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Policy instrument affordances: a framework for analysis

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ABSTRACT

The present study uses the concept of technological efficacy derived from ecological psychology and design studies to offer an alternative way of analyzing how policy instruments affect change. Reasoning from this, the paper outlines a framework for analyzing policy instruments in terms of their affordances. We define affordances as the means through which an instrument exerts influence on its intended target audience. Using this approach, we contend that policy instruments may be analyzed as interfaces that organize social relations and create structures of opportunity and/or restrict possibilities for action. We argue that explicating the pathways through which instruments afford or constrain action is a central task for policy analysis. Our proposed framework of analysis builds on the idea that instruments yield effects by facilitating action and learning. We further contend that the actions that an instrument can facilitate or inhibit are determined by specific affordance modalities of the instrument in conjunction with contingencies of the actor and the policy environment. Examples from research policy are used to illustrate some of these effects.

KEYWORDS

Policy instruments;
affordances; policy analysis;
policy process; policy design

Introduction

The purpose of this paper is to provide a theoretical framework for understanding how characteristics of policy instruments facilitate or limit policy action. The paper develops the notion of ‘policy instrument affordance’ to account for how policy instruments influence their targets. Policy instruments promote or inhibit certain types of actions depending on the context and the actors on which the instrument operates (Le Galés 2016). Instruments also have intended and unintended consequences as well as overt and latent functions (Hood 2010). One of the functions of policy theory is to elucidate the ways in which instruments drive action and under what conditions. The identification of causal drivers that explain how policy cycles evolve has been an important task since the policy stages heuristic came under fire in the early 1990s (Sabatier 1999). The actual mechanisms operating in the interface(s) between an instrument and the target community are usually not ideated from the point of view of a coherent actor-oriented theory of how such influence occurs. In order to conduct this type of analysis, one needs a concept of the causal efficacy of instruments that is able to capture the mutual

shaping of instrument, context and actor, without sacrificing conceptual clarity and cohesion.

This study draws on previous research on affordances of objects and technical artifacts to offer a theoretical framework for analyzing policy instruments from this perspective. We posit that by conceptualizing policy instruments as technologies of governance, one could successfully extend the concept of technology or object affordances to achieve a deeper understanding of how policy instruments work. This understanding can improve policy learning by allowing policy-makers to get a better grasp of how specific contextual circumstances influence the performance of an instrument. We take as a premise that the impact(s) created by a given instrument is the result of the combination of: (i) the properties of the instrument; (ii) the context of the target community to which the instrument is addressed; and (iii) the target community's own propensities to act in particular ways (e.g. given certain desires, beliefs and opportunities that they may have). Although the reach of an instrument is mediated by the properties of the context and the target community, the instrument itself can be said to drive action in a certain way, because of its constitutive qualities, which are activated and circumscribed by context and actor responses. The concept of instrument affordances can be used to explicate these constitutive qualities.

This paper is structured as follows: we will begin by assessing the literature on policy instruments, touching on functional perspectives (e.g. Hood 1986) as well as socio-political or constructivist approaches (e.g. Lascoumes and Le Galés 2007; Le Galés 2016), and illustrate some of these using examples from research policy. Secondly, we will examine various ways of interpreting instruments in terms of the affordance concept, and identify several affordance modalities (ways of operation) as well as outline the conditions through which an affordance affects a target. We will exemplify these principles by using examples from research policy, e.g. funding and evaluation instruments. Finally, we will address the issue of how to analyze instrument affordances, focusing on identifying those constraints and enablers that determine if and how an instrument affordance creates impact.

The study of policy instruments

The rationale for using instruments as an empirical window on the policy process is that they represent an interface between policy-maker and policy targets and therefore give us insights into how a given policy is implemented and with what effects. Armed with this knowledge, policy-makers would be able to anticipate the impact of a given instrument in a new context. Howlett, for example, refers to policy instruments as 'the generic term provided to encompass the myriad of techniques at the disposal of governments to implement their public policy objectives' (1991, 2). Lascoumes and Le Gales emphasize the social dimension and the way instruments are 'constitutive' of policy: 'A public policy instrument is a device that is both technical and social, that organizes specific social relations between the state and those it is addressed to, according to the representations and meanings it carries' (2007, 4). According to this definition, instruments mediate between the state and an actor through a mix of techniques and social components.

Policy instruments, while being 'everywhere' in policy, are certainly not 'nowhere' as a result. They are usually easy to identify and circumscribe. For example, the majority of policy programs build on a fairly limited number of instruments. This makes them

useful as units of analysis to identify the structure and efficacy of programs (John 2013). Instruments are also useful as a window on policy change. Oftentimes, when the overall goals of government are more or less stable over periods of time, one may still observe change at the level of instruments (Richards and Smith 2002). This poses at least two ‘families’ of questions for the policy researcher: (1) what consequences does the choice of instruments have for the effectiveness and operation of a program? and (2) what factors affect the choice of instruments and in effect policy impacts? (Radin 2006; Salamon 1981). In both of these types of analyses, the researcher may be interested in how instruments embody theory about the relation between those governing and those being governed (Lascoumes and Le Galés 2007).

Since the present study focuses on the first type of question, i.e. the effects of instruments, it becomes important to understand what kind of instruments there are. The type of instrument usually refers to its function and mode of operation and suggests its likely (at least intended) impact. Several such typologies have been produced, and we will not attempt to cover even most of them, but will look at a few typical examples. One of the most commonly referred to typologies is Hood’s (1986) classification of instruments into monitoring and behavior altering instruments. Monitoring instruments (‘detectors’) are, for example, surveys, registration, statistics and the like, while altering instruments (‘effectors’) involve advice, grants/loans, laws, service delivery, and so on. The most typical way of dividing instruments is in terms of their behavior inducing mechanisms. A typical example is Elmore’s (1987) four categories: mandates (rules governing behavior); inducements (resources in return for certain actions); capacity building (transfer of resources in order for agent to build up capacity in some area); and system-changing (transfer of authority between actors in the system). A more recent contribution to this type of ordering is Lascoumes and Le Galés (2007) broad division of instruments into legislative/regulatory, economic/fiscal, agreement/incentive-based and information/communication-based.

Instruments have also been categorized in terms of their pervasiveness. The most famous example is Lowi’s (1972) distinction of policies according to their coerciveness. Lowi divided policies according to how coercion is channeled (whether a policy works through the environment or directly on the actor), and the likelihood of coercion (whether it is determined to be applied or only applies with a probability) to derive a typology of coerciveness. Salamon and Elliott (2002) add to coerciveness the dimensions of directedness, visibility and automaticity, which can be graded and combined in an analysis of instrument characteristics. The themes of voluntarism–compulsion and formal–informal recur in the categorization of instruments. An early example is that of Dahl and Lindblom (1953), who position instruments along five continua of government choice, viz. ownership (government to private), influence (compulsion to persuasion), control (direct to indirect), membership (voluntary to compulsory) and autonomy of executing body (full to none).

While this type of logic is persuasive, it has been contended that drawing hard lines between soft and hard tools of government as well as between authoritarian and informal instruments is difficult (John 2011). This is especially true when instruments are combined, in which case the perception and effects of a single instrument may change, or when the same type of instrument is applied in different areas of policy. Whether a particular instrument is well adapted to its intended task is by no means a result of that

instrument's internal quality or type, but rather a question of how policy-makers balance the attributes of an instrument or mix of instruments to the task and population at hand. For example, Linder and Peters' (1989) categorization involves four basic attributes of policy instruments that government must consider when designing policies, namely resource intensiveness (incl. operational and administrative simplicity), targeting (precision and selectivity), political risk (incl. nature of support and opposition, public visibility, risk of failure) and constraints on state activity (incl. difficulties with coerciveness and associated ideological issues). This way of typifying instruments emphasizes the reflexive and socially responsive qualities of instrument choice, the position of the decision-maker and his/her institutional circumstances. Such a shift of focus echoes Salamon's (1981) second question for the study of instruments, namely what factors affect choice. The 'political sociology approach' to the study of instruments, emphasizes the political context of that choice, and distinguishes itself from previously dominant approaches, termed 'functional', in that they tend to focus on instruments in terms of their effectiveness (Lascoumes and Le Galés 2007).

Obviously, functional and political motives are both at play when instruments supporting programs are selected. Effectiveness may play a role at different points of an instrument's life, as do political factors (Grant 2010). Clearly, there are political and ideological precursors to the selection and promotion of instruments; instruments are not neutral devices, but tend to generate their effects in particular ways, and structure the social landscape in some ways more than others. An early statement to these effects is that of Anderson (1971) who described policy-making as choosing among instruments. Lowi's (1972) assertion that instruments determine politics by creating 'structures of opportunity' echoes Anderson's argument. This takes the analysis beyond stating that political intentions determine the way instruments are conceived and selected and suggests that instruments may be treated as political entities in and of themselves. By this, we mean that instruments may have particular cognitive dispositions and embody values outside of what its original promoter might have intended. Radaelli and Meuwese (2010), for example, emphasize how instruments create structures of opportunity for those targeted by the instrument as well as for the political actors themselves, and how they enforce this influence through unintended learning. The cognitive significance of instruments is developed by Kassim and Le Galés (2010) in terms of 'policy frames'. In their view, instruments embody non-neutral frameworks for interpretation, in that they present things in particular ways, and introduce ideas and representations of the world.

Part of this 'additional content' of instruments lies in the instrument as such, but much is predicated on the fact that instruments increasingly operate through disseminating information to targets. Instruments are connected to targets via communication and the way messages are conveyed yields effects, e.g. through transmitting norms (John 2013). One type of norm transmission is reflected in the power relations that instruments organize and constitute, or what has been referred to as their 'ideological scope' or 'political connotations' (Lascoumes and Le Galés 2007). Instruments may need institutional creation to be effective, but more importantly, they create their own institutions, in that they represent structures for collective action through uncertainty reduction.

The institutional approach to the study of instruments comes closest to what in this paper will be referred to as an affordance perspective. However, it is important to note that while much critical insight about subterranean politics can be read off instruments

in the type of analysis reviewed above, the actual causal and symbolic significance of instruments is inseparable from the actor/target and their perceptions, culture and inclinations on the one hand, and the context of intervention on the other hand. Instruments are embedded in contexts and, not least, in other instruments. We have already raised the issues regarding how it is difficult to separate instruments and the way information is about them is conveyed (John 2013). There are also spillover effects between sectors, where change in one sector occurs as a result of instruments in another (Grant 2010). There may be conflicting or reinforcing levels of instruments that make the casual efficacy of any one instrument ambiguous. A further issue yet to be addressed by the political sociology tradition is to what extent instruments and institutions are logically and empirically separable (see Hood 2007).

In order to single out an instrument for the type of analysis suggested above, one needs to assume some causal/analytical integrity of an instrument vis-à-vis its effects. A new concept of the causal efficacy of instruments will fill this gap. Furthermore, this understanding of the causal efficacy of instruments should also emphasize the confluence of instrument, context and actor, without sacrificing conceptual clarity and cohesion. Although the instrument tradition is able to describe instrument influence, it does not explain how instruments exercise this influence given the social and institutional embeddedness of policy-making and implementation. In the next section, such a perspective will be outlined.

Instrument affordances

The concept of affordance was originally developed in ecological psychology to account for the constraints in perception and behavior experienced by agents in relation to objects in an environment. Gibson, who originated the concept, proposed the following definition: 'The affordances of the environment is what it offers the animal, what it provides or furnishes, either for good or ill' (1979, 127). The notion of affordance involves the idea that action must be understood from the possibilities made available in some object world, given the agents' abilities. It was essentially a reaction to previously dominant notions of behavior, which were founded on an understanding that environmental constraints did not influence autonomous agents' perception or capacity to act.

According to Gaver (1991, 338), 'In any interaction involving an agent with some other system, conditions that enable that interaction involve some properties of the agent along with some properties of the system. [...] that contributes to the kind of interaction that occurs.' Those properties are the affordances of the system: what it affords the agent in terms of perception and action possibilities. For example, a piece of dry wood has the affordance of being turned into a fire, given the agent's skill, access to a spark and a favorable environment. A hammer has the affordance of driving a nail, given some circumstances and competences. Chemero (2003) focuses on this action-inducing quality of the concept and maintains that while an affordance is a relationship in an actor-environment system, its pragmatic function as an explanatory concept lies in its correspondence to a verb-phrase ending with -able (e.g. a cliff is 'fall-off-able'). What can be done with it so to speak. Explanations offered to understand action related to a program or instrument must elaborate this property of the instrument relative to a niche where it is causally efficacious vis-à-vis the actor (cf. Scarantino 2003).

It is not surprising that the concept of affordances was adopted by designers and design researchers, human-machine interaction and informatics. The idea that, given certain conditions, aspects of a technology will prompt certain behaviors, while making others difficult is perhaps the central point to ergonomics and human-centered design. One of the most well-known translations of affordance to the study of technology is that of Norman, who suggested that ‘... the term affordance refers to the perceived and actual properties of the thing, primarily those fundamental properties that determine just how the thing could possibly be used’ (1998, 9). Here, he echoes a previous statement of Reed (1996) to the effect that affordances are exploitable properties of objects. We will also use the term ‘feature’ to designate such properties.

So far, a few key aspects of affordances are worth paying attention to: Firstly, affordance refers to possibilities, not necessities, regarding how an object is used or constrains a user. It specifies possible interactions between things. There is no assumption of what such things can be. They may be humans, animals, natural or manufactured objects (Norman 2015). Secondly, and related to the above, affordances may be more or less efficacious depending on circumstances. This means that an affordance may actually never manifest itself, even though it exists as a possibility or disposition of the human-instrument relationship. Thirdly, affordance is a relational concept. Affordances are relations, not things (although tangible features may give rise to such affordance relations). As a result of this embeddedness, it is not always easy to pinpoint the affordances of an object, under certain circumstances, for a particular actor. Norman (1998) makes the point that all the possible affordances of an artifact are usually not known by the user and further that they may not even be known by the designer of the artifact (see also Norman 2015). History is riddled with instances of techniques and artifacts being put to uses which were clearly outside of the scope intended by the original designer. Witness the telephone, originally imagined as a device to listen to musical plays on remote, now seen as an indispensable aid to social interaction.

These are central points when it comes to understand policy instrument affordances; that they are potential, dispositional, relational, depend on context, and are sometimes hidden from plain view even for the policy-maker and certainly for the target. Nevertheless, a policy instrument’s affordance is an objective property of that instrument, just as it is for any object, as it confronts a particular agent in a certain setting. A hammer *can* drive a nail regardless of whether the agent knows how to use it, or a nail is available; affordances are real properties of the relationship between object/environment and the agent, which we can observe (Gibson 1979). Of course, just as the quality of the hammer ‘as-a-nail-driver’ can vary, so can the integrity and coherence of relationships needed to enable it in say housebuilding. Likewise, even though affordances exist ‘*sui generis*’, they are nevertheless graded and conditional. They work on probability or propensity (Gaver 1991). Hutchby suggested that ‘affordances are functional and relational aspects which frame, while not determining, the possibilities for agentic action in relation to an object’ (2001, xx).

Structure, action and learning

In the most obvious sense, policy instruments are technical and social, government-citizen interfaces which organize social relations and create structures of opportunity for action.

Such action is prompted as a result of certain instrument affordances. In addition, it is important for a target to have cognitive access to an instrument, in terms of its affordances being legible, making sense and resulting in increased understanding in the target. Since affordances depend on the agent's ability to utilize features and respond, we also need to understand not just how they prompt action in the short term, but also how they facilitate agent abilities over time. Thus, in addition to action, we wish to understand how specific aspects of policy instruments structure learning, and in what way instrument affordances prompt these effects. Hammond (2010) offers a few suggestions for how affordances operate to stimulate action and learning:

- they offer the perception of the possibility and constraints on action;
- these perceived possibilities and constraints are provided by the properties of the instrument and shaped by past experience and context;
- they become habitual;
- they arise because of symbolic and physical properties of an instrument;
- they offer actual opportunities and constraints for action among targets;
- they relate to other features of the environment, including incentives and desirable goals;
- and such affordances are often sequential in time and nested.

We will briefly address the issue of instrument affordances' relationships first, and then move on to how they operate to facilitate action and learning in a target.

Instrument affordances are tied up with complex sets of concepts and rules that govern the way instruments are perceived, used and experienced. Social and technical rules regulate how features of instruments turn into affordances of various kinds. One may say that instrument affordances are laminated between social and technical rules (Hutchby 2001). Importantly, they are also often bundled and interrelated. Demir has referred to such 'bundles' as 'multiple, spatiotemporally distinct yet co-performing action possibilities offered [...] in strategic events' (2015, 125). Past affordances inscribed into the policy fabric through institutions and existing instruments are bundled with present affordances to structure and offer possibilities for action (Demir 2015). We refer to such temporally compounded action possibilities as 'prospective affordances'. In this way, 'complex actions can be understood in terms of groups of affordances that are sequential in time or nested in space, and in terms of the abilities of different media to reveal them' (Gaver 1991, 79). Action is channeled by such affordance chains both among the policy-makers, who are responding to past inscriptions in law, infrastructural offerings and organizational structures and divisions, and the target, who is responding to affordances within a temporal context of past policy instruments and current instruments working upon its actions. In this way, affordances are usually enacted in a flow from one affordance to another. Objects or situations have complementary, sequential and co-evolutionary agency in practice (cf. Orlikowski 2000).

Instrument affordances can be usefully studied from the perspective of how directly they act upon targets – do they prompt direct action or do they build up capacity to act in the longer term through learning. An affordance, at a given time and place, may do both, none, as well as either of these. From an action perspective, an affordance can motivate people to act in a particular way by providing an incentive, but also facilitate and

constrain action by stimulating or requiring group interactions (Franco 2013). The first could be called a motivational affordance (e.g. Jung, Schneider, and Valacich 2010), while the second can be called an interactional affordance. An affordance may prompt action by configuring a target together with a system, by defining the targets action possibilities together with the instrument. Policy instruments just like any technology reflect assumptions about what users will do with that technology, and in effect become statements about what they should do when incorporated in a new system (Hutchby 2001). These may be referred to as configurational affordances. In addition, affordances build on social rules as well as physical properties. They are shaped by what is physically possible as well as socially appropriate (Fayard and Weeks 2007). Following March and Olsen's (2006) discussion on the logic of appropriateness, we refer to these aspects of an instrument as normative affordances.

In addition to stimulating direct action, Hammond (2010) also pointed to the habitual effects of affordances. Past uses of instruments affect perceptions of what can and cannot be achieved, and build a repertoire of typical responses or lack of responses in the target. The amalgamation of human and material agencies leads to routines that are maintained by the evolution of structures and habits (Leonardi 2011; see also Giddens 1984). Bourdieu's concept of *habitus* can be used to explain how affordances become solidified in a system of relationships and the way that affordances are channeled in a particular way for actors acting within an inherited cultural framework (Bourdieu 1980; Fayard and Weeks 2014), and the concept of imbrication can be used to capture how material structures and social and individual learning reinforce each other. Thus, we arrive at the notion of 'habituated affordance' to depict the former processes and 'imbricated affordance' to depict the latter. The notion of 'imbricated affordance' speaks to the way that material circumstances reinforce learning, or in Hammond's words, 'how [one] should perceive or design a tool so that it supports activities which are seen as desirable or necessary for learning' (2010, 5). The notion of 'habituated affordance' relies on the assessment of norms and culture to explain how an affordance support and depends on institutionalized frames and learnt norms for acceptable behavior.

In what follows, we will look at how some of these affordances play out in four research policy instruments, in the way they combine to offer an instrument a level of *affordance efficacy*. In order to illustrate this, we have selected four scenarios (typologized in Table 1), where two represent a bias of the instrument toward either action *or* learning, and two represent situations where affordances support either action *and* learning or neither. We suggest that these four combinations can be read as levels of affordance efficacy, in that they offer the instrument a *temporary, preparatory, enduring* or *inactive* mode of operating on the target.

Enduring affordances

An affordance is enduring when both action and learning are triggered in a target. The propensity to act is increased in tandem with new routines or capabilities needed to act

Table 1. Affordance efficacy.

	–learning	+learning
+Action	(Temporary)	(Enduring)
–Action	(Inactive)	(Preparatory)

in that particular way. The European Research Council (ERC) Starting and Advanced Investigator Awards exemplify an instrument with this type of affordance. By specifying eligibility requirements in detail, the instrument triggered a bottom-up movement to standardize careers. The ERC's requirements restrict eligibility for the Starting Investigator award to researchers who are no more than twelve years after their PhD. Prior to this, there were no widely agreed-on standards for determining seniority. This standard has now been informally adopted by large sectors of the research community. This informal structuring is in its turn functional to affording a broader policy initiative by the European Union to promote standardized career trajectories for the European research community. One might contend that the eligibility requirements outlined by this instrument inadvertently triggered action and learning in terms of allowing applicants to pre-assess their eligibility to apply for the funding, while communicating that the standard for level of achievement is homogenous across all fields. Thereby, the instrument also afforded a shorthand method for achieving consensus about one standard of excellence for all fields of research.

Temporary affordances

An affordance is temporary when it stimulates provisional, temporary action, but without leading to learning, as in, for example, new routines or enduring structural conditions affecting a target. Policy-makers often seek to promote user involvement in research through a range of different instruments and modalities. One of these is project funding where user partnerships are mandatory, initial conditions for researchers getting funded. The SME voucher schemes employed all over Europe today are a paradigmatic instance of an instrument intended to promote researcher-practitioner interaction. The sustainability of these partnerships beyond the period of funding is dependent on a coincidence of instrument affordance; the user landscape, e.g. availability of users who benefit from the partnerships, the scientific benefits of the partnerships and the dependence on this kind of support for scientists. Other reasons are that SMEs are often resource strapped, have little time for collaboration and the problems that they require assistance with are rarely of the type that lead to scientific publications, so partnerships are abandoned quickly. Instruments intended to promote university and SME collaborations build more often than not on temporary, non-lasting affordances.

Preparatory affordances

An affordance is preparatory when it stimulates learning and capacity to act, but without any action in the direction intended yet being triggered. Instead, the target changes in terms of ability and propensity to perform in certain ways rather than others. A typical instantiation of this is instruments aimed at promoting cross-sectoral collaboration/learning such as the UK's Knowledge Transfer Fellowships funded by the Engineering and Physical Sciences Research Council and the Flexit fellowships funded by Swedish Foundation for the Humanities and the Social Sciences. These instruments typically promote knowledge transfer and mobility across sectors, that may initially be temporary, but that facilitate skill development and attitude change. Rather than creating joint projects in the short term, participation in such programmes allows researchers to build capacity

to collaborate, that they may actualize later on well after their participation. The affordance of interest is the capacity-building function, both with regard to the participants' long-term inclination to cooperate cross-sectorally and the potential for them to transfer new attitudes into academe and gradually affect culture. The affordances of interest have to do with learning and capacity building rather than the actions performed to achieve this capacity. Short-term actions are circumstantial means toward learning or building a particular long-term capacity.

Inactive affordances

An affordance is inactive when neither learning nor action is facilitated by some feature of the instrument which may be an active affordance in some other context, under some other conditions. A case in point is the center of excellence (CoE) schemes employed by some research councils as a means of distributing funds. In the case of the Swedish Linnaeus CoE schemes, the funder sent clear steering signals about expected organizational processes in the funded centers by using interim evaluations focusing on formalized leadership, communication and other organizational aspects. However, these features of the instrument seemed to have no impact on the directors, who were all highly accomplished cutting-edge scholars, and apparently in no need to be told how to run their centers. The absence of substantial negative incentives made this feature largely inactive as an affordance of the CoE instrument. However, the same instrument feature was very efficacious in steering CoE programs focusing on transdisciplinary, social challenges and involving multiple, non-academic stakeholders. An affordance analysis of each of these types of cases can shed light on the reasons behind such differences.

Analyzing instrument affordances

The extension of the concept of affordance to the study of policy instruments implies a couple of methodological issues. Firstly, the affordance concept focuses attention on relating aspects of a given instrument to specific effects on targets and the circumstances under which these effects are likely to be produced. This is a 'pre-given' functional analytical focus, and one which is of immediate relevance to policy learning since, presumably, understanding an instrument in this fashion facilitates ex-ante evaluation of its fitness for transfer to another context. Reasoning from the above discussion, one would pose the question: what properties of a given policy instrument are causally efficacious in producing action and learning? (cf. Scarantino 2003). As we have seen in the preceding section, the literature offers several 'affordance modalities' that can be of use for understanding how policy instruments produce action and learning. An affordance modality is the way an affordance operates, or its mechanism for producing an effect. The most basic aspect of such a mechanism is captured in Hartson's (2003) concept of a *functional affordance*. Here, the simple questions that need to be posed when confronted with an instrument are: 'what can you do with it? Or – what ought to be done?'. What does the instrument lend itself to from the perspective of the target, given the circumstances, and how?

It is easy to see how such a functional analysis is implied by the affordance concept. Nevertheless, as mentioned earlier, the opportunities and constraints offered by

technologies and other material circumstances are subject both to dispositions (in instruments and actors/targets) and to contingencies (in targets and contexts). It is these dispositions and contingencies that circumscribe how affordance modalities are translated into influence or a *de facto* affordance. We argue that a comprehensive analysis of instrument affordance must take into account, namely how (1) affordance *opportunities and constraints* are subject to (2) affordance *dispositions and contingencies*. In this section, we will outline some aspects of such an analysis before exemplifying one viable empirical approach for studying instrument affordances.

Affordance opportunities and constraints

Instruments both facilitate and constrain action and for this reason, they can be described and analyzed in terms of these possibilities, i.e. ‘through what features’, ‘in what way’ and ‘with what effects’ are opportunities opened up/closed for an actor. It is important to note that seeing an opportunity for action is tantamount to confronting an affordance rather than a physical trait (Demir 2015). Properties or features do not stimulate opportunities for action, but rather qualities of those properties, operating for that actor, in that way, under those circumstances. This means that analysis of a property or a feature of an instrument cannot be taken at face value but must be assessed as part of an instrument–agent–environment nexus.

Yet, there is no doubt that affordances operate within some relatively straight forward ‘technological possibilities’. These are the options to which instruments ‘say yes’; what they can be actually used for. Woolgar and Grint (1997) and also Hutchby (2001) refer to this as ‘configuring the user’. Policy instruments, as any technology, reflect assumptions about what users will do, and thus become statements about what they should and can do, when incorporated in a system. For Leonardi (2011), such possibilities are actively constructed by actors on the basis of their goals. That, however, does not mean that instruments do not constrain actors’ options or make themselves available for certain uses rather than others. Hammond (2010) has referred to this as trade-offs between opportunities and constraints and noted that many changes in practice that are ushered in by new technology are in fact shaped by the way such trade-offs are afforded by the system.

The question is: how do such trade-offs come about? Learning and knowing how to do things have to do with an actor’s attunement to constraints (cf. Barwise 1989). The actor learns and moderates actions based on constraints signaled by the environment, like driving a car. Just as instrument constraints can be stretched by tinkering and learning, so are they also conditional on certain environmental circumstances rather than others, for example, on conflicting or enabling legal conditions. Actors can manage instrument constraints to certain extents through reorganizing themselves and developing new abilities. Gaver (1991) has captured this quality of affordances with the term ‘conditional constraints’; that is, the specific constraints that condition affordance efficacy. The central task for an affordance analysis of the opportunities and constraints offered by an instrument has to do with explicating the many different ‘mutuality relations’ between instrument and actor that make up those constraints (Fayard and Weeks 2014). Such an analysis asks: – Which are the paths of least resistance and why, given the circumstances? (Stanfill 2015). This is essentially a matter of identifying the salient dispositions and contingencies through which an affordance operates on an actor.

Affordance dispositions and contingencies

A simple affordance analysis would disregard many particular circumstances and take an affordance at face value, or as Scarantino (2013) expressed it as operating in a similar way ‘under normal ecological circumstances’ (aka *ceteris paribus*). Increasing the level of detail in the description of an instrument, its targets and their contexts would reduce the salience of *ceteris paribus* assumptions, but never wholly reduce them to zero. This is true for any kind of social science theorizing, and affordance analysis is no exception. Affordances imply that instruments harbor dispositions. Yet, dispositions are always (by definition) subject to conditional constraints which are required to activate them. We see these conditional constraints as resulting from an interplay between dispositions and environmental and actor contingencies, and take them to be a central empirical topic for affordance analysis.

Possibly due to its roots in behavioral science, affordance theory has mostly focused on the latter, namely actor contingencies, and how they relate to the affordance of an object. Turvey (1992) suggests that the latent or dormant dispositional properties that make up an affordance must be activated by circumstances, and that an agent’s abilities are required for such activation. Abilities should not be understood as fixed properties but rather what agents are able to do under the right circumstances, e.g. when they are motivated to do something (Chemero 2003). The idea is that for an affordance to be ‘active’, it has to be coupled with some aspects of the actor, e.g. its abilities, interests, culture, habits and so on. In other words, key conditional constraints on instrument affordance are the abilities and inclinations of agents confronting those instruments.

However, Gaver (1991) suggests that while affordance in combination with ability determines the possibility of successful action in a situation, both affordance and ability work on probabilities (e.g. affordance $1-n$ \times ability $1-n$ = success, where n = constraints). Furthermore, abilities can be actual (present) or latent, i.e. what A can do at t and what A can, at t , learn to do in the future (Scarantino 2003). There is also a need to describe an ability in terms of how reliable it is (e.g. surefire vs. probabilistic abilities). Such qualities determine how we can count an ability at t . Scarantino (2003) suggests that we may want to restrict affordance-bestowing abilities to current, reliable abilities at t and thereby focus our analysis on what represents an affordance at the time of observation. This is, of course, not necessarily advisable if the task is to assess an instrument’s potential affordances *ex ante*, prior to the adoption of the instrument.

Reasoning from the above, the evaluation of an instrument’s potential affordances in a given policy situation must take its point of departure in the assumption that, once introduced, there will be learning effects and subsequent refashioning of the instrument’s affordances. Here, it is important to separate implicit, unintended albeit, causally efficacious, from intended, openly operative affordances, and also note that affordances may emerge over time in both intended and unintended directions. Fridlund (2012) has advanced the notion of intended vs. unintended *emergent* affordances to capture this dimension. In this paper, it is generally understood that an affordance analysis can fruitfully focus on both intended and unintended affordances, and the way these may be represented as dormant in an actor/instrument/environmental nexus. In particular, unintended yet inactive or emergent affordances are of great interest for a critical assessment of policy instruments.

A methodological example

As the examples in the previous section illustrate, many policy instrument affordance modalities do not operate directly, or physically, on a target, but rather via information and meaning-making. This can be termed ‘cognitive affordance’ since it works on the target’s perceptions and information processing. One such type of instrument affordance is found in the texts and images representing the instrument, in policies, legislation or directives as well as in operational manuals and instructions. This has been referred to elsewhere as ‘textual agency’ (Cooren 2004). Textual agency describes how strategic texts affect planning and channel action by being self-authorizing, disciplining, structuring and selective (Demir 2015). The cognitive and textual dimension of instrument affordances ties together the action (e.g. via perception and interest formation) and learning dimension by prompting an account of how a textual object, a model e.g. a flow chart, a formal organizational structure or a decision tree is more or less amenable to discussion, change and integration into an action context or in facilitating learning. Franco (2013) offered an account of five types of such affordances in a study on the role of objects, or specifically models, in collaborative problem-solving. These lend themselves nicely to an instrument affordance interpretation:

- **Tangibility:** the capacity of the instrument to make its content visible or concrete. Tangibility makes instrument assumptions a source for discussion and negotiation.
- **Associability:** the capacity of the instrument to relate its contents based on attributes shared with other instruments. This helps to identify vital differences and dependencies.
- **Mutability:** the capacity of the instrument to have its content modified. This allows evolving interests to be continuously reflected in the instrument.
- **Traceability:** the capacity of the instrument to be tracked over time, or relate its content temporally and structurally. This allows the possibility to survey and assemble knowledge of how the instrument accumulates effects.
- **Analyzability:** the capacity of the instrument to transform inputs into outputs in a controllable and visible way. This enables experimentation with different inputs and then observing and learning from their impacts.

Given that ‘instrument capacities’ is only shorthand for affordance which, as we have now established, relies on actors and environment, one may use perceptions of texts and other representations to analyze the interfaces between an actor and instrument, given certain environmental circumstances. This amounts to a discursive interface analysis (cf. Stanfill 2015). A discursive interface analysis allows the researcher to analyze, for example, how norms are produced by interfaces of instruments, and the way actors confront them through assumptions about their purpose and appropriate use (e.g. Nakamura 2008).

Discussion and conclusions

What does this study add to our understanding of policy instrument efficacy? Perhaps the most important insight into recent years regarding policy instruments is that they

structure action beyond their overt functional remit. Authors such as Lascoumes and Le Galés (2007) have described this in terms of instruments structuring social relations and implying value choices ('instruments *qua* institutions'). Other more behaviorally inclined researchers and policy analysts (OECD 2017) have provided detailed analyses of the relation between instruments (e.g. incentives, 'nudges', etc.) and action. What has been absent so far, however, is a comprehensive theoretical framework for how instrument interfaces or features transfer a particular type of influence and why. Such an account must provide explanations for how instrument features condition and constrain an actor's behavior, and under what circumstances one may expect this to occur. Every well-conceived case description on instrument implementation will contain such an account, but a systematic and transferable theoretical framework for ordering the details of such stories is lacking. The corpus of literature offers evidence that instruments structure action, but no systematic development of middle-range theory for how this is done, and why effects vary with circumstances.

This paper has attempted to take this one step further by building on ecological psychology's insights on affordances. We contend that the impact(s) created by a given instrument is the result of the combination of (i) the properties of the instrument, (ii) the context of the target community to which the instrument is addressed and (iii) the target community's own propensities to act in particular ways (e.g. given certain desires, beliefs and opportunities present there). The instrument itself can be said to drive action in a certain way, because of its constitutive qualities, which are activated and circumscribed by context and actor responses. This approach may be described as a useful mid-point between the sometimes naïve realisms of the functions school (and 'nudge'), and the constructivist approaches reviewed above.

Figure 1 summarizes the affordance framework in terms of how *affordance modalities*, i.e. the way instrument features operate, yield actual or *de facto* affordances in terms of specific impacts on the actor, given certain *contingencies*. The set of affordance modalities discussed in this paper is far from complete, and may be overlapping in some instances, given the context of application. They are not intended to provide an exhaustive account, but rather to point out how features of instruments can be described in terms of how they are structured (e.g. sequential, nested etc.) and their mode of influence (e.g. cognitive and interactional). A central notion in affordance theory is that such modalities are moderated

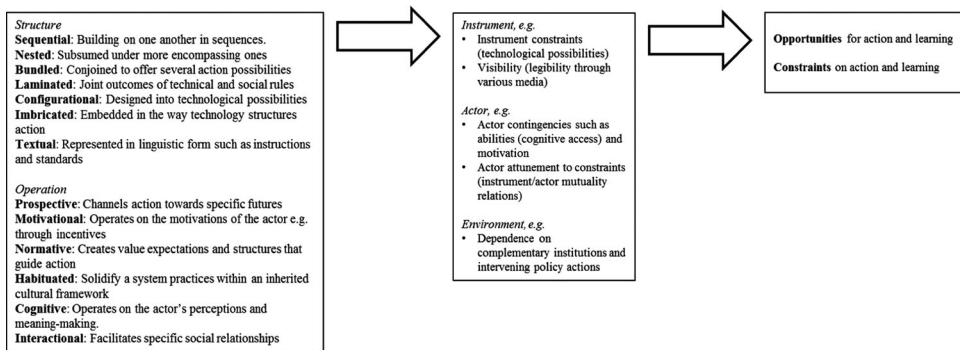


Figure 1. A model of affordance analysis.

by contingencies and constraints specifically related to the instrument/object itself, the actor and the environment. In this paper, we have outlined a few such constraints, e.g. instrument visibility, actor abilities and policy context, such as legislation and culture. The content of this list can be expanded of course, and is really a matter of case-by-case observation. Finally, affordances generated via modalities and contingencies can be conceived of in terms of how they provide opportunities or constraints for action or learning, as was demonstrated in the above examples. The effects yielded in these terms are what counts when assessing the affordance efficacy of an instrument.

Toward a heuristic for policy affordance analysis

Policy affordance analysis can be conducted in many ways, and the sequence of inquiry should be adapted to the task at hand. Certain information about relationships and factors relevant to a specific instrument may be easy to come by, or at least they may be of a more general character, while others are highly context-dependent and require new research. In general, however, the three basic questions that an affordance policy analysis should ask, and to which we return, are:

- In what way do certain features of a policy instrument afford certain actions?
- In what way do certain actions afford certain conditions for change, and vice versa how do environmental circumstances affect actions?
- Under what environmental conditions are instruments efficacious in the sense that they afford certain actions or learning in the target?

An affordance analysis aiming to answer such questions may precede through the following steps of inquiry as shown in Figure 2 below:

1. Describe instrument–actor–environment links. What is the relationship between instrument–actor, actor–environment, instrument–environment, and how does this affect the instrument’s impact on the actor, and the desired effects of the instrument? (In Figure 1, we use the notation I, A, E to represent these main dimensions, and the \pm notation to indicate that relationships may be positive or negative relative to some quality) (Figure 2).
2. Assess the relationships using applicable modalities to ascertain the nature of these pathways, e.g. Are they materially or symbolically mediated? How is influence dependent on training, or various institutional or complementary factors?
3. Analyze the implications for instrument affordance in terms of causal efficacy vis-à-vis the agent/target. Are I–A–E relationships indicating an enduring or temporary

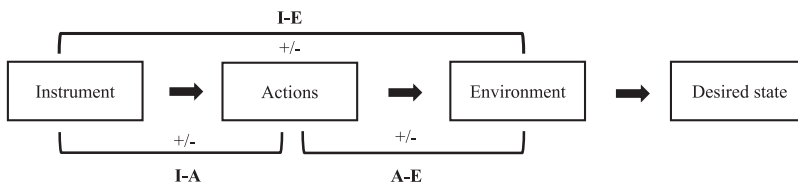


Figure 2. Instrument-actor-environment relations.

relationship between instrument and actor, or none at all? In other words, is this relationship stimulating short-term action and/or long-term learning? Are there negative feedbacks, such that certain factors and pathways are blocked or moderated by others?

4. On the basis of the above analysis, assess and explain the instrument affordance efficacy (e.g. enduring, temporary, preparatory or inactive), and how these qualities relate to the viability/efficacy of the instrument such as it is conceived by policy-makers or targets.

Outside of the obvious fact that this type of framework needs to be refined and elaborated in the light of carefully conducted case studies, there are at least two outstanding issues regarding affordance analysis that this paper has not addressed. Firstly, analyzing the affordances of a particular instrument involves creating an empirical account of how specific affordance modalities connect to behavior/action and value change through feedback mechanisms, and the impact of this interplay on the (perceived) efficacy of the instrument. For example, one may analyze a given instrument's impact on behavior and ultimately how it influences changes in attitudes/values of the target community. The effects of such value or attitudinal changes would increase or decrease the legitimacy of the instrument and ultimately lead to its acceptance or rejection. Such a detailed analysis of the affordance mechanisms must rely on domain theory specific to an action setting, e.g. the dynamics of a sector.

Secondly, the analysis of instrument affordances should be connected to the policy process itself, since for every step in this process, there is a target/recipient affected by the instrument affordances that form at the previous step. The totality of influence of an instrument should be understood as deriving from the collected affordances along the way of all the stages of the instrument's evolution, from conception/selection, via design and implementation to evaluation and feedback. Reale et al. (2014) conceptualized this process as one where (a) intended *opportunities* of a policy instrument depend at each stage of the policy process on how such opportunities are (b) *provided* in actuality and (c) *perceived* by potential recipients. This, in turn, has implications for the way actual opportunities for action are (d) *mobilized* by beneficiaries. The second challenge for instrument affordance analysis is therefore to understand how, throughout the chain of instrument development, affordance modalities form at each stage, and how various circumstances in the course of this process afford policy efficacy.

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