



The representation of practice

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This paper characterises design as a network of institutional practice. From the outset it acknowledges that institutional networks and the artefacts they produce, are relatively indeterminate kinds of objects and accepts that they are difficult to explain. Nonetheless, it takes heart from the belief that the workings of institutional networks are accessible to systematic explanation, albeit on a local scale. While the work-a-day practice of designers is normally supported by inquiry into the work at hand this is not what is understood by research in this paper. Rather, it takes the view that the possession of a powerful concept of design practice is central to the professional autonomy of individual designers. In line with its role in other professions the role of design research is to provide practitioners with the resources that enhance their autonomy to act.

Consistent with most inquiries into practical networks, design research seeks a faithful description of the relations among its institutional components. The most commonly represented of these components are the "designer", the "design", and the "heuristics of the design process". Descriptions of interdependency among these kinds of components is a function of the institutional roles they play. Purposefulness in the relations among these components, however, is not confined to designers and other people in the institution. Intentional roles can also be assigned to a wide range of abstract categories. For instance, the consumer, the brief, the technical methods, the industrial economy, and the ideological forms of heuristic employed, can be seen as contributing components within a design practice. The purposes or functions attributed to these "non-intentional" components may render them even more accountable for the product than the designer. However, the properties of institutional components within any practice of design, including the intentions of the designer, are not self evident. They are subject to inquiry, interpretation and thus open to misrepresentation. What passes as a relevant component, what accounts for its motives, and what determines the extent of its influence upon the functional roles of other components in the design network, needs to be recovered through inquiry.

The public significance of representational inquiry into design, however, is twofold. It is both dependent upon its legitimation as a kind of university research and on its benefit to practice in the field. In order to satisfy these two requirements, it is argued, design research needs to address a number of conditions. First, the necessity of assuming the existence of design practice as a real object and the field of design as an institutional kind.

Second, to select from sympathetic narratives in the reality of practice - aware that the most beneficial of these narratives are unlikely to emerge transparently from the field of design practice itself. Third, to consider how narratives of institutional practice explain the relational terms among components in the field. For instance, to illustrate how an extension to the properties of the "the designer", impact on the properties of the "design".

#### 1 On the reality of practice as an object of investigation

##### The legitimization of design research and the reality of practice

In his chillingly prophetic essay *The Postmodern Condition* Lyotard forecasts the terms of legitimation within contemporary university discourse (1987: 46-47). Current university research, he says, is legitimated by its "performativity". Performativity is a neologism referring to the narrative rules that underpin the commercialised production of evidence in the sciences. These rules form the basis of national reporting systems currently used in the ranking of universities and in legitimating academic discourse (45). Even if the discourse of science has yet to invade the arts and humanities the link between the authority of a discipline and its funding, under a competitive granting system, bring art and design into the same orbit of capital production as science. Under these terms the production of proof in design research is determined by the precision and efficiency of its published output. According to Lyotard, research domains that possess the most technically proficient ways of realising their outcomes attract the most funding.

It is the demand generated by a monopoly on being "right" that funds a domain of research. In this regard technical proficiency is not the only variable relevant to increasing performativity. Lyotard explains performativity as the "equation between wealth, efficiency, and truth" (46). If research into design is to raise the level of its performativity it must be prepared to make, albeit qualified, truth claims under the auspices of research. In furthering these claims in design it is important they be entertained within a narrative of research that asserts the reality of institutional practice. Descriptions of design as a real practice capture higher levels of explanation in a field under-represented by causal interpretation. Explanation leads to control insofar as power, through the predictability that explanation affords, is the commodity that those who fund university research seek as a return on their investment. The question asked by designers is at what cost does the delivery of explanations construct the outcomes of practice in the field?

A great deal of research in design is classified as action research insofar as it is concerned with enhancing the efficiency of production or in stipulating best practice. Applied on a local scale in other fields, prescriptive research is pivotal in design. There is a continuing demand for formulae that can be used in the systematic generation of practical ends in design. It is a motive that seeks to combine what Lyotard refers to as the denotative and the prescriptive "game". These are precisely the games that action research hopes to unify (46). Methods of validation used in prescriptive projects tend to divide into two methodological clusters. The first is a retrospective group that couches its proofs in case histories (Gardner and Nemirovsky 1991). The second is the causal cluster, typified by the use of experimental methodology (Sternberg & Frensch 1991). Despite its trappings of validity prescriptive or action research is relatively self serving. Design research, in particular, has never been daunted by the naturalistic fallacy of grounding justifications of creative discovery on descriptions of universal processes (Csikszentmihalyi & Getzels 1971). An error in the field of design research is its failure to see instrumentalist inquiry into design practice as a relevant token of the reality being investigated. Action research devotes little time to aspects of practice that it sees as inefficient or irrelevant to its particular project. It imposes technical goals on institutional practice that are more likely to conceal the complexities, irrationalities and absurdities that social researchers, such as Rom Harré (1983) and Pierre Bourdieu (1990) see as critical to practical reasoning.

The reality of practice and the autonomy of the designer

Secondly, what practical help is non-instrumentalist research to designers in the field? Designers seek help in being able to think their own way around the field of design. They want to be able to approach the field in ways that are respectful of the complexity and paradox of what it is to practice as a designer. Nevertheless, a causal concept of design practice is as important to practicing designers as it is to executive funding bodies. Writing proposals and submitting tenders, if nothing else, requires designers to speculate about the ramifications of adopting a particular approach. Thus designers require a generative apparatus for representing relations among components in the field. However, a generative concept of practice is not to be confused with a constraining set of deterministic competencies. Designers need autonomy rather than the technical censorship of best practices (even though this may be the desire of their clients). They want cognitive sovereignty over their own particular place within the network. Research has more to offer the professional designer than the validation of foundationalist management regimes and formula of step-wise problem solving (Roy 1993:443).

Designers need an ontology of design practice that does not oblige the designer to the pragmatic agenda of cultural studies, emancipation, or eco design, for it to exist.

Reframing the ideology of practice is a strategy reserved by designers for repositioning their work within the field. Designers need to be able to reconceive of their practice without having to mount a challenge to the existential fabric of the field each time they do. In short they need a real object of practice within which to locate themselves.

Nevertheless, there is a view that realism implies technical determinism. How can design research increase its performativity without subjecting design practice to scientific reductionism? To begin with, there is no need to reduce causal explanations to the laws of physics. Just because the complexity of practice resists reduction to universal laws doesn't prevent it from explaining the functional relations among its own properties. Secondly, realism is consistent with conceptual reframing and theoretical revisability (Putnam 1987:85). Reframing does not imply relativism insofar as theory is necessary but not sufficient for verifying beliefs about complex institutional entities. It is perfectly feasible to possess an idea that is consistent with the way a practice functions without having that idea holding its actual function to ransom. Thirdly, realism is not obliged to foundationalism. It is not a condition of a practice being a real entity that there exist a set of self warranting, a priori or incorrigible beliefs that underpin all other assumptions and methods used in its investigation. In other words, the notion of the truth in design research is not any more fundamental than verified examples of reliable, plausible theories about the world of design practice. Thus foundational theories of the creative disposition, for example, are no more significant to successful origination in design than designers' own generative theories of practice.

In sum, a real institutional practice promises objectivity, marketable proof and the prospect of enhanced performativity; it promises autonomy for designers insofar as the field of design is presented to practitioners as an unconstructed entity open to interpretation. Finally, it promises revisability inasmuch as a real practice does not presuppose, as a condition of its existence, the search for a single invariant system. On what is this promise based?

## 2 Key narratives in the reality of practice (the limits of truth)

This section brings together five contemporary narratives of institutional practice and concludes by listing their similarities. Even though these contemporary portrayals vary markedly, they share a number of striking resemblances. The narratives selected sample from anti-representational Postmodern theory and from contemporary theories of representational realism. They, nevertheless, agree in assuming the reality of institutional practice, and appear willing to defend the truth of their assertions about its properties. Bourdieu

Bourdieu argues that a relational rather than a structuralist mode of thinking, applied to the social sciences, focuses more precisely on the social reality of practical settings. However, the motives that underlie transactions within social practices are often deliberately disguised within their appearances. Nevertheless, social transactions form into relational systems of exchange - an economy of practices. The medium of exchange in this economy is practiced as a labour of symbolic capital (1982:171)

Symbolic capital is immaterial and uncalculated (1998:98). Its reality is destroyed by an objectivity that reduces its specific occurrence to a generalised instance. In objectifying this economy we at once bring to light its bald market nature, and at the same time kill off its meanings. The inefficiencies, and deceptions of localised exchanges only take on a premeditated complexion when they are extracted from their contexts and subjected to comparison with universal values. In creativity research, for instance, the appropriation by one designer of another designer's work might be mis-identified as plagiarism by researchers when, in reality, its "plagiarism" is "misrecognised" by the first designer as an exchange of symbolic capital (Brown and Thomas 1999).

Thus Bourdieu is opposed to making the unique practitioner in any social relation "disappear" by their rationalisation into a universal social structure. The active/ inventive capacities of participants within an institutional practice need to be expressed through the context of their habitus- rather than through some structure of universal reason. The scholarly attitude must not be allowed, Bourdieu says, to mount a challenge to the web of transactions in the field. This is why action research can be so destructive of localised practices. Action research is, in effect, a highly prescriptive extension of practice. Action research understands the moment of practice as a "project" by its projecting of scholastic values into an understanding of situated practices (1998:136). It privileges an imported "truth" over the willy-nilly reasoning within transactions themselves. Action research is distracted by ends and committed to "correcting" the beliefs of those involved. Its blend of political reform erases the complex reality of existing transactions.

Deleuze

Deleuze advances the "problematization" of practice within the relationships of institutional power (1991:15). Kant, Deleuze says, argues that a "purely practical determination is irreducible to any theoretical determination or knowledge." The next step in the understanding of practice, therefore, involves the cautious reunification of power with knowledge, inasmuch as the difference between the two "...does not prevent mutual presupposition, and capture a mutual immanence" (47). The kind of power immanent within practical knowledge, however, is not open to methodological appropriation by the practitioner. The complexity of motives causing practice cannot be represented to mind because these motives are the forces that underlie knowing itself. Nevertheless, power articulates the practices of knowledge. It is the force that aligns, homogenises, and sequences knowledge into its characteristically archival forms. Thus design knowledge is not to be confused with the network of motives that realise it in practice.

Thinking and acting within a practice can only be autonomous when thinking simulates the mutability of institutional power itself. Creative activity must embrace power. To resist power is to foreclose on solutions. Creative action risks the invasion of new schema It gives itself up, or drifts into the influence of new institutional territories. Deleuze's approach to power is slanted toward his notion of "becoming" the view that starting to do something is always to start in the middle (Deleuze 1988 :39, 1995: 146-148). We come to the "beginning" of any practice as an implication within some fully assembled practical formation. Consequently creative changes to practice involve alterations to the middle of it in a usually catastrophic way.

Baudrillard

In his introduction to the System of Objects Jean Baudrillard sets out the relation between an institutional practice and what he refers to as the properties of real objects. Real objects

are contrasted with "technemes", artefacts of pure technical determination. Technemes faithfully "realise" the form and function prescribed by their technical descriptions (1996:7). Technemes represent a perfect reconciliation between theory and practice. Only the production of artefacts that are entirely insulated from the compromises of day-to-day practice could possibly realise the degree of structural determination characteristic of technemes.

Unlike technemes the design process is invaded by the influences of commercialisation, personalisation, and utility. These "connotative" processes, normally thought of as part of the post-productive history of an artifact, are woven back into the network of its production. Baudrillard evidences the way technical production processes are responsively retooled to accommodate the vicissitudes of personal fashion. The "design phase" of an artefact is merely one among a number of causes contributing to its final "design". The institutional practice of design is a pattern of production made up of disjunctive pathways. The production of objects is not the instantiation of a beautifully conceived hierarchical plan – but a contingency of localised causes. It is the "...ways in which techniques are checked by practices – that account for reality here" (10).

The autonomy of the designer is thus as much an expression of their ability to accommodate, and cajole the assistance of these otherwise post-production agencies. A human science, says Baudrillard, is a combination of both the intentions of the practitioner and of whatever "counters that intention"(10).

Boyd

Boyd argues that we never return to first principles in our understanding of a real entity. It is not necessary for a realist to return to a first cause, a historical beginning, nor a teleology from ends. Rather entities are fully formed at any point of entry into their definition. Their properties are not mapped into a linear hierarchy but held in what he calls a "homeostatic" relation.

Entities do not have to possess a necessary set of true properties to earn their identity. The properties clustered in a definition are included for contingent, theoretical reasons. These may turn out to be wrong and may be revised without challenging the entity's existence. Homeostatic definitions are strung together into networks of sub-concepts. The presence of a property in the network is accepted on the basis of its empirical contribution to the causal explanation. For instance, there would be no necessary properties of originality in a design practice (Boyd 1988:196). Properties of originality would be distributed according to the theoretical function assigned to them. Thus properties do not have exclusive membership in a particular definition but are free to be represented in other definitions according to the functional role they are theorised to play. Explanations about design practices, for instance, are as much about its relations with conjoint kinds such as the "artefact", "consumer", "subject matter", "employer" and "fashion", as they are about the abilities of the designer.

Boyd's homeostatic "mechanisms" make it possible to establish cross category links. Consequently, theoretical clusters of properties are open to catastrophic extension without sacrificing their relevance to the object to which they refer (197). For example, a concept of origination within the practice of design ought to be complex enough to show whether the individual preferences of the consumer can contribute to the authorship of a work, as Baudrillard suggests. Properties are added and subtracted throughout the life of a definition. As Boyd insists, the relevant set are never likely to be complete, especially in reference to institutional practices (199).

Searle

Artefacts, John Searle argues, are institutional objects insofar as their constitution is dependent upon some level of institutional support. Artefacts are objective facts but, unlike natural kinds, are facts by institutional agreement only. Examples of objective artefacts are, money, property, marriages, art, and design. Although objective by agreement this

does not mean that institutional objects are dependent upon opinion or ideology in order to exist (Searle 1995:2-3).

We refer to the ability of an object to effect our experiences as its function. However, functions are never intrinsic. Even in nature there are no intrinsic functions, only the functions we attribute. When we say, "The function of the heart is to pump blood we are...situating this fact relative to a system of values..." (15). In the end facts and causes are not functional in themselves, the heart pumps blood just because it does. Functions in nature are purposes or meanings we attribute to the facts and causes of objects. We attribute functions to objects out of our beliefs about the proper ends facts and causes ought to satisfy (16-17). But the functions we attribute to the facts and causes of natural kinds are not as freely reassigned as those to artefactual kinds.

Functions attributed to the practice of design are normative properties. This means that the functions attributed, for instance to the materials and techniques designers employ, are asymmetrically related to their facts and causes (8-19). For example, a function of computer graphics is to make images. Image making consists, in part, as the deliberate distribution of pixels on a cathode screen. But it is not the case that the function of computer graphics is "to distribute pixels on a cathode screen". Thus, unlike natural causes, there are no intrinsic functions that the properties of a graphic design are obliged to have. A scanned aboriginal bark painting is as free to be used as a tea towel as it is to have its uses restricted for spiritual reasons. The multiple attribution of meaning to practices and artefacts of design enables them to function symbolically, that is, in the representation of things independently of themselves (21).

The reality of institutional practice

A reality of institutional practice can be distilled from the five narratives set out above. The following conditions sketch an ontology of practice on which to base true assertions about the field of design. In sum, a real practice:

Is composed of transactions that are:

local in their significance

likely to conceal their underlying motives

linked together by the largely uncoded rules of institutional power

typified by a relational rather than a structural mode of thinking

eventful insofar they must unfold in practice before their motives can become clear

susceptible to false rationalisations

Is not coextensive with the structure of knowledge in its field. Practices are enacted within constantly mutating networks which, although played out in a field of knowledge, neither report to, nor are respectful of, conventions of knowledge. Realism hereby differs from pragmatism.

Is a network in which the commencement of transactions within any practical field begin at the middle of an already existent practical formation. It is not necessary for a realist to return to a first cause, a historical beginning, nor a teleology from ends in the representation of practice. This is because the properties of a practice are not mapped into a linear taxonomy but held in a "homeostatic" relation. This problematises practical education insofar as practices present curriculum with no step-wise structure. We cannot sustain, in actuality, a functional separation between the design phase of a practice and its consumption phase in the production of artefacts.

Does not have to possess a necessary set of properties to earn its identity. The properties clustered in a definition of institutional practice are included for theoretically contingent reasons only. These may turn out to be wrong and may be completely revised without challenging a practice's existence.

Attributes normative functions to its properties. This means that the functions attributed, for instance, to a designer's materials and techniques, are asymmetrically related to their facts and causes. Counter intuitively, then, practical methodologies have no strategic implications for practice. Neither, for example, do psychological facts and causes about designers, have any necessary bearing on design practice. These, among other facts, must be attributed a functional role.

Attracts theoretical explanations that base the relations among components of a practice on normative functions rather than naturalised causes. These theories are not constructive of practice inasmuch as their claim to be true is subject to independent proof and can be wrong.

Attributes multiple functions (meanings) to its materials and techniques that enables them to function symbolically, that is, to represent things independently of themselves.

Is composed of objective facts that, unlike natural kinds, are facts by institutional agreement only.

### 3 Two conceptions of the designer as a function within design research

The theoretical terms of practice are determined by the normative functions that are attributed to them. However, the processes of attribution are not straight forward insofar as functional properties are opaque within day-to-day practical events. Attribution is further complicated by the multiplicity of sources eligible to contribute. Design research, therefore, is interested in critical disclosure of the sources of functional attribution within practice. Cognitive approaches look at functional attribution as a mental representation in the mind of the designer (Karmiloff-Smith 1993). Cultural approaches seek to reveal its social and economic attributions (Baudrillard 1996).

This section considers the different ways in which researchers allocate different functional properties to the "the designer". The designer is not considered as a person but an abstract function. Of course, this does not preclude the attribution of personal characteristics. Unquestionably the person of the designer plays a central role in design practice. However, the properties attributed to the "designer" vary widely. Variations in function alter the relation between the designer and other significant functions within design practice such as "the design". The following two studies illustrate how different functions of the designer alter the manner in which the properties of "streamlining" find their way into the designed artefact and influence its properties.

#### The intentional designer

The first is a study by Linda Candy and Earnest Edmonds that researches the creative design of the Lotus Bicycle (1996). Their study aims to characterise the processes leading up to the realisation of the bicycle's design. The functions of "the designer" in this study are compiled from the strategies used by the author of the bicycle Mike Burrows. The creative process is captured as Mike Burrows' reflection on his experiences during the bicycle's production (74). Burrows' creative achievement is represented as the successful resolution of a previously unthought association between aerodynamics or streamlining, and the concept of the bicycle.

Candy and Edmonds borrow the belief, from theory of mind studies, that a respondent's recollections provide a valid way of reporting on their overarching motives (Perkins 1981). Thus the events leading up to the creation of the Lotus bicycle are treated as symptomatic of an intentional process. The creative process is regarded as a kind of syndrome in which the history of Burrows' design is approached as a clinically representative case. As signalled by their methodological choice Candy and Edmonds believe that the scope of Burrows' practice is determined by what he knew and what subsequently became accessible to his consciousness during the design process.

Initially the researchers report that from Burrows' point of view there were no ideal conditions for generating ideas during the creative process (1976:78). Nevertheless, the two researcher's confidence in Burrows' ability to represent his experience is short lived. After a brief reference to Burrows' capacity to make analogies between other areas, and to maintain a repertoire of parallel thinking about them, Candy and Edmonds abandon the emergent stratagem of clinical method as a way of capturing Burrows' ideas. They quickly postulate an analytical schema entitled "Elements of Creative Design" which is used to re-structure Burrows' narrative. The schema poses the five categories "ideas generation", "strategies", "methods", "expertise", and "problem formulation" which are configured into a circular diagram. What emerges from Burrows' account is subsequently instantiated by this model.

The way the "designer" is attributed its functions in this schema is salutary. The model presupposes the intentionality of the designer, but not as Burrows attributes it. Even if Burrows himself accredited external resources with a contribution to his practice, these contributions would be automatically returned to him by the researchers in the form ascribed by the model. The researchers report Burrows' account of the process in mentalistic terms as "thinking laterally" about "aerodynamics" and "taking" a "higher point of view", located within the category of "problem formulation". "Strategies" are specifically ascribed to actions performed as "thinking with my hands", "opportunism" and so on. Methods are defined by the authors, not in terms of what the methods can contribute, but in terms of what the researcher does with methods (p.77). Thus methods quickly revert into strategies of the intentional "designer" (79). Expertise is attributed as a function at the disposal of the designer insofar as the "technical literature" becomes something that the "designer read" (81). Even the function of "other experts" is constructed as something that Burrows "kept in contact with".

Candy and Edmonds reconstruct the clinical history of Burrows' practice into an orthodox narrative of the creative process. The intentionality imputed to Burrows' first hand reports shuts out other possible interpretations that Burrows himself may have attributed to them. The properties attributed to the designer in Burrows' practice are mapped onto their uncited "Elements of Creative Design" model of creative intentionality. Who imputes the functions to Burrows' practice in this study? Is it Burrows, as the case methodology implies? I don't believe it is. The model they use must be taken as the agreed on authority. To what extent have Candy and Edmonds been able to evidence what, as realists, we are obliged to take as a network of normative functions? I suspect that the researchers' answer is that they are seeking to naturalise their claim and would reject the view that their model of creative practice has less than universal currency. Whatever their assumptions it is enough to say that the functional virtues of streamlining or aerodynamics itself, plays a secondary role in Candy and Edmonds' account of the "designer" in Burrows' practice.

#### The designer as a system of objects

In the second study Terry Smith presents the designer not as a person but as an abstraction (1993:376). He explains how the characteristic properties of streamlining in the USA during the nineteen forties evolved into a principal function of "the designer". Impelled by the popularity of commercial and industrial images "...originating elsewhere in the visual culture", streamlining disengaged itself from its technical association with industrial design to become a spectacle of its original function. As a fetish of industrial efficiency, streamlining reassigned itself to the task of shaping the appearances of artefacts in general (378). Design practitioners such as Raymond Loewy and Henry Dreyfuss, who propagated the image of streamlining, were it seems as much an instrument of streamlining as being its architects. Smith explains the appearance of streamlining in household artefacts, not as the sole work of designers, but as attributions of commercial and popular demand. In a Baudrillardian sense the agency of the consumer enters into a practical system in which consumers share a functional seat at the designer's table. Thus



Smith identifies functions of streamlining that include its "ability" to act as an independent source of origination. Function is attributed to "the designer" by the momentum of popular style.

Smith argues that key tendencies in the arts and crafts of the nineteen twenties, such as purism, the Bauhaus, Swedish Design, converge into a genuinely new "modern style". This style spread to all aspects of everyday life in the subsequent decade (361). The practices subtending the "obviously modern" are not driven exclusively by the creative intentions of its key designers Loewy, Teague, Monel, and Fuller, however. They are placed under the autonomous influence of certain dominant icons that these designers were merely instrumental in creating. Icons such as the Chrysler Airflow, the DC-3 airliner, and the Chrysler Building, independently strengthened their popular authority by attracting the affirmation of the institutional gatekeepers of design practice such as MOMA and the New York World's Fair, not to mention the commercial imperatives of the manufacturing industry. The dominant icons of modernity gained their currency through the expansion of advertising during the Great Depression. Industry, Smith argues, bowed to the power of their own advertising by substituting production of its standard artefacts for the objects of their advertised spectacle.

Streamlining imposed styling changes upon industry that far outweighed the underlying requirements of its engineers and the creative desires of its designers. Mass production, packaging, and surface attraction collided with the influences of global standardisation, and the imperative of market appeal. Design production became annexed into the streamlining of commodities captured from the market place. The streamline "brief" could be drawn on by industrial designers as an institutionally agreed upon stock of functional properties. For Smith the properties of the "designer" were dictated by the competing powers within institutional practice. These emergent powers stylised into orthodoxies to become a functional presence in the practices of individual designers.

#### Conclusion

Streamlining is imported into Mike Burrows design practice by Candy and Edmonds as an act of imagination. The properties of aerodynamics are able to enter into the design of the Lotus bicycle by virtue of Burrows' creative reasoning. Streamlining is brought into modernity by Smith, on the other hand, as a function of its iconic popularity in the USA where streamlining acquired its own stylistic impetus. Its autonomy was made possible by the peculiar circumstances of the commercial economy during the nineteen thirties and forties. Smith represents streamlining as being able to enter into the design of artefacts on its own "intentional" initiative.

Designers immersion in their practice renders much of what contributes to their work invisible. While designers can never bring all the contingencies that influence design practice into the orbit of their control, research can help them understand how to coax other autonomous functions to work on their creative behalf. Revealing these functions and clarifying their properties represent the marketable proofs design research can offer the industry. However, this can only happen when research reflects rather than constructs the institutional reality of the field. Otherwise design research is part of the problem rather than the solution.

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