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To cite this article: B. Guy Peters (2017) What is so wicked about wicked problems? A conceptual analysis and a research program, *Policy and Society*, 36:3, 385-396, DOI: [10.1080/14494035.2017.1361633](https://doi.org/10.1080/14494035.2017.1361633)

To link to this article: <https://doi.org/10.1080/14494035.2017.1361633>



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Published online: 31 Aug 2017.



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## What is so wicked about wicked problems? A conceptual analysis and a research program

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### ABSTRACT

The concept of wicked problems has become a fad in contemporary policy analysis, with any number of problems being labeled as “wicked”. However, if many of these problems are analyzed using a strict definition of the concept they do not meet the criteria. Building on this analysis, I have developed a research program to investigate the extent to which even those problems usually thought to be wicked are actually that difficult.

### KEYWORDS

Wicked problems;  
conceptualization; policy  
analysis

Much of our discussion of policy problems, and the policy-making designed to ameliorate those problems, is based on functional or instrumental conceptions of the policy. We talk about social welfare issues or defense issues, or alternatively we talk about regulatory policy issues or issues of grants and subsidies. We Peters and Hoornbeek (2005); (see also Hoornbeek, this issue) have argued in the past that policy analysis can make more progress by examining the underlying analytic dimensions of policies, rather than the familiar functional categories. In the earlier paper we examined a number of those underlying dimensions such as scale, divisibility and monetization, and in this paper I will extend the analysis to examine the concept of ‘wicked problems’.

The concept of wicked problems was developed in the planning literature (Rittel & Webber, 1973) to describe emerging policy problems that did not correspond neatly to the conventional models of policy analysis used at the time. The argument in this paper was that the *relatively* easy policy issues had been addressed, and the future would be more demanding. These emerging problems were defined as complex, involving multiple possible causes and internal dynamics that could not assumed to be linear, and have very negative consequences for society if not addressed properly. The difficulty, rather obviously was, how could the policy analyst and his or her government know *ex ante* what an adequate solution to these problems might be?

The recognition of the existence of wicked problems was to some extent a precursor to the development of complexity theories in the social sciences (see Klijn & Snellen, 2009; Peters, Galaz, & Pierre, *in press*; Room, 2011). Complexity theories tend to focus on systems

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and the interactions within them. Those systems may be natural (climate) or they may be primarily human (poverty). Like wicked problems, complexity assumes that the relationships among variables are not linear and small shifts (especially in the initial conditions) may produce large differences in the outcomes of the systemic dynamics. These systems are also conceptualized as being open, allowing influences from the outside, including the importation of energy. And finally complex systems tend to involve multiple actors whether as causes or actors or both –, and therefore can be politically complex as well as being technically complex.

It is difficult to deny that policy-makers now face an array of difficult and complex policy problems, even more than those emerging as Rittel and Webber were first discussing wicked problems. It appears, however, that describing these policy problems as wicked problems has become a fad in the academic literature. Almost any problem that is difficult to solve and which has a variety of alternative causes, or alternative policy frames, has been described as a wicked problem. In this paper I will be making three arguments about this high level of use, or abuse, of the concept of wicked problems.

The first contention is that relatively few problems facing governments in 2015 and thereafter actually are actually wicked problems in the full conceptual meaning of the term. These problems may be difficult, and perhaps are even intractable (see Schön & Rein, 1994; see also Ney, 2009), but they do not meet the formal definition of wicked. Thus, the ‘conceptual stretching’ (Sartori, 1970) that has characterized a good deal of recent discussions of wicked problems may be useful as a means of highlighting the importance and difficulty of the problem (and in getting articles published), but it may undermine the analytic capacity of this concept.

The second contention is that many rather ordinary policy problems also have some of the attributes utilized to characterize wicked problems. For example, many (some might say most) of the problems that governments encounter have no clear solutions and interventions may have unintended consequences (Cortrell & Peterson, 2001; Sieber, 1980). Likewise, many problems confronting government can be characterized as ‘messes’ with complex interactions, and which cannot be ignored by actors in the public sector (Roe, 2013). That lack of a clearly defined solution does not alone make these issues wicked, but may require more experimental modes of interventions and management, rather than more definitive, planned policy ‘solutions’ (see Sabel & Zeitlin, 2011; For another view on the possibilities of designing interventions see Howlett, 2014). Further, relatively few of the policy problems so often described as being wicked problems have all the characteristics utilized to define wicked problems, although many problems can be characterized as having one or more of those characteristics. So how useful is the concept as a concept?

The third argument in this paper is that the concept of wicked problems has taken on a normative element that was not necessarily intended by the formulators of the concept. This normative element is that these wicked problems must be solved, and indeed can be solved through developing the appropriate policies. Further, the assumption appears to be that centralized and forceful action will be required to solve the problems. While this may well be true, defining the concept through the mechanisms for solution tends to undervalue the nature of the problems themselves, and begs numerous questions about policy design.

Certainly solving the problems is important, but governments may have to admit that many of the issues which they must address may not be solvable in any final and definitive manner (Carter, 2012; Hogwood & Peters, 1984). Certainly decades of attempts to solve

poverty, economic underdevelopment, inequality, crime and host of other familiar problems have ameliorated the problems but have not solved them by any meaningful standard, and some such as inequality have actually worsened over the past several decades. And now faced with seemingly less tractable problems governments and their allies in governance must think seriously about the goals being pursued in making policies.

In some ways then the utilization of the concept of wicked problems has led government to create a rod for its own back. That is, having identified these problems as wicked, and also arguing for the importance of finding solutions they may have created unattainable performance targets for themselves. Very few policy problems are actually ever solved in any definitive manner. Rather policy-making tends to be a more continuous process of amelioration and adjustment (Hogwood & Peters, 1984), and promising to solve problems, wicked or otherwise, may ultimately weaken already diminished faith in government.

The purpose of this paper is not to be pedantic about the concept of wicked problems, although it may certainly appear so. Rather, the purpose is to consider the nature of policy problems utilizing the concept of wicked problems and attempt to understand to what extent that basic concept, and the dimensions contained within it, do assist us in understanding problems. While truly wicked problems may be relatively less common than they appear in contemporary writing in policy studies, the dimensions contained in the concept may be individually useful in analyzing policies.

## The concept of wicked problems

As already noted, the concept of wicked problems was developed in the planning literature, rather than in the policy analysis literature per se. While those two fields of endeavor, both in practice as well as in academia, are closely linked, they also have important differences. In the planning approach there is a strong design element when considering policy-making (but see Peters, 2015). The notion of wicked problems was identified as a general barrier to effective design and implementation of policies as much as it was conceptualized as a special class of problems. Likewise, the planners appeared to be very negative concerning the role of politics in reducing the capacity of solving these problems, while many, if not most, people coming from the policy analytic camp of scholarship and practice tend to accept politics as central to any consideration of policy-making.<sup>1</sup>

The basic assumption that began the discussion of wicked problems is that making public policies is difficult. Further, the assumption of difficulty is so extreme that policy design, which has been central to planning, appears virtually impossible.<sup>2</sup> That original discussion of wicked problems may well have underestimated the ease with which policies were made in some golden era. There are any number of failed policies based on faulty designs from the 1960s and 1970s, just as there were important successes (McConnell, 2010). Those failures, or at least disappointments, were in part a function of beginning to address difficult issues such as poverty, but earlier examples such as urban renewal also demonstrated the problems of design.

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<sup>1</sup>That is perhaps something of an overstatement, given the absence of political analysis in some economic and statistical modeling of policy.

<sup>2</sup>With changes in the planning literature, and in conceptions of design, the search for a more product-like design when making policy is less clear. See.

Whatever the particular concerns of the planning or policy analytic literature, the concept of wicked problems is defined through the following ten characteristics:

- (1) Wicked problems are difficult to define. There is no definite formulation.
- (2) Wicked problems have no stopping rule.
- (3) Solutions to wicked problems are not true or false, but good or bad.
- (4) There is no immediate or ultimate test for solutions
- (5) All attempts to solutions have effects that may not be reversible or forgettable.
- (6) These problems have no clear solution, and perhaps not even a set of possible solutions.
- (7) Every wicked problem is essentially unique.
- (8) Every wicked problem may be a symptom of another problem.
- (9) There are multiple explanations for the wicked problem.
- (10) The planner (policy-maker) has no right to be wrong.

To the characteristics presented explicitly by Rittel and Webber we can add the general sense from the discussion that wicked problems involve multiple actors and are socially and politically complex. The formulators of the concept did not list this as a separate dimension but much of the discussion about difficulties in reaching decisions in the emerging policy world revolved around the political difficulties of making decisions in a more participatory and political complex environment. E.g. Roberts (2000) argued that wicked problems political conflicts over the definition of problems and the possible solutions. Those political characteristics interact with the linked to the more substantive characteristics such as multiple explanations for problems and the absence of a definitive formulation of the problem.

While the concept of wicked problems itself contains a number of characteristics that produce significant challenges for decision-making, the intellectual ante has been raised more recently with the concept of ‘super wicked problems’ (Levin, Cashore, & Auld, 2012; see also Lazarus, 2009). This concept is meant to capture the nature of significant policy problems facing contemporary governments. Like the concept of wicked problems, this concept also has a number of defining characteristics, in addition to those used to define wicked problems. These characteristics are:

- (1) Time is running out;
- (2) There is no central authority, or only a weak central authority, to manage the problem
- (3) The same actors causing the problem seem to solve it; and
- (4) The future is discounted radically so that contemporary solutions become less valuable.

In addition to the institutional characteristics involved in this definition, the element of time becomes more important than in the original conception of wicked problems. This time element is most apparent with climate change for which there are a number of clear and compelling predictions of irreversible harm if there are not significant policy interventions. Many other problems cited as wicked problems do not, however, have such clear time constraints. For example, while people living in poverty one day longer than necessary

is a policy failure, this policy area does not have the clear tipping point and possibility of irreversibility that appears to be very evidence for climate change.

In addition to the argument that time may be running out for some ‘super wicked problems’, the level of discounting of the future also plays a role in understanding these problems, and in addressing them through public sector action. The argument being made here is that these issues are inherently long-term, and also perhaps large scale, and therefore need to be addressed with comprehensive action short-term amelioration is considered inadequate for dealing with these types of policy problems. But most public sector decision-making is not good at dealing with long-term challenges, especially in democratic regimes (Jacobs, 2011) where changes in partisan control of government may mean changes in policy.

The concepts of wicked and super wicked problems can also be related to Herbert Simon’s (1973) discussion, at about the same time as Rittel and Webber, of ‘ill-structured problems.’<sup>3</sup> As with some of the characteristics developed by Rittel and Webber, Simon’s concerns were with the clarity of the definition of the problem, the extent to which it was independent of other problems, and the adequacy of the knowledge base for coping with the problem. Ill-structured policy problems, like wicked problems, are difficult for policy-makers to manage effectively and perhaps in particular defy the development of simple designs for policy.

### Thinking about wickedness

The first contention made in the introduction to the paper is that although there are a number of difficult problems facing the public sector, these may not be truly wicked. Indeed, Coyne (2005) argues that the ill-defined and awkward problems that are in essence wicked problems is the norm for policy-making, and well-defined and rational policy-making is the exception. If we adopt the ‘classical categorization’ approach to measurement advocated by Sartori, then for a problem to be wicked it should have all of the above characteristics. Having been guilty of stretching the concept of wicked problems myself, in dealing with food policy (Peters, 2014), it is very easy to see how one can assume that if a problem is difficult then it must be wicked.

Let me use the example of food policy to illustrate that point. The first characteristic – that there is no clear definition of the problem – does not in many ways appear to apply. The problem in food policy is how do we grow enough nutritious and safe food to feed a growing population. Different people may emphasize different aspects of the problem or have different perspectives GMOs are unsafe or merely necessary in a world with a rapidly growing population, or regulation of food safety is a crucial component of the policy area but the underlying question is actually clear. Following from that, it also appears that there is indeed a ‘true’ solution to the problem when people have enough to eat. Actually for this problem there may be more disputes over whether the solution is good or bad than there is about the adequacy of the solution.

This discussion of the adequacy of food policy raises a more fundamental problem concerning the use of wicked problems as a more or less scientific concept. This issue is the absence of clear coding rules for those ten dimensions. I have said above that we could have a ‘true’ solution to the food problem, but others might argue that the conflicts between

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<sup>3</sup>It is interesting to consider if there was a particular Zeitgeist that produced these two rather skeptical analyses of policy-making at the same time. This was perhaps the end of an era in the United States in which there were attempts to solve large-scale social problems that had met with limited results.

quantity and quality the use of GMOs and the need to locally produce food may make any solution less than fully true. The same ambiguity appears to characterize a number of the other characteristics listed, and if this concept is indeed to be useful much more attention must be given to developing objective measures of the underlying characteristics.

The relatively paucity of problems that meet full definition of a wicked problem does not, however, completely obviate the utility of that analysis of policy problems. First, we may want to think about varying degrees and types of wickedness. For example, some difficult policy problems may be difficult to define and may have multiple frames, but may have clear measures of success. And some problems, or interventions, may indeed be reversible and even forgettable once other attempts at a solution have been offered.<sup>4</sup> Some progress may come, therefore, in adding adjectives to wicked problems (see Alford and Head, this issue), adding intension to the concept while reducing the extension (see Collier & Mahon, 1993). And could we think of these characteristics of wickedness as a set of necessary and sufficient conditions for certain types of policy dynamics?<sup>5</sup>

An alternative to the strict categorization approach for wicked problems would be to consider radial categorization or family resemblance as means of selecting and categorizing cases (Collier & Mahon, 1993; Gerring, 1993). These approaches would assume that having a sufficient resemblance to the underlying idea of a wicked problem, or perhaps having one central attribute, would be sufficient to consider the problem wicked and to use this characterization for both practical analysis and for theory-building. For example, we could argue that the absence of a clear solution to the problem could be a *sine qua non* for labeling a problem as 'wicked'.

In addition, as already noted, each of these characteristics of wicked problems might be considered to be a free-standing attribute of a public policy, and therefore useful in understanding policy problems by itself. Although these characteristics are very different from the attributes used by Peters and Hoornbeek (2005), they provide useful another checklist of attributes of policy problems. For example, the first of the ten characteristics mentioned above can be considered to represent a general problem in framing policies, and the alternative frames that exist for many policies. The drug policy in many countries can be understood, for example, through a variety of different lenses or frames, each providing some insight and each also associated with a particular course of action (Payan, 2006).<sup>6</sup>

This first characteristic of wicked problems can also be linked to the ninth. Most interesting policy problems have multiple possible explanations that can be related to the absence of a single accepted frame of the problem. Poverty is perhaps a classic example of multiple causal explanations then being linked to multiple and perhaps conflicting alternative policy designs. The absence of a single definitive explanation appears to some extent in contrast to the perceived need to 'solve' the underlying problem that is inherent in the political process.

We can also see that the presumed characteristic of wicked problems that there is no *ex ante* test for the quality of the solutions offered also may be true of a wide range of policy

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<sup>4</sup>One of the arguments made in the normative literature on incrementalism (see Hayes, 2006) is that policy interventions can be reversed. That may be more true substantively than it is politically.

<sup>5</sup>One option might be to think of these characteristics as something like an old-fashioned Guttman scale, with varying degrees of occurrence, and with that different scale scores on a wickedness scale.

<sup>6</sup>For a similar analysis of the multiple frames that can be applied to mental health policy see Maycraft Kall (2013). Again, all these frames had some validity but there was no single frame accepted by all actors in the process.

problems. Some public programs are relatively well-understood ‘engineering’ solutions such as building a road.<sup>7</sup> Most policy problems, however, involve more complex social and economic dynamics and hence must be considered as much as experiments as definitive solutions.<sup>8</sup> Government actors may have routines and produce rather similar solutions to problems, no matter what they may be, but those actors may do so with greater faith in the instruments used that can be justified by the evidence.<sup>9</sup>

Likewise, the last of the characteristics discussed as defining wicked problems, albeit not in the formal list of those characteristics, is their social complexity and the involvement of multiple actors involved in the formation, and potentially in the solution, of the problem. To some extent this characteristic may be one cause for the increased interest in wicked problems in policy analysis, and for the fad of identifying almost every issue confronting the public sector as a wicked problem. This alleged profusion of wicked problems may have less to do with the nature of the policy problems themselves than with the increasing use of network policy-making and ‘governance’ solutions for almost all policies in the industrialized democracies (see Torfing, Peters, Pierre, & Sørensen, 2011).

Does the increased use of participation in public policy-making mean, by definition, that there are more wicked problems? I would argue no, although it does mean that making policy choices for confronting those problems may be becoming increasingly difficult. Fritz Scharpf, for example, argued (1988) that the more actors there are involved in making policies, and the greater the rights each actor has within that process, the greater will be the difficulties in reaching decisions, and especially the greater will be the difficulties in reaching decisions that do more than only make incremental adjustments from the status quo.

The discussion of super-wicked problems also contains a significant institutional component. The descriptive element of this component is that there is no central authority to govern the policy area, with the normative implication being that such an institutional focus is necessary if the problem is to be solved. This choice also represents something of an assumption about addressing difficult policy problems (see Hoppe, 2010). Some scholars, for example, argue that networks and other decentered mechanisms for solution may be better at addressing wicked problems than is the imposition of centralized solutions (see Peters et al., *in press*).

Elinor Ostrom’s work on polycentricity points to the capacity to solve difficult, or even wicked, problems, through less centralized means (McGinnis, 2000). The perceived need for centralized solutions appears to be a function of the weakness of global governance institutions for coping with environmental issues, but it would be unfortunate to generalize to all difficult policy problems on that basis. For example, some studies of poverty eradication in less-developed countries have stressed the need to act on a very localized and decentralized basis (see also Ferlie, Fitzgerald, McGivern, Dopson, & Bennett, 2011).

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<sup>7</sup>That said, building a road may not be the solution to traffic problems given that most evidence points out that traffic tends to expand to fill roads soon after they are completed. Hence, building roads may simply increase traffic, and does not solve the underlying problem being addressed.

<sup>8</sup>Nelson (1977), for example, argued that interventions into the problems of the ghetto meaning poverty and social exclusion – had no clear theoretical or practical foundations, and hence any policies directed at these problems were in essence experiments. See also Sabel and Zeitlin (2008), (2011). See also Weber and Khademian (2008).

<sup>9</sup>We Linder and Peters (1989) attempted to understand how decision-makers in the public sector selected their instruments. One of the largest groups in our study were ‘instrumentalists’, committed to a particular instrument almost regardless of the nature of the problem being addressed.

The emphasis on centralized institutional solutions may represent the domination of climate change issues in contemporary discussions of wicked problems. The need to integrate and coordinate the activities of all the countries in the world to be able to address climate change may dominate thinking about wicked, or super-wicked, problems. That assumption, in turn, violates one of the original assumptions about wicked problems, i.e. that no two wicked problems are the same, and hence other problems of this nature may well be better addressed through decentralized mechanisms.

These characteristics of wicked and super-wicked problems also point to the close linkage between these problems and complexity theory. For example, the absence of a stopping rule for decision-making, and the presumed interconnections of problems are close to some of the characteristics of complexity theory in understanding public policy. Complexity theory, for example, emphasizes the interactions among variables and the difficulties in making effective interventions because of the unpredictable patterns of change.

### **Wickedness or merely complexity?**

The above discussion of the literature on wicked problems has, I believe, demonstrated that the notion of wicked problems has been stretched substantially, and at times is beyond almost all recognition. Beginning as a description of general problems in policy-making in the 1970s, the concept came to be used as an analytic term for a particular type of policy problem. And then the concept has been stretched even further, being applied to a range of rather ordinary policy problems. These problems are difficult to resolve, but arguably so too is addressing most of the problems that governments must confront.

The concept of the 'super-wicked problem', however, appears to be more clearly developed as a separate category of policy problems. Unlike the original discussion of wicked problems this categorization does attempt to differentiate a particular set of issues that distinguish these policy problems from others. Most important in that differentiation is the time element, both that time can be seen to be running out on the capacity to solve the issues, and that there is a radical discounting of the future in attempts to solve the issues.

If we examine the criteria advanced for both wicked and super-wicked problems, they appear analogous to a more general understanding of complexity in public policy (Duit & Galaz, 2008; Room, 2011). In particular the idea of the interconnectedness of problems fits rather well with the non-linear conception of complex policy problems. Likewise, the absence of clear solutions appears to be a component of both conceptions of policy. By utilizing complexity to characterize these problems the analyst may be able to invoke at least a way of thinking about the possible solutions, if not those solutions themselves.

Are there any real wicked problems, and if so what are they? Some of the candidates that are usually advanced as wicked, or even super-wicked, are climate change, poverty and inequality. These are all difficult and complex problems that have some of the characteristics of wickedness, but perhaps not all. Thus, it may be better to consider the notion of complexity as a more encompassing category and then to look at wicked problems, and perhaps especially super-wicked problems, as a particular subset of complex problems.

## Toward a research program

The above rather skeptical discussion of the concept of wicked problems should not be seen as a complete dismissal of this idea. There may well be truly wicked, and even super-wicked problems out there. And even if the analyst is not using the characteristics as a whole to describe the particular problems, they do provide useful insights into the complex and difficult problems confronting contemporary governments. But we can also think about attempting to classify problems based on the perceptions of individuals both in academia and in the public sector.

One preliminary attempt to understand the nature of wicked problems was to ask a sample of experts in politics and government to what extent they considered two types of problems wicked, or at least difficult to manage.<sup>10</sup> We asked about environmental problems, social policy problems, and then policy-making in general. The questions were phrased in a rather general manner, given the preliminary nature of the investigation, but this still provides some insights into how experts think about policy problems, and the possible wickedness of those problems.

First, none of these problems were considered particularly wicked by the sample of experts, ranking at around 4.5 on a scale of 1–7. Further, the environmental problems were not conceptualized as any more difficult or wicked than were the more familiar social policy issues. Much of the literature on wicked problems utilizes the environment, and particularly climate change, as the quintessential example of a wicked problem. But this group of decision-makers did not conceptualize this problem as being particularly difficult, or at least considered other problems equally difficult.<sup>11</sup> Indeed, there was some sense expressed that policy-making in general involved a number of wicked problems these experts appeared to consider any policy intervention a somewhat difficult task.<sup>12</sup>

This extremely preliminary attempt to research how policy-makers may consider policy problems, and especially wicked problems, should be supplemented by attempts to understand more fully how decision-makers and academic policy experts conceptualize policy problems, wicked, and super-wicked problems. While simply seeing to what extent experts did consider a range of problems often discussed as wicked, e.g. the environment, poverty, etc., to in fact be wicked would be important in itself, this research can push the understanding of policy problems even further. That understanding can be enhanced by examining the extent to which respondents might consider other, presumably more mundane policy issues, e.g. higher education, also to be wicked problems.

There is, of course, a danger that the concept of wicked problems will not have penetrated the practitioner community, or even some parts of the academic community. Therefore, for half the sample, I would provide a brief description of the concept of wicked problems and for the other half not do so. This division of the sample can test the extent to which the respondents may simply think a wicked problem is a difficult problem rather than corresponding to the conceptual definition used in the literature. Or alternatively once the

<sup>10</sup>This study was the precursor to a larger study of wicked problems as the opinions of experts. See Peters and Tarpey (2016).

<sup>11</sup>The questions were inserted into the expert survey administered by the Quality of Government Institute at the University of Gothenburg Sweden. My thanks to Professors Carl Dahlström et al. Source: Dahlström, Carl, Jan Teorell, Stefan Dahlberg, Felix Hartmann, and Annika Lindberg. 2015. *The QoG Expert Survey Data-set II*. University of Gothenburg: The Quality of Government Institute.

<sup>12</sup>It was also interesting that there was no significant variance across regions of the world in terms of the perceptions of these problems. There was a slight tendency for respondents in North America and in Europe to consider both types of problems more wicked, but those differences were indeed very slight.

stringent nature of the concept of wicked problems is understood the relative dearth of such problems, *strictu sensu*, will become apparent.

As well as considering the question of wicked and super-wicked problems as entities, it will also be important to consider some of the individual characteristics and the extent to which respondents can recognize the existence of that characteristic in the presumed wicked problems, as well as in presumed non-wicked problems. As discussed above, the notion that there are multiple alternative explanations for a policy problem may be common for the problems that governments confront, and by no means confined to the issues usually described as wicked. And it may also be that policy-makers may not be as pessimistic about their capacities to solve problems as are academics.

The question of the capacity to solve policy problems leads to the final concern of this planned research, which is how do policy-makers think about solving wicked and super-wicked problems? Much of the literature on wicked problems states, or at least implies, that addressing these difficult policy problems requires forceful and centralized solutions. But, as noted above, there are also viable arguments that more decentralized and polycentric solutions can be as effective. That literature argues that centralized solutions may not involve actors adequately, and that the centralized solutions may not have adequate flexibility.<sup>13</sup>

As well as the general question of centralized and decentralized solutions to demanding policy problems, we can also consider the choice of instruments. Do decision-makers believe that conventional policy instruments (Hood & Margetts, 2007) can be effective for coping with wicked problems, or with generally difficult policy problems? Or do these problems require a particular variety of instruments that may be considered excessive for more ordinary policy issues. If indeed wicked problems are conceptualized as being so difficult to address then conventional policy instruments may assume too much certainty. Given that, more open and procedural instruments (Howlett, 2000) may be more appropriate inclusions in the policy design than more definitive interventions.

Finally, given the link of wicked problems to complexity theory it would be useful to consider some of the premises of that approach in any research program. For example, although perhaps implied in the discussion of wicked problems the notions of non-linearity and multifinality that abide in complexity. These concepts may be more difficult to address with questionnaires, but some effort should be made to examine just how difficult the perceptions of addressing policy problems may be.

## Summary and conclusions

Although the use of the concept of wicked problems is to some extent an academic fad, like other fads of that sort there is some underlying logic. Especially for contemporary policy-making this concept can emphasize the difficulty in making and implementing effective solutions to policy problems. The original formulation from Rittel to Webber, as well as that from Simon to some extent, was in response to a perceived increase in the difficulties of making policy over forty years ago, and it would be difficult to argue that the challenges to government and its partners have become any easier.

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<sup>13</sup>Hoppe's analysis of 'Puzzling, Powering and Participation' (2010) identifies a range of possibilities for designing and implementing policies.

The existence of difficult problems should not, however, become an excuse to stretch the concept of wicked problems to the point that for analytic reasons it becomes almost meaningless. Or at a minimum, one needs to be clear that the concept is indeed being stretched and to consider alternative formats for conceptualization. This statement is not intended to be pedantic although it may well be but rather is intended to stress the importance of being clear about our concepts in order to be clear in our analysis.

The importance of thinking about wicked problems, and other types of complex policy problems in the contemporary environment leads to thinking about how do policy-makers and other experts think about wicked problems, and policy problems more generally. The sketch of a possible research program contained in this paper attempts to point to how we can understand how those respondents conceptualize the problems, and to some extent how they link problems and solutions. The nature of wicked, and/or complex, problems is that there is will be no magic bullet to solve the problems, but a better understanding of the problems and how they may be processed, can only help to facilitate what may be only limited answers.

### Disclosure statement

No potential conflict of interest was reported by the author.

### Notes on contributor

*B. Guy Peters* is Maurice Falk Professor of American Government at the University of Pittsburgh, and is currently working on a book on policy design.

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