

Thinking Outside the Box? Applying Design Theory to Public Policy

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Design involves an account of expertise which foregrounds implicit, heuristic skills. Most models of policy making have a stronger interest in structural and exogenous pressures on decision making. Research suggests that high-level experts develop unique capacities to process data, read a situation, and see imaginative solutions. By linking some of the key attributes of a design model of decision making to an account of expertise, it is possible to formulate a stronger model of public policy design expertise. While other approaches often concern themselves with constraints and structural imperatives, a design approach has a focus upon the capacities of individual actors such as policy experts. Such an approach rests upon central propositions in regard to goal emergence, pattern recognition, anticipation, emotions engagement, fabulation, playfulness, and risk protection. These provide a starting point for further research and for the professional development of policy specialists.

Keywords: Design Theory, Expertise, Heuristics, Policy Making, Public Policy, Public Administration Theory, Theories of Public Policy.

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El diseño involucra un aspecto de la especialización que destaca habilidades heurísticas implícitas. La mayoría de los modelos para la elaboración de políticas tienen un fuerte interés en presiones

estructurales y exógenas en la toma de decisiones. Un número de investigaciones sugieren que los expertos de alto nivel desarrollan capacidades únicas para procesar información, interpretar una situación, e idear soluciones imaginativas. Enlazando algunos de los atributos de un modelo de diseño para la toma de decisiones con un enfoque en la especialización es posible formular un modelo más fuerte de diseño de políticas públicas. Mientras otras perspectivas se enfocan en restricciones e imperativos estructurales, una perspectiva basada en el diseño se concentra en las capacidades individuales actores tales como expertos en legislación. Esta perspectiva se basa en proposiciones centrales que conciernen la emergencia de objetivos, el reconocimiento de patrones, la anticipación, compromiso de emociones, y la protección al riesgo. Estas proposiciones proveen de un punto de partida para futuras investigaciones y para el desarrollo profesional de los expertos en legislación.

Design is a now popular term for creative problem solving, and its embrace includes everything from furniture to public institutions (Goodin 1996; Ostrom 1990). It speaks to an expectation that creativity should inform certain kinds of decisions. It is also true that the research literature on design suggests an activity closely related to formal decision making but somewhat different to it (Alexander 1982; Dorst 2008). The designer is thought to be engaged in an open process of inquiry and to be able to “think outside the box.” Public policy making, by contrast, is often seen to be more cautious, perhaps incremental, and more circumscribed by the risks of failure. In this article, I contend that there is an important common ground between the two accounts of decision making and that a rethinking of the nature of policy expertise from the perspective of design theory enables us to incorporate a number of key attributes from the design field to strengthen our understanding of high-level policy making skills.

The central argument is that the policy designer’s capacity to play with new possibilities or scenarios and her emotional resilience plays a role in the high-level expertise needed to respond creatively to complex problems. This has been acknowledged in the policy literature in a general way by Lasswell (1951) and more explicitly by March (1972). Their earlier observations pointed to the importance of forms of creativity that come from intuitive knowledge and forms of wisdom that cannot be explained by the standard deductive models. March (1972, 424-5) asks “How do we escape the logic of our reason?” and answers with the recommendation that we explore the role of playfulness as “the deliberate, temporary relaxation of rules in order to explore the possibilities of alternative rules.” Less work, however, has been conducted that incorporates work from cognitive science and other decision researchers to generate a robust research agenda concerning the particular expertise of policy makers.

Perhaps the best-known example of this relatively weak uptake is seen in the case of “prospect theory,” a set of insights first developed by psychologists

Daniel Kahneman and Amos Tversky (Kahneman and Tversky 1996; Tversky and Kahneman 1974), for which they won a Nobel Prize. Their account of actor decision making uses compelling experimental evidence to show that actors will frame outcomes differently, depending upon whether they see themselves as being in a domain of loss or of gain. Such actors will tend to assume more risk if they feel themselves to be in a domain of loss. These framing structures have a powerful impact on the actor's calculation of her welfare and of the cost-benefit of any decision being contemplated. Mercer (2005, 2) has shown that despite the major impact of prospect theory in other social sciences, political science accounts for the smallest number of citations and "only among international relations (IR) theorists who study international security." For example, Shapiro and Bonham (1973) and Rosati (1995) demonstrate that prospects can explain the choices available to international actors. There are a number of compelling reasons for this, including the fact that political science has generally found it more difficult to extrapolate experiments based upon individual actors to explanations of complex organization decision making of the type usually found in public policy.

This has not prevented some progress being made, however. Lau and Redlawsk (2001), for example, use the heuristics framework from cognitive science to explain the choices of voters in a mock presidential election campaign. They show that heuristic "shortcuts" of the type discovered by what they call the "cognitive revolution" work very differently for those voters with greater interest and knowledge of politics than for the less sophisticated for whom "the road to cognitive shortcuts may prove a dead end" (Lau and Redlawsk 2001, 969).

The work of Herbert Simon (1955, 1957, 1985) on "bounded rationality" (see also Jones 2001, 2003) provides an important bridge between these cognitive models and the world of public policy. His behavioral model of choice and his collaboration with March (March and Simon 1958) on behavioral organization theory shows how processes hold and manage many of the responsibilities usually attributed to rational calculation. But as Jones (2003) observes, a key element in distinguishing decisions based on routine and those involving careful consideration and learning is time. "[T]he more time a decision maker spends on a problem, the more likely his or her understanding of the problem will approximate the actual task environment and the limitations of cognitive architecture fades" (Jones 2003, 398).

The distinction between the analytical and rule-bound and the more imaginary, emotional, and perhaps innovative forms of problem solving can also be seen as an outcome of somewhat different intellectual starting points. As Dunn (1988, 720) points out, there is a long tradition of research dealing with the subjective basis of public policy. Most of this literature considers the likelihood that decision makers will experience "eye of the beholder" bias of one kind or another. Much less work has been done to evaluate the way policy expertise may be informed by cognitive styles that may actually improve comprehension, responsiveness, and the capacity to innovate.

As is well known, many accounts of decision making begin with a consideration of choice and optimization, calculated comparisons of options, and the various constraints upon these which are imposed by the context in which decisions need to be made. The standard accounts widely discussed in the policy-making literature (see e.g., Bobrow 2006; Dye 1972) consider these issues under the heading of “policy process models” which range from rational choice, to incrementalist accounts, to structuring and discourse models. The treatment of expertise and the role of experts are different in each approach. In the rational choice models there is an expectation of rigorous and open appraisal of problems and possible solutions, backed by data gathering and the use of forecasting technologies (see e.g., Laver 1979). In organizational process (see e.g., Allison 1971) the skills and dispositions involve an appreciation and capacity to negotiate the norms and cultural practices of the organization. And in variety of the structuring models, there are demands for high-level skills in framing, translating, and communicating issues and interests (Brunner 1986).

If we take these general conditions and apply them to concrete cases of actual theoretical frameworks and models such as the Institutional Analysis and Development and Advocacy Coalition Framework, we see that despite some important differences, they share a desire to explain why actors do as they do, what constrains them, and why outcomes follow the path they do. As Schlager (1999, 234) argues, “each framework posits the individual as the motivator of action,” but they propose different variables to explain what it is that structures the work that actors do. For some (see e.g., March and Simon 1958; Simon 1955), the structuring is evidenced in the type of information the individual has at hand, while to others the existence of group norms act as both constraint and motivator (Bailey 1977; Geertz 1973). And in theories dealing explicitly with policy innovation, the best-known approaches (Coleman, Katz, and Menzel 1957; Damanpour 1991) focus on channels of influence and the structure of communication between actors who are themselves treated as “totally undifferentiated” (Berry and Berry 1999, 173).

In contrast, design may be thought of as starting off with a more individual, even biographical, vantage point and thus may express the identity of the designer as much as the context or problem being addressed (Valkenburg and Dorst 1998). Two expert designers will be expected to respond to a common challenge very differently, producing “signature” solutions. This is a different expectation from that which defines other forms of expertise. We do not necessarily expect engineers and surgeons to differ so markedly in their proffered advice. Indeed the practice of obtaining a second opinion speaks directly to the importance of consistency.

The designer’s mandate explicitly promotes the potential for outcomes that are surprising (Lawson and Dorst 2009, 10) and that employ imaginative skills with a “basically irrational nature” (Alexander 1982, 281). At the heart of this claim is the idea that some expertise involves an ability to recognize solutions and intuit outcomes to problems. For example, in *The Functions of the*

Executive, Chester Barnard (1938) emphasizes “non-logical processes” and gives the example of an intuitive accountant he knew who, in the words of Donald Schon (2001, 196), could “take a balance sheet of considerable complexity and within minutes or even seconds get a significant set of facts from it.” Two generations later, Jim Collins (2001, 11), in his acclaimed *From Good to Great*, makes exactly the same point about the importance of an intuitive way of seeing the world: “we all have strengths in life and one of mine is the ability to take a lump of unorganized information, see patterns, and extract order from the mess—to go from chaos to concept.”

It seems likely that this capacity to employ high-level pattern recognition to locate potential strategies, including innovative ones, involves some mix of the rational and nonrational aspects of cognition. We also know that emotion and especially positive affect is associated with the performance of creative tasks (Isen 2004; Isen and Means 1983). How might these broader insights be harnessed to a more detailed understanding of the particular demands of successful decision making in the public policy environment?

A critical step in this process is to separate the issue of purposiveness from the strict requirements of goal-seeking behavior. In Anderson’s (1986, 64) words, “judgment-decision theory has typically taken goals more or less as givens . . . but this has led to slighting of motivation, which is the foundation of purposiveness,” and “in a very real sense, therefore, people do not know their own minds. Instead, they are continually making them up. Knowledge and belief are not static memories, but typically involve active, momentary cognitive processing” (89). This is also what Schon (1985, 21) has in mind when he observes that “we cannot say what it is that we know . . . Our knowing is ordinarily tacit, implicit in our patterns of action and in our feel for the stuff with which we are dealing.” A key requirement regularly cited in the research literature is to be able to imagine a decision process in which goals are outcomes rather than driving determinants (Cohen, March, and Olsen 1972; Lindblom 1959, 1968). As March (1972) and others have shown, a model that assumes that goals precede action is often found to be factually wrong. The choice behavior and actions of decision makers “is at least as much a process for discovering goals as for acting on them” (March 1972, 420). The antidote to excessive rationality is to consider the role of playfulness—or even of foolishness in March’s (1972, 423) formulation.

The various discussions of design in the decision-making literature feature either a preference to define design as part of the methodology for the *search* for alternatives during the rational process for considering how to solve a problem, in which case it can be considered a variant of the choice model, or it is seen as a fundamentally creative form of deliberation, which operates with different processes to those of rational choice. It is certainly true, as Joedicke, Mattesius, and Schulke (1970), Alexander (1982), Schon (1985), and others have remarked, that in most theories of decision making, there has been an underestimation of the creative elements and an overestimation of the rational domain, but this might be explained by the ease with which one can define and model the rational

when compared with the creative.¹ It might have been predicted that an emerging science of decision making would make quicker progress in the study of rational deliberation than in formulating an account of the role of creativity.

To understand the work of experts, it is necessary to answer the question posed by Alexander (1982, 285) “to what degree can we study and understand creativity . . . and reproduce the creative process in any meaningful way?” One could add, to what extent in doing this can we still enjoy those aspects of other models of policy making which offer strong ways to evaluate actions and compare solutions without either destroying creativity or allowing its free reign to generate unviable risks? The first step in this direction is to consider what research on expertise has to say about the way high-level professionals conduct themselves when making decisions. This points us to an account of the way data and experience is organized and stored in memory and certain known processes for its recall and use in demanding situations. In this respect, the work of Kahneman and Tversky is particularly useful to augment and deepen our understanding of decision making in the context of policy.

Expertise

Tversky and Kahneman (1974, 1124) show that “people rely on a limited number of heuristic principles which reduce the complex tasks of assessing probabilities and predicting values.” Their work (Kahneman and Tversky 1996, 583) involves the “recognition that different framings of the same problem of decision or judgment can give rise to different mental processes.” Such processes also involve common causes of error by decision makers. The three most common heuristics are “representation” where people estimate the probability that an event (or person) belongs to a given class or group; “availability,” which rests on the use of recent or prominent examples to judge plausibility; and adjustment from an anchor, or “anchoring” which is the use of a known starting point to estimate a future position. These mental shortcuts are all “highly economical and usually effective” but they may also “lead to systematic and predictable errors” (Tversky and Kahneman 1974, 1131).

For example, the “availability” heuristic suggests that the more one can remember certain events, the more likely one is to expect them and to look for them again and again. For instance, media coverage of leadership failure by politicians will increase a tendency to look for failure and to make this the basis for future decision making. Failure is memorable. From an empirical perspective “the ease with which instances come to mind” (Kahneman and Tversky 1996, 582) is something that can be tested—including in interviews. This suggests that some events, issues, and experiences likely to influence

¹ Creativity, of course, is widely regarded as a positive influence on both individual and collective opportunities. The United Nations Development Programme’s first Human Development Report (1990, 9) makes the case that “the basic objective of development is to create an enabling environment for people to enjoy long, healthy and creative lives.”

decision making will have greater memorability and therefore find a priority place in the memory of decision makers.

The representation heuristic refers to a decision maker's ability to classify an event as similar to others s/he has experienced or to classify actors as resembling other actors they have known. "So a politician of erect bearing walking briskly to the podium is likely to be seen as strong and decisive" (Kahneman and Tversky 1996, 582). Heuristics reduce information processing time and provide an analytic shortcut. One does not have to consider a larger body of data if one of these heuristics provides a means to recognize a pattern quickly. All three can therefore be thought of as parts of a structure through which to estimate the capacity of decision makers to recognize patterns in data and to do so in a way that significantly cuts processing time while assuring acceptable levels of accuracy.

As a partial resolution of the potential conflict between these accounts of memorability and the more conventional theories of decision making that rely upon transparent forms of option search and assessment, dual-processing theories assert that both modes are needed for much real-world decision making—automatic or memorized processing that is beyond conscious control and analytic processing (Dane and Pratt 2007). While this helps avoid a dichotomous account, it may only serve to delay the point at which one has to account for nonrational factors.

While most of the research concerning memorability tend to focus upon short cuts in the processing time used to consider complex data, there is also a part of this formulation that considers the development, storage, and recall of action strategies. Having a strategy ready to use and being able to adapt it to new circumstances involves two different cognitive moves. The first is presumably a recall skill that could be modeled in a relatively mechanistic manner in the style of computer chess. But linked to forms of forward thinking, such expertise also begins to look like the skill of anticipation. This is because the selection of a good strategy always involves a premonition of its likely impact, and this skill can only be developed by recalling previous occasions when similar actors were presented with comparable circumstances. Anticipation therefore refers to a decision maker's capacity to search forward. To be creative is presumably to know how to search forward in ways that reflect what the past has taught but is not reducible to that alone.

One of the things that is commonly associated with anticipatory capacity and with forms of expertise is long experience. More time to learn from different iterations of the policy-making process is known to improve judgment. In part, this is another version of the idea that experience provides an individual actor with a kind of longitudinal experiment in which different options get tested against a set of repeated challenges. Having "been there before" is thought to equip decision makers to manage both the technical and emotional aspects of major decisions. Of course, if one assumes that a characteristic of such decisions may be that they are either unique or "wicked" in nature, then by definition, no

one has previously encountered them. So in this case, the insight yielded by experience maybe a type of “referred expertise” or “expertise taken from one field and applied to another” (Collins and Evans 2007, 64). Cognitive science and experimental psychology provide some support for this idea. Bilalic’, McLeod, and Gobet (2009) developed a test of chess experts of different levels of competence and framed problems that took them outside their areas of specialization. They showed that “with the absence of familiarity (high specialization), the problem solving strategies of super experts (Grand Masters) and ordinary experts resemble each other” (Bilalic’, McLeod, and Gobet 2009, 1135).

By creating opportunities for decision makers to simulate demanding choice and planning situations, training and education programs seek to deepen some aspects of expertise—or at least to map the path by which such expertise proceeds. Obviously, the most potent challenge to such a method is that the classroom is not a real-life situation and, knowing this, the decision maker will probably react differently. The solution is usually to provide realistic case studies, scenarios, and opportunities for gaining field experience under guidance. Case studies and scenarios provide a simulation heuristic which helps counter the “availability bias” in many decision makers (Considine 2005). Availability, as we saw above, refers to the tendency to use information that is easy to recall (memorable), rather than more subtle or difficult to remember. The case or scenario method aims to challenge and perhaps transform “mental models and beliefs to inform and stretch strategic thinking” (Healey and Hodgkinson 2008, 577). The notion of mental models (Johnson-Laird 1980, 98) is that of an internal representation “that mirrors the relevant aspects of the corresponding state of affairs in the world.”

It must be assumed, however, that mental models are resistant to change (Sloman, Love, and Ahn 1998). As Schon (1985, 27) also observes, “systems of intuitive knowing are dynamically conservative, actively defended, highly resistant to change.” So cases and scenarios may run the risk that those devising them will see the world in a particular way and that the experience of learning from cases and scenarios will tend to reflect existing models or status quo thinking. One counter is therefore to “introduce novel outsider perspectives and diverse information sources at the early stages of scenario generation” (Healey and Hodgkinson 2008, 578). But note that in doing this, we may further change the extent to which the scenario reflects real-life conditions for the decision makers, an environment that is itself likely to be deeply inscribed by conservative practice.

The desire to conceptualize a creative form of decision making is therefore in tension with the demand that policy making also be realistic and well grounded in the conditions and values of the day. Simulated experience has some promise as a way to ground new thinking, but is also risky if those constructing case or scenario materials embed too many assumptions from a prevailing normative frame.

Emotions

One important bridge across this divide between embedded and more open-ended thinking is provided by work on the role of emotions in decision making. In addition to engaging actors in the factual universe of a given case or policy problem, an account of the creative decision-making methods may need to engage the emotional responses and priorities of stakeholders and participants. Designers promote this idea as a form of empathy and “feel for the situation,” but we have only skeletal accounts of what this actually means.

Research on the role of emotions shows that they probably impact decision making in several common ways. Decision prompts that have the strongest influence on actors are those that elicit an emotional response, giving the “jolt needed” to spur decision makers into action. Risky decisions also stimulate problematic emotions such as worry, fear, dread, and anxiety. The key to getting an emotional response, either positive or negative, from decision makers is known to be the “vividness with which those (future) outcomes are described or mentally represented” (Healey and Hodgkinson 2008, 579). Creating a sense of optimism among decision makers is unlikely to foster creativity if such optimism flows from a common tendency for those working in groups to construct “overly optimistic scenarios that do not adequately account for negative events, falling foul of the so-called positivity bias” (579). Preparing decision makers to be more comfortable with uncertainty and with different possibilities builds emotional resilience as well as flexible thinking. “Simulating several plausible scenarios makes it apparent that credible alternative futures exist, thus challenging prior beliefs in a single future” (Healey and Hodgkinson 2008, 576-7).

We can understand that experts bring a trained capacity to quickly appraise data and see patterns; and they do this by engaging events and emotions that are organized heuristically in long-term memory. If they have a creative capacity, it must therefore be explained by the characteristic ways in which they exploit this practical and emotional store of experience without being trapped by it. This suggests ability to self-surprise, unless like social systems the expert is allowed but one “branching point” and thereafter exploits the increasing returns of suboptimization (North 1990; Pierson 2004). The path to more creative decisions suggests both a trained capacity to consider a range of novel and surprising approaches and to do so with some form of emotional flexibility in the face of anxiety and risk. March (1972, 426-7) also says we can treat intuition as an alternative to rationality, “we need to find some ways of helping individuals and organisations to experiment with doing things for which they have no good reason, to be playful with their conception of themselves . . . For most purposes, good memories make good choices. But the ability to forget, or overlook, is also useful.”

In other words, the main threat to creativity comes from an excessive desire to be consistent. Consistency refers here to the requirement for action to owe its purpose to some visible form of goal maximization.

Jacobs and Statler (2004) adapt March's proposition about play to the use of decision-making scenarios. They cite Hodgkinson and Wright's (2002, 950) work and the need for "requisite variety in mental models necessary in order to anticipate the future and develop a strategically responsive organization" (Jacobs and Statler 2004, 78). Effective scenario planning exercises encourage the generation of new insights, critical reflections and surprises (Jacobs and Statler 2004, 78-9). The notion of "serious play" is used to denote forms of open-ended interaction, expression, and speculation that attempt to extend the conceptual basis of scenario planning with methods "that involve more creativity and intuition" (Jacobs and Statler 2004, 77).

In the psychological account, playing acts as a kind of adaptation mechanism to privilege variability, differentiation, and the testing of experience in a way that is culturally legitimate. Through play, the psychologist posits the possibility of improved adaptability and an increased capacity to take imagined states and to test them in provisional action as a kind of prototype or experimental iteration of "anything that is humanly imaginable" (Sutton-Smith 2001, 226). Longitudinal research shows that "the more interesting and fulfilling lives are those in which playfulness was kept at the centre of things" (Erikson 1977, cited in Bruner, Jolly, and Sylva 1976, 17). "Play is . . . the vehicle of improvisation . . . the first carrier of rules systems" (Bruner, Jolly, and Sylva 1976, 20).²

Sachs (1995) argues that the brain is naturally engaged in ceaseless inner activity that is much like fantasy and that playful states therefore have a place of their own. The frontal lobes of the brain are associated with restraint and "the weight of duty, obligation, responsibility . . . We long for a holiday from our frontal lobes, a Dionysian fiesta of sense and impulse" (Sachs 1995, 60). Thus, says Sutton-Smith (2001, 73) paraphrasing Sachs, "the brain is at play as a neural fabulator."

However, the many treatments of play in the literature of philosophy and anthropology portray a more conflicted outlook. Much is said about the rational and hierarchical nature of play and about its symbolism as a vehicle for competition, ego achievement and the teaching of dominant values. Geertz (1973), for example, views social play as a text to be used in interpreting the major relationship dynamics of a culture. There are many studies of the role of festivals, tournaments, enactments, and ritual contests that speak to the power of this form of play to determine and express social hierarchy.

² Gambling is an obvious case of adult play where fantasy, fate, and chance replace reason, but not always in a positive way. Or as Caillois (1961, 17) puts it, chance "signifies and reveals the favor of destiny . . . It seems an insolent and sovereign insult to merit." But somewhat more optimistically, Sutton-Smith (2001, 72) offers the insight that while gambling is "not in itself typically a form of success, it is nevertheless a model of the belief that life should involve risk taking."

From a decision-making perspective, the idea of playfulness is linked to the proposition that rationality is not on its own a sufficient explanation of how the most expert decision makers think and act and that want of rationality is not an adequate explanation for why actors allow other thought processes and reference points to guide their behavior. Erikson (1963, 213) takes the view that for “the working adult, play is re-creation. It permits a periodical stepping out from those forms of defined limitation which are his social reality.” This breaking of bonds includes both a real and metaphorical willingness to ignore the rules and to imitate flight.

From our perspective, there is also an important insight in the way such forms of play often involve a repetition or iteration dynamic. For the Freudians, this is necessarily linked to the notion of the repetition compulsion in which painful experiences are replayed or simulated in new experiences as part of a need to come to terms with an original trauma. In our terms, this anchoring event creates a continuing bias that tilts an actor’s judgment toward making the same mistake over and over again. But it is also interesting to think about the role of iteration in both game playing and decision making and to wonder if the one is not linked to the other. Multiple iterations might provide the first clue to the way in which the mind rehearses and thus anchors certain important routines of thought, while also creating, through imagination, a fabulous series of hidden alternatives and latent strategies.

In this light, an interesting bridge between the highly idealized theories of play and our very grounded accounts of decision making come to us from evolutionary theory and from notions of requisite variety, or the need which systems have to match their internal worlds to some sense of the proportion and complexity of their environment. This is well expressed in Ashby’s (1960) *Design for a Brain*, as the law of requisite variety. One might put this as the problem of establishing a capacity to deal with issues that are yet to emerge but once emergent will be too complex to allow a long lead time for decision making. Stephen Jay Gould (1996) makes the same case for variability and redundancy as a way to ensure a residual capacity to adapt. What looks like rank inefficiency turns out to be improved capability.

Precise adaptation, with each part finely honed to perform a definite function in an optimal way, can only lead to blind alleys, dead ends, and extinction. In our world of radically and unpredictably changing environments, an evolutionary potential for creative responses requires that organisms possess an opposite set of characteristics usually devalued in our culture: sloppiness, broad potential, quirkiness, unpredictability, and, above all, massive redundancy. The key is flexibility, not admirable precision. (Stephen Jay Gould 1996, 44)

In his work on the nature of play Sutton-Smith (2001) draws a direct line from this notion of variability as adaptation to the role of play. The enormous duplication and extension of experience through play is viewed as a way to

produce structures “that may have no immediate function and can be exploited for different evolutionary purposes” (222).

Linking Creative Design and Policy Making

To summarize the argument to this point, we can consider design as the promise of some forms of creativity within the policy-making process and on the part of policy experts as the actors likely to be able to think creatively while also being knowledgeable enough to negotiate the practical environments of policy making. Experts are defined by deep knowledge and experience of a kind that enables high-level pattern recognition and an ability to anticipate or search forward. To model the way such experts might need to think about the world, we have considered the probability that some characteristic cognitive skills would be required and that these would involve both openness and playfulness in relation to decision scenarios and alternatives. It also seems highly likely that this set of capacities would include a characteristic emotional setting in which responsiveness is matched by resilience and an ability to resist path dependence or group-think.

With this in mind, we may now explore the ways in which an account of design might better inform our conceptualization of policy making. There appear to be two different pathways for doing this. The first concentrates upon the *search* stage in rational deliberation and shows how a design process with various techniques for countering group-think might complement the classic model. The second views design as fundamentally different to rational deliberation and calls for a new conceptualization of this kind of cognition.

In the first, we see policy design as a better search process. Alexander (1982, 282) questions the extent to which design is merely a different way to think about the search stage in any rational decision-making process. In other words, we might just fold the creative elements into a theory of how best to search for alternatives and to discover a range of options for solving a problem. So design becomes the opening-up stage and is explicitly mandated to challenge conservative thinking and to honor what Goodin (1996) calls the requirement of reviseability in institutional design. Typically, when decision makers share a common set of values, there is a tendency for alternatives to be “few and similar” as they informally filter out the more adventurous or courageous options. Therefore, for design to become a useful part of the process, we can assume that there is some suspension of the demands for consistency with past practice and some wider proffering of alternatives at the brainstorming and even at the prototyping stage. The idea driving this understanding of design is that it is another way to imagine decision makers transforming information on the way to making assessments of best fit.

In the second approach, we find design defined as a branching point or deliberate break from the past. For Hausman (1975, 53) the very essence of

creativity is a “controlled yet discontinuous” process that challenges the “regularity and orderliness expected of an intelligible world.” Perhaps the best of the research in this area is based on attempts to correlate successful creativity with certain environmental or organizational variables in the hope that one might beget the other. As Alexander (1982, 289) puts it, there is broad consensus on the kind of environment, “which will stimulate creativity and innovation,” and he lists such things as decentralized authority, high levels of discretion, incentives for risk taking, adequate “slack” to absorb mistakes, openness and multilevel access to the environment. But he concludes (289) with the pessimistic observation that there may still be an “irreducible element of irrational creativity” that admits no “systematic resolution.” A solution to this problem could be to “backward map” the forms of creativity that experienced policy makers bring to bear on problem solving. If we are right in thinking that such experts have certain heuristics to help organize their thinking and that these forms of mapping enable a sophisticated form of pattern recognition and anticipation, then there ought to be something qualitatively different about high-level experts and those just starting out. But does that indicate a creative capacity or just a better way to do what is expected?

In order to bring such processes to light, there is obviously a need to conceptualize more clearly the cognitive style of experts and to model their creative responses to problems. The empirical study of expertise from this perspective starts with the pioneering work on chunking theory (Chase and Simon 1973), template theory (Gobet and Simon 1996), and abstract role theory (Linhares 2005; Linhares and Brum 2007). In the first two accounts, the chunks or templates provide an explanation of the way pattern recognition drives higher level performance. These mental maps are formed through long experience and practice during which the expert groups various similar episodes and the successful strategies for dealing with them in long-term memory but coded under easy to retrieve categories which respond quickly to cues or clues in the present. Various studies of chess players and other high-skill games point to the influence of pattern recognition in accounting for differences in the performance of ordinary experts and super experts (Charness 1989; Gobet 1998). It is generally the case that these explanations favor pattern recognition over analytical processing as the explanation of superior performance. Pattern recognition, in addition, encompasses certain of the heuristics identified in cognitive science and discussed already.

In other words, the high-level expert involved in policy making will probably not search more widely, evaluate more alternatives, or conjure more strategic options. It is likely to be the weaker, less experienced players who rely more upon this kind of analytical processing. It is also argued (De Groot 1965; see also Bilalic', McLeod, and Gobet 2008) that memory can be less important to the best players than the ability to perform an evaluation of forward search options. The best players can evaluate the different paths that lay ahead in a superior fashion. Certainly, there are “doubts about the necessity of a tight

connection between expert performance and experts' superior memory" (Ericsson and Kintsch 2000, 578).

What these theories and their various studies establish is that performance is first of all a measured capacity to optimize under pressure using some mix of memory, memory triggers, search, and the projection of current conditions into future states.

Conclusion and Propositions

What we can conclude from the research is that conventional models of deliberative choice do not satisfy all the demands we might want to make of creative experts in the policy-making process. However, while attractive, design theory to date has lacked clear propositions concerning this creative process, in part because it has not considered the research into other forms of expertise and used this to formulate propositions for testing in the design field. In accounts of the role of policy games and scenarios and in the possible impact of serious play in the creative process, we have identified the terrain of creative practice and some of its likely features, but we do not yet have agreement on a decision-making model that might prove testable. As a step to building such a model, we can therefore identify in proposition form the conditions and characteristic elements likely to distinguish a creative design expertise from other decision-making attributes.

Proposition 1: Goal emergence. Design theory expects goals to emerge in the process of decision making, including toward its conclusion, and this is thought to release some of the strictures known to promote conservatism.

Proposition 2: Pattern recognition. Designers will be defined as experts with a high capacity to recognize patterns in data and thus to read the environment using a number of complex heuristics.

Proposition 3: Anticipation. Designers search forward using skills of anticipation that draw upon memorized experiences and strategies. Being creative thus suggests a capacity to visualize unexpected future states.

Proposition 4: Disruption. Design theory promotes the idea that a creative outcome will require some break or disruption from accepted practice in regard to prototypes and in some actual outcomes.

Proposition 5: Emotional engagement. Design thinking will address emotional responses by designers and stakeholders and make these biographical capacities a driver for developing solutions.

Proposition 6: Fabulation. Design theory is comfortable with the costs of developing playful scenarios and prototypes including some that will be considered highly impractical but which will promote openness and surprises.

Proposition 7: Nonconsistency. The design process will explicitly promote a degree of playfulness and a loosening of the requirement to behave

consistently, generating increased variety in the stock of embedded alternatives available.

Proposition 8: Risk protection. The decision-making environment for designers needed to promote creativity by experts will involve techniques and processes to foster open-ended thinking, shield designers from foreclosure, and limit the impact of positivity bias and other heuristic traps.

It seems unlikely that an account of policy expertise employing such propositions will contradict the existing “policy process” models for as we saw at the start of this discussion, they concern themselves with constraints and structural imperatives, not with the capacities of individual actors such as policy experts. Some of these propositions, as noted above, may be incorporated into revisions of these other models, for example in helping deepen our understanding of the way certain forms of thinking come to be successfully challenged. But what is most interesting about the application of more detailed models of cognition is its potential to help explain how practice and training and different levels of experience might equip policy makers to perform better, or at least differently in those situations where potential for change is permitted by prevailing structural conditions.

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