increase of insights and innovation (Latour & Woolgar, 1986).

In the next paragraph, we discuss the different reasons for an adaptive approach to research design and methodology and the elements of the research design that can be adapted. Next, we consider the nature of couplings between theories and concepts, between theories and methods, and between all those elements and the topic and questions structuring the research. This is necessary to understand both the possibilities and the limits of adaptivity. To overcome certain limits, we then argue, why and how the boundaries of disciplines and of academia as such can produce a map of the part of academia where a particular project is situated and we show how such map is useful to explore the potential for inter- and transdisciplinary work. We conclude with a reflection on the nature of method as it appears in our investigation and the continued importance of method, as part of a more flexible methodology, and implications for inter- and transdisciplinary investigations.

## What can be adapted?

A simple and familiar model of research looks like this: a topic is picked and literature is reviewed to get an understanding of what has previously been studied on this particular topic and what not. Then one familiarises oneself with different available theories that could be useful and picks one. After or during these steps research questions are formulated and finetuned, and a method is selected or designed. Then it's time to jump into the field, the laboratory, the archive or the worldwide web. Such conceptualisation of the research model comes with constraints, since academics cannot just choose a topic, theory, methods randomly (Kumar, 2019; Leavy, 2017). Within different disciplines and within different paradigms there are different ideas on what

counts as a relevant topic, 'fashionable' theory, and right methodology. Blaikie and Priest (2019) for example, suggests it is necessary to have 'detailed knowledge of research methods [...] at the [research] planning stage in order to make good decisions' (Blaikie & Priest, 2019, p. 1). Those who want to be creative might soon find themselves disciplined by teachers, supervisors, colleagues or reviewers of a submitted paper. We embrace for the moment this simple model of research, where we always need a topic, theory, method and data, and we will show how in the research process each of these elements can be adapted and what reasons for this adaptation could be.

## Topic

Although a topic is often the starting point of a research project, it can be adapted if later on the research findings do not illuminate on the initial topic. In other words, it can be adapted if the findings do not answer the initial research question but seem to shed light on a different issue (Eco, 2015). This can entail a slight modification, a move towards a related topic where the otherwise unchanged combination of method, theory and data provides new insight. It can also be a wholly different topic, where the findings do not produce much interesting in terms of the original topic, but might show a pattern that is accidently interesting, new or unique for a different topic (Coleman, 2013; Žižek, 1989). The academic literature is littered with examples of such serendipity, where the road of discovery is meandering, and openness to unexpected patterns is more productive when coupled with an openness for shifting the topic (e.g Latour, 1980, 1998). The ability to see alternative explanations, which bring one to a different topic of course hinge on a familiarity with that topic, which might pertain to the same discipline, or not (Eco, 1986; Lakoff & Johnson, 1980). When shifting the topic, one can *assume first* that it is ok to keep the other elements of the project untouched, but this needs to be tested. Logically, it is more likely that modifications are needed to the other elements as well, and that the insights gained might have to be further developed (Dixson & Seriki, 2013; Mukherji & Albon, 2018).

## Theory

Theory is an essential element in the research design. It structures research design, while research can also aim to refine and further theoretical insights (Shepherd & Suddaby, 2017). 'Although existing definitions of "theory" vary in terms of degree of detail and specificity, they converge on the idea of "theory" as conceptual knowledge that aims to explain phenomena' (Sandberg and Alvesson, 202: 488). Each topic can be approached from different theoretical angles, highlighting certain aspects, while obscuring or overlooking others. Adapting theory is seemingly the easiest, yet the most difficult. One could argue it is the easiest, since no new empirical work has to be done and no revision of the link between method and empirics is necessarily required. Choosing a new theoretical frame, or developing a different one to explain the observed realities, might be an armchair activity, at first sight. On the other hand, the chosen theory pervades all aspects of observation and interpretation (Bunge, 2012; Fuchs, 2001). This implies that adapting theory can influence all the other linkages in the scheme of research expounded here (Deleuze & Guattari, 1994; Žižek, 1989). Tracing the manner in which the initially chosen theory is an obstacle in the path of discovery rather than a help, is difficult for this reason of potentially deep entanglement (Greenwald et al., 1986). One can modify a theory, in the sense of adapting it to a new topic or field of observation, or in the sense of further developing or modifying certain aspects (cf. Bowie, 1988). Adapting theory can lead to constructing theory, this is a related form of adaptation, where an empirical focus can shift to a theoretical focus (Charmaz, 2017; Charmaz & Belgrave, 2015; Dooley, 2002; Lynham, 2002). As Charmaz (2017) explains, these shifts between the empirical and

theoretical aspects of research can 'further the methodological self-consciousness that we need for critical qualitative inquiry' (Charmaz, 2017, p. 39)

## Method

A method is a tool to guide observation and conduct reasoning (Haverland & Yanow, 2012). More detailed definitions of what a method is are possible, yet largely depend on the discipline of scientific tradition in which it is defined. The *method* might require adaptation during the research process. This means that possibly a different method might be needed or that a chosen method might need to be modified (Andersen, 2009; Rennie, 2012), limited, or extended to include other methods (Creswell & Clark, 2017). A decision to the adapt method can be made when it is observed that the chosen method does not deliver the insights expected, or nothing new that might be interesting when shifting the topic (see notes on theory above). The need for adapting methods has become more acutely felt in recent years as social sciences are turning to more contextualized practices, away from portraying humans as research objects and because there is an increase in transdisciplinary research in which research methods need to be developed in interaction with others, including various societal stakeholders, during the research process (Yanow & Schwartz-Shea, 2015). Adaptation of method is harder in fields where methods are more codified and where bricolage or adaptation is thus less accepted (Duymedjian & Rüling, 2010; Lang et al., 2012; Springgay & Truman, 2018). In transdisciplinary research for example, these difficulties could be both cause and effect of conflicting methodological standards or the erosion of legitimacy among participants (Lang et al., 2012). Adapting a method will likely lead to a change in the empirics, even if roughly the same field of observation and the same kind of data are taken (Sword et al., 2018; Yanow & Schwartz-Shea, 2015). Thus, as with the other adaptations, adapting one element under the initial assumption of not changing other elements, will likely still necessitate changes in the other elements.

## Data

Data might also have to be adapted during the research process. The empirical materials obtained through the application of a particular method might at some point prove to be insufficient or even useless. This can be a matter of errors or mistakes in the application of method, and it can be a matter of quantity of data, or of the domain of application of the method (Blaikie & Priest, 2019). If the research relies on case studies, the cases might have to be chosen differently, or different information might have to be gathered (Flyvbjerg, 2006; Yin, 2017). The reason for searching for more or different data without changing the other elements of the research design, must lie in the belief that the other elements do not need alteration, that one is close to a more important finding with the chosen combination of method, theory and topic (Austrin & Farnsworth, 2005). Such belief does not need to be a matter of intuition. It can be derived from familiarity with similar situations, i.e. context for collection of empirical data, and familiarity with the potential of the chosen method and theory, as proven in other research (Flyvbjerg, 1998; Simon & Dippo, 1986).

## The need for an adaptive methodology

Implementing the adaptations just explored, is likely to bring about more adaptations to the research design. Research design thus becomes iterative, with a series of adaptations as long as the fit between topic, theory, method, and empirics can be reasonably improved. One has to be careful therefore with methodological assumptions that introduce rigidity (Springgay & Truman, 2018). Such assumptions might hamper insights, renders adaptation harder than it ought to be, and break the cycle of upgrading the linkages (cf. Deleuze & Guattari, 1994; Drummond & Themessl-Huber, 2007). The proposed adaptive methodology relies on learning, taking place within the

research itself, but also on the broader knowledge and learning capacity of the researcher or the team. Umberto Eco famously spoke of Abbe Valais, whose horrible interpretation of Thomas Aquinas he found in a Parisian book stall, but where the structure of the mistakes made by Valais pointed himself in the right direction, for a related but different topic (Eco, 2015).

The need for adaptation can come from all places. There might be a direct confrontation with lackluster results, or a slow realization that one has been investigating the wrong thing, from the wrong angle (Rennie, 2012). There also might be a general discontent dawning on the researcher regarding the promises of a particular method, leading to a re-evaluation of a particular project under way. This slow realization can be sped-up if there is a continuous 'self-exploration of one's own interpretations' or 'the interpretation of interpretation', what Alvessson and Skoldberg (2017, p. 11) define as reflection within the context of empirical research. One can easily imagine a reflection on the chosen topic as too tied to the research fashions of the moment, the reigning policy and funding emphasis, or the identity politics of the discipline (Latour, 1980). The reasons for adaptation can also come from a reflection on the obstacles faced during the research process (Gadella Kamstra, 2021, p. 12). The reasons for choosing an adaptive methodology can therefore be positive and negative; on the positive side are the pleasure of discovery, the recognition of unexpected patterns, of new qualities, while on the negative, one might be hitting the wall or not obtaining useful results. Choosing for an adaptive methodology is most attractive when there is a belief that there is something of value, something bigger than originally envisioned.

## The limits of adaptation

Despite the needs for an adaptive methodology, there are many forces that can actually hinder making adaptations. Becoming aware of these constrains is crucial for developing an adaptive methodology. The different constraints are not problematic per se and often are in place for a good reason. In each case it has to be assessed if some form of adaptions is desired and how this would relate to the forces that might limit adaptivity. The field of topics one is supposed to work on and the theories and methods one is expected to work with, are often pre-structured by a set of forces that do not always coincide with the actual academic potential (or even practical relevance) of these topics, theories, methods and so on (Andersen, 2009; McGregor & Murnane, 2010). For every concrete research project, there are unique limits to adaptation. Most simply, there are pragmatic reasons to limit adaptation and especially its iterative form: time, money, authority, and the identity and legitimacy politics of disciplines. Certain disciplines are more open than others in terms of methods and methodology and in terms of selection of theory and of topics. In the more extreme cases, a discipline (say economics) might tie its identity to a particular set of quantitative methods and ideological assumptions, whereas extreme cases in the other direction (one can think of cultural geography) expand very quickly by accepting new topics and theories quite easily (the geography of everything).

Awareness of the forces that limit adaptation is essential for the concept of adaptive methodology we develop in this paper. This understanding can be deepened by becoming aware of the couplings between disciplines, topics, theories, concepts, methods, and so on (Luhmann, 1995, 2000; Orton & Weick, 1990; Weick, 1976). These couplings can be very weak or very tight, or somewhere in between. In some disciplines, for example, certain theories are tightly coupled with certain methods and topics, while other theories can engender research embracing a variety of methods, even lead to the devising of new methods (Barry, 2017). Conversely, new methods can be semi-autonomous of the theories underpinning the disciplines they emerged from and produce insights which then lead to the formulation of new theories, and so on (Dooley, 2002; Flyvbjerg, 2001; Morse, 2004). To deepen our understanding of the limits of adaptation we

therefore focus on the roles, theories, concepts, methods, and disciplines play in tightening and loosening the various couplings.

## Theories

*Theories* can be tightly coupled internally, and clearly delineated externally, or less so. They can also be firmly tied to a specific discipline and a particular set of methods, or less so (as noted above). The psycho-analytic method (with comfortable couch) co-evolved with psycho-analytic theory, yet at some point that theory developed beyond clinical practice and method, to grasp other domains of reality (e.g. culture or politics), which then necessitated the elaboration of a new set of methods (Bal, 2002; Bal & Bryson, 1991; Bowie, 1988; Roazen, 1992; Žižek, 1989). Geography initially was tied to the making of maps, a topical and practical delineation which conformed with a methodological limitation. Once geography redefined itself and broadened its scope, the methods available and producible expanded, and once it opened up itself theoretically, the diversity of methods exponentially increased (Crang et al., 2000). Having some understanding on how a particular theory shapes the methods used, the observations and interpretations of a particular research context (Alvessson & Skoldberg 2018), is essential for an adaptive methodology.

## Concepts

Concepts can play an important role in the loosening and tightening of various couplings within theories and between theories, methods and disciplines (Jackson, 2017). Concept can be part of a particular theory and only make sense in that frame, but they can also travel between theories and between disciplines (Boström & Davidson, 2018). Traveling concepts can form new connections between disciplines or between theories, and thus lead to theoretical innovation or to the formation of more encompassing theories (Bal, 2002). Concepts can also form linkages between theories and methods, as the method can be focused on a particular concept that is more easily translatable into method, or rendered more understandable from a methodological viewpoint (Gaventa, 1988; Latour, 2004; Schulte, 2018; Todd et al., 2004). 'Discourse' has been able to link Foucaultian theory more easily than his other concepts to methods, which can then engender empirical research (Jørgensen & Phillips, 2002). Concepts can also be newly created, based on existing theory, in order to enable methodical research. While new methods can be coined based on a concept that emerged in a first elusive theory. The Foucaultian concept of discourse is a clear example of a theoretical concept that has inspired the development of a range of related research methods (Barry, 2017; Graham, 2011).

## Methods

Methods can be tightly or loosely coupled to concepts, theories, and topics, and these couplings will shape the possibilities for adaptation in the research methodology (Shiner, 1982). Methods can also be loosely or tightly coupled to each other, where certain methods can hardly occur without accompanying methods (Barry, 2017). GIS is hard to envision without a combination of mapping and statistics, while on the other hand, anthropological observation is extremely open to the combination with a variety of other methods (Gupta & Ferguson, 1997). When considering the tight and loose couplings of methods with other elements in the research process, it is good to remember that the boundary between qualitative and quantitative methods is hardly the hardest one (Balnaves & Caputi, 2001; Eco, 2015; Shah & Corley, 2006). This boundary tends to become hard in the politics of certain disciplines that specifically identify with either quantitative or – less often – qualitative methods. To grasp the possibilities to combine qualitative and quantitative methods, it is more useful to lean on the Peircean distinction between forms of reasoning: the distinction between induction, deduction and abduction. While induction is the formulation of a theory or conclusion on

the basis of a set of observations and deduction the starting of a scientific particular observation with a general hypothesis, rule or a theory 'in mind', abduction is the combination of inductive and deductive reasoning to find answers to a particular problem (see Eco (1986). Both anthropology and statistics abound in inductive methods, while mathematics tends to be deductive in nature, and medicine cannot fail to follow traces and reason backwards to hypothesize what those symptoms might mean -abductive analysis (see e.g.Wieringa et al., 2017). Which observations are needed for the processes of knowledge production, and which methods (quantitative and/or qualitative) should be used to make those observations, can differ depending on the forms of reasoning.

### *Disciplines*

The structure and function of the academic disciplines on the methodology and the possibilities and limits for adaptation of different elements of the research design, recurs in our narrative, and for good reasons. Most academic work, despite the many attempts to conduct inter-, trans-disciplinary work and citizen science, is still firmly rooted in disciplines. Those disciplines are more than structured collections of knowledge. They come with power, politics, identity politics, preferences for certain topics and methodologies, as well as selective blindness for other topics, theories, connections, methods and empirics (Lang et al., 2012). Disciplines are, furthermore, narratively structured with narratives pervading issues of research design, method, and topical structure (Bal, 2002; Czarniawska, 1997). Internal and external competition, within and between disciplines, co-decides which topics, theories, concepts, and methods are allowable, prestigious, or suspect. Disciplines can function as cognitive engines and as cognitive boundaries, as impetus and barrier for cooperation (Austrin & Farnsworth, 2005; Lang et al., 2012). They can be marked by grounding narratives that are deeply suspicious of alternative narratives, which can be recognized in theories and methods which are therefore deemed incompatible with the discipline (Andersen, 2009; Clarke, 2015; Foucault, 1970, 1972).

### *The limits of adaptation: functional stupidity and specialisation*

Adaptation certainly is not always needed or even desired. Mats Alvesson recognizes a number of structural reasons for what he calls 'functional stupidity' (Alvesson & Spicer, 2016), the cultivation of not-thinking, not being innovative or creative, or not using one's critical capacities. One has to recognize that the academic enterprise is marked by similar mechanisms. There are many reasons to stop thinking about alternative ways of doing research, to halt the critical reflection on tight couplings between theory-method- topic and empirics in a given disciplinary frame. It is for example, easier to make a career when those tight couplings are not questioned and are continuously applied as a reference of rigorous research and belonging to the mainstream (Alvesson & Gabriel, 2013). One can also present these mechanisms of simplification as part of the complexity reduction that is necessary for the functioning of science (Luhmann, 1995). With greater specialization and differentiation came a multiplication of boundaries, of identities, and a multiplication of reasons to 'freeze' certain couplings. More rigid couplings enabled for the further differentiation of academia, for the hardening of the boundaries of a new academic domain.

## How to foster adaptive methodology?

To foster adaptive methodology, we need to alter the tightness of the couplings between the different aspects of a research project and to do so we suggest: 1) Ongoing observation and reasoning before, during and after every research process; 2) Reflexive mapping; 3) Boundary crossing and the deliberate use of traveling concepts.

### *Ongoing observation and reasoning*

Ongoing observation and reasoning is crucial for the adaptive methodology we introduce. Alvessson and Skoldberg (2018) depict this by defining the research process as constituting 'a [re]construction of the social reality in which researchers both interact with the agents researched and, actively interpreting, continually create images for themselves and for others' (Alvessson & Skoldberg, 2018, p 12). If a particular research design, a particular application of method in a coupling with theory, topic and empirics causes *observation to stop*, then there is something wrong. Either one reverts to an alternative design, or one adopts the adaptive methodology we argue for. We assert that a method is good if it enhances and continues observation and engenders reflection, while remaining open for alternative observations (Eco, 1986; Yanow & Schwartz-Shea, 2015). A method is not good in a particular situation if it hinders observation, thinking and their productive coupling (Coleman, 2013). Of course, there will always be a stop to observing and thinking and an end to the project, yet these decisions should come from the researcher, not the method. As our earlier observations on adaptation of the diverse elements of research intimated, we imply that it is never good for a researcher to entirely identify with a method- or a discipline, for that matter (cf. England, 1994; Latour, 2004). Such identification introduces structural rigidity, structural blindness, a great difficulty to take a position above and beyond the method applied (Luhmann, 1995) and a great difficulty in other words to consider continuous adaptation of topic, theory, method, and empirics.

Keep observing means keep reasoning, keep oscillating between inductive, deductive abductive forms of reasoning. Reasoning itself, in its basic categories, thus appears here as meta-method. Broad interpretive schemes, forms of logic, and the categories of induction/ deduction/ abduction perform the function of such meta-method (Czarniawska, 1997; Eco, 1983). In practice this means that the forms of reasoning function as correctives of more narrow methods applied, or as frames providing openings and alternative ways of understanding the situation (Flyvbjerg, 2001; Lakoff & Johnson, 1980; Mackenzie & Knipe, 2006). This can enable the researcher to think differently about possible methods and to develop a different set of couplings between the elements of the research design (Åsvoll, 2014; MacCrimmon, 2000).

### *Reflexive mapping*

As a part of ongoing observation and reasoning, adaptive methodology can be enhanced by four forms of mapping of the conditions that enable and constrain this methodology. The first, is the mapping of the identification of a researcher with a particular discipline and the identification of that discipline with a set of theories and methods. These forms of identification greatly influence the couplings that must be navigated; for example, identification of power relations between the researcher and those being researched (England, 1994; Gaventa, 1988; Mendis-Millard & Reed, 2007). The second form is the mapping of the boundaries of the disciplines. Their ideas of coupling topics, theories, methods, and data have to be critically scrutinized, and opened up where possible, making it easier to see which couplings are harder than others and which ones can be adapted. The third form is the mapping between theories and concepts that can inspire a more reflective approach to research. Rethinking these couplings, introducing new ones, with new concepts, can help to adapt theoretical frameworks and bridge gaps between different approaches or between different disciplines. The fourth from is the mapping of the couplings between theories and methods. This is useful to see the often-contingent nature of that coupling and the disciplinary power between it. Introducing concepts from other disciplines might weaken such coupling and can create openings for alternative couplings, the introduction of alternative methods related to other theories, or the use of theory as a form of method (Lipsey, 1993; Van Assche et al., 2019, 2019.).

### Boundary crossing and the deliberate use of traveling concepts, preferences, and forms of reasoning

Academic work needs boundaries and those boundaries define an inside and an outside. A discipline for example, has a complex identity, with each dimension coming with different boundaries: the discipline as social group, as organizational structure, as ideological construct, as structure of knowledge, and as set of methods (cf. Jacobs & Van Assche, 2014). It is good to understand however that the methods which are often regarded as producing and maintaining boundaries, are also tools for boundary crossing (Van Assche et al., 2019). Such crossing can be highly productive and useful, and the crossing can be managed by carefully considering the couplings within and between disciplines, topics, theories and methods. Often, such couplings are fairly flexible in practice and not the logical necessity presented in the rhetoric of a discipline, school, or group associated with a method or theory.

Boundary crossing can be enhanced by the deliberate use of traveling concepts. The traveling of concepts and embedding narratives can make it easier to build new bridges, while weakening old couplings, enabling new forms of adaptation. They can affect the couplings between theories, methods, topics and the empirical materials (Semenenko, 2012). That is, they can affect the interpretive frames that make us see potential or potential contradiction in certain couplings, and thus can make or break them, as well as affect their strength (Morgan, 2011). A related enabler of adaptation is the existence of forms of reasoning that transcend the disciplines, and which can produce academically recognized knowledge: induction, deduction and abduction as meta-methods. A traveling preference for empiricism, for example, can induce a preference for inductive methods, which can then reinforce a pressure to translate many policy-related issues into materials ripe for modelling, and not other forms of investigation. Positivist and instrumental approaches to policy and governance came with a strong quantitative flavor, as trust in numbers traveled across policy realms and the academic realms they supported (Hacking, 1990; Scott, 1998). Broader academic thinking can serve as a break with rigid thinking and its expansionist tendencies. It can open up spaces for more creative thinking, including the exploration of different linkages between concepts, theories, methods, data and topics, which then can expand the repertoire of possible adaptations, of possible new couplings.

## Consequences for (inter- and trans) disciplinary research

An adaptive methodology entails a shift in the perspective on boundaries and boundary crossing in research and our proposed adaptive methodology has therefore implications for the thinking on inter- and transdisciplinary research. As several scholars observed boundaries between disciplines change all the time, they have different dimensions, and the value of their crossing changes according to the research project and purpose at hand (cf. Gieryn, 1999). Adaptive methodology therefore implies an ongoing attention to the nature, rigidity and strength of particular boundaries between disciplines and a continuous assessment (in an iterative process) of the reasons for and value of crossing the boundaries (Massey, 1999).

Interdisciplinary and transdisciplinary research come with distinct challenges. We spoke of the crossing of disciplinary boundaries, which takes place in both inter- and transdisciplinary work, but the second approach involves crossing the boundary of academia as such. This can entail the inclusion of citizens in research projects, collecting information in a wider network. It can also, more radically, transform method and methodology, by challenging academic assumptions and values, and bringing in 'local knowledge' which is allowed to 'co-produce' new knowledge with academic status and possibly a second status – more policy relevant, closer to local knowledge etc. (Innes & Booher, 1999; Minkler, 2005; Paasi, 2005; Pohl & Hadorn, 2008).

We would argue, following Luhmann (1995), that both forms of transcending the discipline are possible and valuable, but that the boundaries themselves have value. They cannot be erased since this will dissolve the basic distinction between science and other parts of society. Political and other

calculations in policy-making, which might involve participatory research and co-production, remain distinct from scientific production of knowledge.

Just like any methodology, adaptive methodology can be abused. Adaptive methodology could become a problem for scientific disciples if it is used to legitimise an unwanted research ethics and related research practices, like making up data, data snooping or fishing, cherry picking or p-hacking. Clearly this is not the intention of adaptive methodology and it would also be a misreading. Adaptive methodology is about being reflexive on the relations between the different elements that constitute research and about mapping the possibilities and limits to alter these relations within a given discipline or field. Greater reflexivity within a discipline implies greater transparency of the taken for grate assumptions within a discipline (the black boxing of parts of the research process), which we believe, potentially contributes to research that is more open to critique and improvement.

## Conclusion and discussion

This paper presents an approach to research design and implementation that we call *adaptive methodology*. Adaptive methodology is about a continuous reflection on the possibilities and limits of mutual adaptation between topic, theory, concepts, method and data. The approach derives from basic post-structuralist and semiotic insights and it is based on the assumption that all the boundaries in research are constructed and can in theory be crossed or altered. The perspective allows for a more flexible approach to research design and practice, with possibilities of responding to what is discovered, through observation and reflection, and allowing the researcher to draw the conclusions of new insights by altering the path of research.

Adaptive methodology is not without limits. It's here where we diverge from pragmatists approaches of research, which sometimes assume 'an independence of methods (. . .) in which researchers do not have to absolutely commit themselves to a particular research method (. . .) [in which] (. . .) researchers prefer addressing their research questions with any methodological tool available, using the pragmatist credo of "what works' (Kaushik & Walsh, 2019, p. 7). If a pragmatist position entails the suggestion that methods can just be chosen 'believing that 'epistemological purity doesn't get research done' (Miles & Huberman, 2002, p. 21 quoted in Onwuegbuzie & Leech, 2005, p. 377), adaptive methodology implies researchers to be adaptive within the practical and theoretical limits of disciplines, research organisations and so on. We argued that these limits must be navigated per research project and that they derive from practical considerations and limitations, as well as from conceptual obstacles. Some of the obstacles are harder than others. Beyond logical flaws and internal lack of coherence, there are many tight couplings which can be hard to overcome, making adaptation harder. Sometimes, these tight couplings are indeed a matter of logical connectivity, but in most cases, the tightness of the coupling results from social processes. They are social constructions which can be scrutinized and sometimes altered.

The practice of science is never merely an application of scientific method. It is also a craft (Williamson et al., 1977) and an art (Eco, 1983), entailing a struggle with materiality (Latour, 1980), and, ideally, an openness for the unexpected and the emergent (Deleuze & Guattari, 1994). A related insight is that the *practice of research* does not coincide with its results, and that the logic and cohesion reigning the results cannot be guaranteed a priori by any chosen research method (Deleuze & Guattari, 1994; Latour, 1980, 1998; Luhmann, 1995). Adaptive methodology, if widely applied, can therefore do more than mapping and navigating couplings. It can, over time, change the pattern of couplings, which can then be navigated by others. It might lead to hybrid genres (Austrin & Farnsworth, 2005). Generalization of adaptive methodology can enhance the creative potential of science and can be useful far beyond the pragmatics of the project. It can alter the possibilities for individual researchers as it can help them to reflect on the take for granted research elements and their relations and if allowed by their peers alter these relations, and it can change how scientific disciplines shape research. In other words: adaptive methodology can be an attempt to

change oneself or parts of the research process, and to transform the basic framework that constitutes a scientific discipline (Žižek, 1989).

Education can play an important role here, in emphasizing the importance of rigor in research, the importance of method, while simultaneously showing the possibilities to transcend routinely accepted couplings of method, theory, topic and data. Cultivating reflexivity is useful (Alaszewski, 2006; Alvesson & Skoldberg, 2017), as is the maintenance of perspectives (and identities) beyond the discipline.

## Disclosure statement

No potential conflict of interest was reported by the author(s).

## Notes on contributor

*Kristof van Assche*, Currently Full Professor (since 2016) in planning, governance and development at the University of Alberta and also affiliated with Bonn University, Center for Development Research (ZEF) as Senior Fellow and with Memorial University, Newfoundland, Harris Centre for Regional Policy, as Research Fellow. Before coming to Alberta (in 2014) he worked at Bonn University (ZEF) as Senior Researcher, Minnesota State University (St Cloud), as Associate Professor, and Wageningen University, as Assistant Professor. He is interested in evolution and innovation in governance, with focus areas in spatial planning and design, development and environmental policy. He has worked in various countries, often combining fieldwork with theoretical reflection: systems theories, interpretive policy analysis, institutional economics, post-structuralism and others. Together with colleagues he has developed Evolutionary Governance Theory (EGT), which aims to discern realistic modes of transition and reform, between social engineering and laissez faire.

*Raoul Beunen* is an Associate Professor of Environmental Governance at the Open University, The Netherlands. His research explores the potentials and limitations of environmental policy and planning from the perspective of adaptive governance and sustainability. It focuses on innovation and evolution in governance, paying attention to the dynamics of policy implementation and integration, multi-level governance, stakeholder involvement, and the performance of institutional structures.

*Martijn Duineveld* is Associate professor at the Cultural Geography Group Wageningen University and co-director of the Centre for Space, Place and Society. His research programme is named Urban Governance and the Politics of Planning and Design. He is co-founder and active contributor to the emerging body of literature on Evolutionary Governance Theory. His research is focused on three themes: 1. Democratic innovation. 2. Conflicts and Power. 3. Materiality and object formation.

*Monica Gruezmacher* has a PhD from the Center for Development Studies at the University of Bonn and is currently a Visiting Assistant Professor at Memorial University, Newfoundland, and a Research Associate at the University of Alberta. She has been particularly interested in human-nature interactions; studying ways in which social changes bring about changes in the use and management of natural resources. For the past years she has been exploring the challenges of planning for long-term sustainability in rural communities of Western Canada and Newfoundland but has had also substantial experience in the Amazon and Andes regions (particularly in Colombia where she is originally from).

## ORCID

Kristof van Assche  http://orcid.org/0000-0003-1745-0043
Raoul Beunen  http://orcid.org/0000-0001-5005-075X
Monica Gruezmacher  http://orcid.org/0000-0002-1077-3432

## References

Alaszewski, A. (2006). *Using diaries for social research*. Sage.
Alvesson, M. (2003). Beyond neopositivists, romantics, and localists: A reflexive approach to interviews in organizational research. *Academy of Management Review*, *28*(1), 13–33. https://doi.org/10.5465/amr.2003.8925191
Alvesson, M., & Gabriel, Y. (2013). Beyond formulaic research: In praise of greater diversity in organizational research and publications. *Academy of Management learning & education*, 12(2), 245–263
Alvesson, M., & Skoldberg, K. (2017). *Reflexive methodology: New vistas for qualitative research*. Sage.
Alvesson, M., & Sköldberg, K. (2017). *Reflexive methodology*: New vistas for qualitative research. London. Sage

Alvesson, M., & Spicer, A. (2016). *The stupidity paradox: The power and pitfalls of functional stupidity at work*. Profile Books.

Åsvoll, H. (2014). Abduction, deduction and induction: Can these concepts be used for an understanding of methodological processes in interpretative case studies? *International Journal of Qualitative Studies in Education*, 27(3), 289–307. https://doi.org/10.1080/09518398.2012.759296

Andersen, C. (2009). Critical Indigenous studies: From difference to density. Cultural Studies Review, 15(2), 80–100-180–100. https://search.informit.org/doi/abs/10.3316/INFORMIT.699370924819299

Austrin, T., & Farnsworth, J. (2005). Hybrid genres: Fieldwork, detection and the method of Bruno Latour. *Qualitative Research*, 5(2), 147–165. https://doi.org/10.1177/1468794105048651

Bal, M. (2002). *Travelling concepts in the humanities: A rough guide*. University of Toronto Press.

Bal, M., & Bryson, N. (1991). Semiotics and art history. *The Art Bulletin*, 73(2), 174–208. https://doi.org/10.2307/3045790

Balnaves, M., & Caputi, P. (2001). *Introduction to quantitative research methods: An investigative approach*. Sage.

Barry, P. (2017). *Beginning theory: An introduction to literary and cultural theory*. Manchester university press.

Blaikie, N., & Priest, J. (2019). *Designing social research: The logic of anticipation*. John Wiley & Sons.

Boström, M., & Davidson, D. J. (2018). Introduction: Conceptualizing environment-society relations. In M. Boström & D. J. Davidson (Eds.), *Environment and Society* (pp. 1–24). Springer.

Bourdieu, P. (2003). Participant objectivation. *Journal of the royal anthropological institute*, 9(2), 281–294

Bowie, M. (1988). *Freud, proust and lacan: Theory as fiction*. Cambridge University Press.

Brierley, J. A. (2017). The role of a pragmatist paradigm when adopting mixed methods in behavioural accounting research. *International Journal of Behavioural Accounting and Finance*, 6(2), 140–154. https://doi.org/10.1504/IJBAF.2017.086432

Bunge, M. (2012). *Epistemology & methodology I: Exploring the world* (Vol. 5). Springer Science & Business Media.

Charmaz, K. (2017). The power of constructivist grounded theory for critical inquiry. *Qualitative Inquiry*, 23(1), 34–45. https://doi.org/10.1177/1077800416657105

Charmaz, K. and Belgrave, L.L. (2015). Grounded Theory. In G. Ritzer (Ed.), *The Blackwell Encyclopedia of Sociology*. Blackwell Publishing. https://doi.org/10.1002/9781405165518.wbeosg070https://doi.org/10.1002/9781405165518.wbeosg070.pub2

Clarke, A. E. (2015). Situational analysis. In G. Ritzer (Ed.), *The Blackwell Encyclopedia of Sociology*. Blackwell Publishing. https://doi.org/10.1002/9781405165518.wbeos0777

Coleman, R. (2013). *Deleuze and research methodologies*. Edinburgh University Press.

Crang, M., Thrift, N. J., & Thrift, V.-C. N. (2000). *Thinking space* (Vol. 9). Psychology Press.

Creswell, J. W., & Clark, V. L. P. (2017). *Designing and conducting mixed methods research*. Sage publications.

Czarniawska, B. (1997). *A narrative approach to organization studies* (Vol. 43). Sage Publications.

Czarniawska, B. (2002). Narrative, interviews, and organizations. In F. Jaber and J.A. Holstein, James A., (Eds.), Handbook of interview research: Context and method (pp. 733–749). Sage. https://doi.org/10.4324/9780203813324

Czarniawska, B. (2004). *Narratives in social science research*. Sage.

Deleuze, G., & Guattari, F. (1994). *What is philosophy?* Columbia University Press.

Dixson, A. D., & Seriki, V. D. (2013). Positional and identity-based theories of research. *Reviewing Qualitative Research in the Social Sciences*, 211. 223–231. 10.https://doi.org/4324/9780203813324

Dooley, L. M. (2002). Case study research and theory building. *Advances in Developing Human Resources*, 4(3), 335–354. https://doi.org/10.1177/1523422302043007

Drummond, J. S., & Themessl-Huber, M. (2007). The cyclical process of action research: The contribution of Gilles Deleuze. *Action Research*, 5(4), 430–448. https://doi.org/10.1177/1476750307077317

Duymedjian, R., & Rüling, -C.-C. (2010). Towards a foundation of bricolage in organization and management theory. *Organization Studies*, 31(2), 133–151. https://doi.org/10.1177/0170840609347051

Eco, U. (1983). Horns, hooves, insteps: Some hypotheses on three types of abduction. In U. Eco & T. Sebeok (Eds.), The sign of three: Dupin, Holmes, Peirce, 198–220. Indiana University Press

Eco, U. (1986). *Semiotics and the philosophy of language*. University of Indiana Press.

Eco, U. (2015). *How to write a thesis*. MIT Press.

England, K. V. (1994). Getting personal: Reflexivity, positionality, and feminist research. *The Professional Geographer*, 46(1), 80–89. https://doi.org/10.1111/j.0033-0124.1994.00080.x

Flyvbjerg, B. (1998). *Rationality and power: Democracy in practice*. University of Chicago Press.

Flyvbjerg, B. (2001). *Making social science matter: Why social inquiry fails and how it can succeed again*. Cambridge University Press.

Flyvbjerg, B. (2006). Five misunderstandings about case-study research. *Qualitative Inquiry*, 12(2), 219–245. https://doi.org/10.1177/1077800405284363

Foucault, M. (1970). *The order of things*. Pantheon Books.

Foucault, M. (1972). *The archaeology of knowledge & the discourse on language*. Pantheon Books.

Fox, N. J., & Alldred, P. (2018). Mixed methods, materialism and the micropolitics of the research-assemblage. *International Journal of Social Research Methodology*, *21*(2), 191–204. https://doi.org/10.1080/13645579.2017.1350015

Fuchs, S. (2001). *Against essentialism: A theory of culture and society*. Harvard University Press.

Gadella Kamstra, L. S. (2021). Transforming a methodological dilemma into a rewarding research opportunity. International *Journal of Social Research Methodology*, Ahead-of-print, 1–15. https://doi.org/10.1080/13645579.2021

Gaventa, J. (1988). Participatory research in North America. Convergence, 21(2), 19. https://eric.ed.gov/?id=EJ390106

Gieryn, T. F. (1999). *Cultural boundaries of science*: Credibility on the line. University of Chicago Press

Graham, L. J. (2011). The product of text and 'other'statements: Discourse analysis and the critical use of Foucault. *Educational Philosophy and Theory*, *43*(6), 663–674. https://doi.org/10.1111/j.1469-5812.2010.00698.x

Graziano, A. M., & Raulin, M. L. (1993). *Research methods: A process of inquiry*. HarperCollins College Publishers.

Greenwald, A. G., Pratkanis, A. R., Leippe, M. R., & Baumgardner, M. H. (1986). Under what conditions does theory obstruct research progress? *Psychological Review*, *93*(2), 216. https://doi.org/10.1037/0033-295X.93.2.216

Gupta, A., & Ferguson, J. (1997). Discipline and practice: 'The field' as site, method, and location in anthropology. In: A. Gupta, & J. Ferguson (Eds.). *Anthropological Locations: Boundaries and Grounds of a Field Science*, 100, 1–47. University of California Press. https://www.degruyter.com/document/doi/10.1525/9780520342392-002/html

Hacking, I. (1990). *The taming of chance* (Vol. 17). Cambridge University Press.

Haverland, M., & Yanow, D. (2012). A hitchhiker's guide to the public administration research universe: Surviving conversations on methodologies and methods. *Public Administration Review*, *72*(3), 401–408. https://doi.org/10.1111/j.1540-6210.2011.02524.x

Hedgcock, J., & Lee, H. (2016). Adjusting to contextual constraints: Methodological shifts in local research projects. In *Doing research in applied linguistics* (pp. 61–71). Routledge.

Huberman, M., & Miles, M. B. (2002). The qualitative researcher's companion. Sage

Innes, J. E., & Booher, D. E. (1999). Consensus building as role playing and bricolage: Toward a theory of collaborative planning. *Journal of the American Planning Association*, *65*(1), 9–26. https://doi.org/10.1080/01944369908976031

Jackson, A. Y. (2017). Thinking without method. *Qualitative Inquiry*, *23*(9), 666–674. https://doi.org/10.1177/1077800417725355

Jacobs, J., & Van Assche, K. (2014). Understanding empirical boundaries: A systems-theoretical avenue in border studies. *Geopolitics*, *19*(1), 182–205. https://doi.org/10.1080/14650045.2013.830106

Jørgensen, M. W., & Phillips, L. J. (2002). *Discourse analysis as theory and method*. Sage.

Kaushik, V., & Walsh, C. A. (2019). Pragmatism as a research paradigm and its implications for social work research. *Social Sciences*, 8(9), 255

Kumar, R. (2019). *Research methodology: A step-by-step guide for beginners*. Sage Publications Limited.

Lakoff, G., & Johnson, M. (1980). *Metaphors we live by*. University of Chicago Press.

Lang, D. J., Wiek, A., Bergmann, M., Stauffacher, M., Martens, P., Moll, P., Swilling, M., & Thomas, C. J. (2012). Transdisciplinary research in sustainability science: Practice, principles, and challenges. *Sustainability Science*, *7*(1), 25–43. https://doi.org/10.1007/s11625-011-0149-x

Lather, P. (1993). Fertile obsession: Validity after poststructuralism. *The Sociological Quarterly*, *34*(4), 673–693. https://doi.org/10.1111/j.1533-8525.1993.tb00112.x

Latour, B. (1980). Is it possible to reconstruct the research process?: Sociology of a brain peptide. In W.R. Knorr, R. Krohn, & R. P. Whitley (Eds.). *The social process of scientific investigation*(pp. 53–73). Springer

Latour, B. (1998). From the world of science to the world of research? *Science*, *280*(5361), 208–209. https://doi.org/10.1126/science.280.5361.208

Latour, B. (2004). *Politics of Nature. How to bring the sciences into democracy*. Harvard University Press.

Latour, B., & Woolgar, S. (1986). *Laboratory life: The construction of scientific facts*. Princeton University Press.

Leavy, P. (2017). *Research design: Quantitative, qualitative, mixed methods, arts-based, and community-based participatory research approaches*. Guilford Publications.

Lipsey, M. W. (1993). Theory as method: Small theories of treatments. *New Directions for Program Evaluation*, *1993*(57), 5–38. https://doi.org/10.1002/ev.1637

Luhmann, N. (1995). *Social systems*. Stanford University Press.

Luhmann, N. (2000). *The reality of the mass media*. Stanford University Press.

Lynham, S. A. (2002). The general method of theory-building research in applied disciplines. *Advances in Developing Human Resources*, *4*(3), 221–241. https://doi.org/10.1177/1523422302043002

MacCrimmon, M. (2000). What is common about common sense: Cautionary tales for travelers crossing disciplinary boundaries. *Cardozo L. Rev*, *22*(4), 1433. https://heinonline.org/HOL/LandingPage?handle=hein.journals/cdozo22&div=58&id=&page=

Mackenzie, N., & Knipe, S. (2006). Research dilemmas: Paradigms, methods and methodology. Issues in Educational Research, *16*(2), 193–205. http://www.iier.org.au/iier16/mackenzie.html

Massey, D. (1999). Negotiating disciplinary boundaries. *Current Sociology*, *47*(4), 5–12. https://doi.org/10.1177/0011392199047004003

McGregor, S. L., & Murnane, J. A. (2010). Paradigm, methodology and method: Intellectual integrity in consumer scholarship. *International Journal of Consumer Studies*, *34*(4), 419–427. https://doi.org/10.1111/j.1470-6431.2010.00883.x

Mendis-Millard, S., & Reed, M. G. (2007). Understanding community capacity using adaptive and reflexive research practices: Lessons from two Canadian biosphere reserves. *Society & Natural Resources*, *20*(6), 543–559. https://doi.org/10.1080/08941920601171915

Minkler, M. (2005). Community-based research partnerships: Challenges and opportunities. *Journal of Urban Health*, *82*(2), ii3–ii12. https://doi.org/10.1093/jurban/jti034

Morgan, G. (2011). Reflections on images of organization and its implications for organization and environment. *Organization & Environment*, *24*(4), 459–478. https://doi.org/10.1177/1086026611434274

Morse, J. M. (2004). Constructing qualitatively derived theory: Concept construction and concept typologies. *Qualitative Health Research*, *14*(10), 1387–1395. https://doi.org/10.1177/1049732304269676

Mukherji, P., & Albon, D. (2018). *Research methods in early childhood: An introductory guide*. Sage.

Nicholas, G., & Foote, J. (2020). Interpreting practice: Producing practical wisdom from qualitative study of practitioner experience. *International Journal of Social Research Methodology*, *24*(3), 1–11. https://doi.org/10.1080/13645579.2020.1799635

Onwuegbuzie, A. J., & Leech, N. L. (2005). On becoming a pragmatic researcher: The importance of combining quantitative and qualitative research methodologies. *International journal of social research methodology*,*8*(5), 375–387

Orton, J. D., & Weick, K. E. (1990). Loosely coupled systems: A reconceptualization. *Academy of Management Review*, *15*(2), 203–223. https://doi.org/10.5465/amr.1990.4308154

Paasi, M. (2005). Collective benchmarking of policies: An instrument for policy learning in adaptive research and innovation policy. *Science & Public Policy*, *32*(1), 17–27. https://doi.org/10.3152/147154305781779669

Peirce, B. N. (1995). The theory of methodology in qualitative research. *Tesol Quarterly*, *29*(3), 569–576. https://doi.org/10.2307/3588075

Pohl, C., & Hadorn, G. H. (2008). Methodological challenges of transdisciplinary research. *Natures Sciences Sociétés*, *16*(2), 111–121. https://doi.org/10.1051/nss:2008035

Rabbidge, M. (2017). Embracing reflexivity: The importance of not hiding the mess. *Tesol QUARTERLY*, *51*(4), 961–971. https://doi.org/10.1002/tesq.397

Rennie, D. L. (2012). Qualitative research as methodical hermeneutics. *Psychological Methods*, *17*(3), 385. https://doi.org/10.1037/a0029250

Roazen, P. (1992). *The historiography of psychoanalysis*. Transaction Publishers.

Schulte, C. M. (2018). Deleuze, concept formation, and the habit of shorthand inquiry. *Qualitative Inquiry*, *24*(3), 194–202. https://doi.org/10.1177/1077800416684872

Scott, J. C. (1998). *Seeing like a state: How certain schemes to improve the human condition have failed*. Yale University Press.

Semenenko, A. (2012). *The Texture of Culture: An Introduction to Yuri Lotman's Semiotic Theory.*Palgrave Macmillan. https://link.springer.com/book/10.1057%2F9781137008541

Shah, S. K., & Corley, K. G. (2006). Building better theory by bridging the quantitative–qualitative divide. *Journal of Management Studies*, *43*(8), 1821–1835. https://doi.org/10.1111/j.1467-6486.2006.00662.x

Shepherd, D. A., & Suddaby, R. (2017). Theory building: A review and integration. *Journal of Management*, *43*(1), 59–86. https://doi.org/10.1177/0149206316647102

Shiner, L. (1982). Reading Foucault: Anti-method and the genealogy of power-knowledge. *History and Theory*, *21*(3), 382–398. https://doi.org/10.2307/2505097

Simon, R. I., & Dippo, D. (1986). On critical ethnographic work. *Anthropology & Education Quarterly*, *17*(4), 195–202. https://doi.org/10.1525/aeq.1986.17.4.04x0613o

Springgay, S., & Truman, S. E. (2018). On the need for methods beyond proceduralism: Speculative middles,(in) tensions, and response-ability in research. *Qualitative Inquiry*, *24*(3), 203–214. https://doi.org/10.1177/1077800417704464

Stoecker, R., & Avila, E. (2020). From mixed methods to strategic research design. *International Journal of Social Research Methodology*, 1–14. https://doi.org/10.1080/13645579.2020.1799639

Sword, H., Blumenstein, M., Kwan, A., Shen, L., & Trofimova, E. (2018). Seven ways of looking at a data set. *Qualitative Inquiry*, *24*(7), 499–508. https://doi.org/10.1177/1077800417729847

Todd, Z., Nerlich, B., Clarke, D. D., & McKeown, S. (2004). *Mixing methods in psychology: The integration of qualitative and quantitative methods in theory and practice*. Psychology Press.

Van Assche, K., Beunen, R., Gruezmacher, M., Duineveld, M., Deacon, L., Summers, R., & Jones, K. (2019). Research methods as bridging devices: Path and context mapping in governance. Journal of Organizational Change Management. Vol. ahead-of-print No. ahead-of-print. https://doi.org/10.1108/JOCM-06-2019–0185

Van Assche, K., Gruezmacher, M., & Deacon, L. (2019). Mapping institutional work as a method for local strategy; learning from boom/bust dynamics in the Canadian west. *Journal of Environmental Planning and Management*, *62* (1), 51–71. https://doi.org/10.1080/09640568.2018.1443800

Van Assche, K. A. M. (2003). Understanding the nature of disciplinary boundaries as a reason for success in interdisciplinary research. In B. Tress G., Tress A., Valk Van der, G. Fry (Eds) *Interdisciplinary and Transdisciplinary Landscape Studies: Potential and Limitations* (pp. 100–107). WUR Alterra

Weick, K. E. (1976). Educational organizations as loosely coupled systems. *Administrative Science Quarterly*, *21*(1), 1–19. https://doi.org/10.2307/2391875

Wieringa, S., Engebretsen, E., Heggen, K., & Greenhalgh, T. (2017). Has evidence-based medicine ever been modern? A Latour-inspired understanding of a changing EBM. *Journal of Evaluation in Clinical Practice*, *23*(5), 964–970. https://doi.org/10.1111/jep.12752

Williamson, J. B., Karp, D. A., & Dalphin, J. R. (1977). *The research craft: An introduction to social science methods*. Little, Brown.

Yanow, D. (2000). *Conducting interpretive policy analysis* (Vol. 47). Sage.

Yanow, D., & Schwartz-Shea, P. (2015). *Interpretation and method: Empirical research methods and the interpretive turn*. Routledge.

Yin, R. K. (2017). *Case study research and applications: Design and methods*. Sage publications.

Žižek, S. (1989). *The sublime object of ideology*. Verso.