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## Designing Differences that Make a Difference

Klaus Krippendorff

*University of Pennsylvania*, klaus.krippendorff@asc.upenn.edu

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## Designing Differences that Make a Difference

### Disciplines

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## Designing Differences that Make a Difference

**Klaus Krippendorff**

University of Pennsylvania, Philadelphia

[kkrippendorff@asc.upenn.edu](mailto:kkrippendorff@asc.upenn.edu)

### Abstract

This paper calls attention to the cultural dimension of human-centered design. It seeks to conceptualize what may well be the most important contributions that design can make to the viability of society. It builds on *The Semantic Turn* (Krippendorff, 2006) but explores the role of meanings in adopting innovations, creating change, and coping with differences. It contends that it is the constant need for individuals, groups, and social organizations to distinguish themselves, perform their identities in public, and appropriate the differences that matter to them which creates a dynamic of which design is an inevitable partner. With this in mind, it suggests advancing a design discourse that enables designers to examine and redesign their own identity, coordinate their work, ask relevant research questions, and develop compelling proposals that recruit stakeholders into their projects. A strong design discourse also offers designers the respect they deserve in interdisciplinary collaborations on larger projects where they face disciplines that bring perspectives and data into the discussion that may not be concerned with designing differences that make a difference to cultures in which people can feel at home.

### Keywords

Design discourse; Innovation; Meaning; Identity; Communication

### Introduction

The title of this topic plays on Gregory Bateson (1972) definition of “information as the difference that makes a difference.” His definition is part his larger conception of communication as the process by which differences circulate in society. For him to say that communication happens is to ascertain that it makes a difference to all who participate in that process, whatever forms such differences takes. From this perspective, one can say that the products of design – proposals, products, messages, services, or social practices – must create the kind of differences that can circulate in society, constitute desirable social networks of meaningful participation. The following sketches this larger perspective for design.

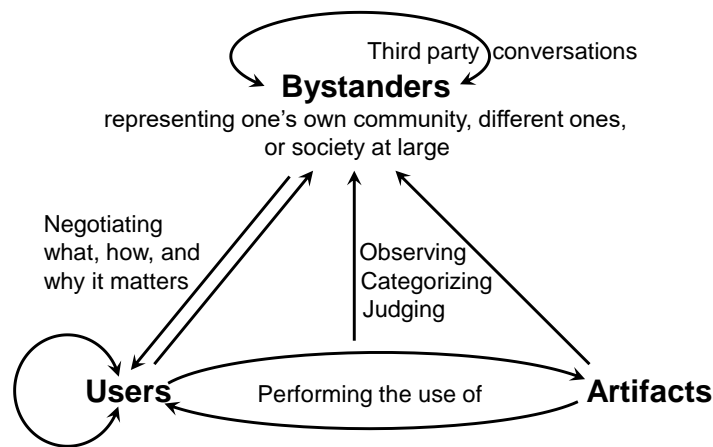
By contrast, user-centeredness is a concern for individual users’ ability to handle the objects of design. Designers and developers of technical devices celebrate this criterion by translating it into ‘usability.’ As such, it raises questions on whether and to what extend individual users can recognize, explore, and rely on a designed artifact. Usability is an obvious but certainly not the decisive criteria for the objects of design to make a difference in individual users’ lives and in society at large. Consider the obvious: All tableware sold on the internet is undeniably usable. Adding a new design to this great diversity can hardly be explained in terms of usability.

Marketing has encouraged designers to shift their attention from users to customers. For manufacturers, customers are more important as they are the ones who select and pay for

products. Indeed, not all customers are users, for example, mothers buying products for their children, purchasing departments acquiring equipment for their company, even the clients of designers tend to be representatives of manufacturers, not users. Redefining users as customers renders design subservient to commercial interests, and directs their attention to sales appeals at the expense of what I would argue are the larger social-cultural implications of design. For these reasons, I have argued for human-centered (as opposed to technologically centered) and culture-sensitive design and suggested to expand the conception of users to the networks of stakeholders which address the differences proposed by designers and ultimately facilitate or frustrate the realization of a design (Krippendorff, 2006). That network is comprised of all who can articulate a stake in a design, whether as users, producers, sales people, journalists, critics, or ecologists, including its designers, and have resources to act in their interest. Here, I will focus on the differences design can, does, and perhaps should be making in the culture in which it is meant to circulate.

Consider the ongoing social transformations that the availability of cell phones has encouraged. Sure, without usability, without the ability to handle a phone, this revolution would not take place. But what is far more important than the ability to operate a touch screen is what people say about cell phones, how cell phone users relate to each other and to non-users, the advertisements they face to buy different brands, apps, or services, and what it means to have an iphone rather than an inferior brand or no phone at all. Cell phone users are not the only ones who talk about their phone in use with others. Much talk about cell phones, their use by users comes from bystanders, as Bruce Archer called them, which are stakeholders who assert their interest in a particular technology without necessarily using it. Usability studies can hardly reveal such contingencies. Yet conversations about the human use of artifacts – any use, any artifact – among third parties may well be the driving force for designers to take on a project as well as constituting the environment in which a design succeeds or fails.

Let me depict the situation just described in a triadic relationship between artifacts in the context of their use, users, and bystanders. It represents the smallest target of interest to designers. I shall later add designers to this picture:



I am suggesting that with very few exceptions, our use of almost all artifacts takes place under watchful eyes of fellow human beings. We eat together, work at the same place, meet each other at public events, and when we talk, we talk about joint concerns, people, places, practices, and things. We engage in conversations on what we are wearing, in which neighborhood we live, who our friends are, what we try to accomplish with the artifacts we employ, how skillful we are in handling them, what it gets us and others, and whether we are fascinated by what we see

or condone it. Not only is there hardly anything that we do not talk of with others, it is also nearly impossible to escape being talked about by bystanders who, unless they run away from a perceived danger, tend to evaluate what they see for conforming to or violating normative expectations. This applies to eating manners, driving habits, friendliness with coworkers, the display of exceptional skills or odd behaviors, and the objects we choose to surround ourselves with. People who interface with similar artifacts might be attracted to each other, form groups and develop special vocabularies for the artifacts that bring them together or separate them. Bystanders may express admiration for what they see, give advice on how to use something differently, convey annoyance, or insist that it should not be used at all. Hardly anyone can escape public scrutiny. Consequently, and in the expectation of being observed, judged, and treated accordingly, people tend to not only hide their selves behind publically accepted uses of available artifacts, but also use them for all kinds of social benefits. The hiding of selves behind performances conforms to Erving Goffman's (1959) sociological explanations, translated into the use of culturally meaningful artifacts. Accordingly, the use of artifacts may well be seen as performed in front of others, users and interested bystanders, who have something to say about it.

### **What do differences have to do with design?**

To me, designers imagine, work out, and promote differences. A design that merely reproduces what is already on the market is called plagiarism, not design. Everything that designers do is unlike what already exists. This may be a new logo, an innovative practice, a more efficient computer interface, or a better product. Some differences may be small, like adding another wristwatch to the thousands already available on the market, or designing a fast-food restaurant that is slightly different from McDonalds, Burger King and the like. Other artifacts make a huge difference. When proposed artifacts are too different from what exists, cannot be understood in at least some familiar terms, people may not be able to see their virtues, reject them as being 'outlandish' or crazy, preventing a design from succeeding. This is true for avant-garde poetry, new kinds of music, and innovative interfaces with incomprehensible technologies. They may take years to be accepted or not at all unless some progressive users take the lead. Even the use of laptop computers and the iPhone has grown within a history of talking about them.

For designers, the successful communication of differences requires knowledge of how far they can go. All designs face preconceptions, linguistic habits, media interests, and social forces that are far bigger than what they can control. Undeniably, the design of differences that do not make a difference to those who matter will not succeed. Succeeding in the presence of different kinds of people requires social competencies.

### **Whose differences matter?**

Let me start by discounting three established paradigms. Aesthetics, for example, is a branch of philosophical concerned with the formal characteristics of objects perceived as beautiful. If aesthetics were a discipline that yields empirically valid propositions and beauty were universally valued, given that it has been around for centuries, all objects of design should by now be of unquestionable beauty. To me, it is important to realize that 'beauty' is first of all a word, aesthetics comes to us in writing, and its proponents argue with apparent confidence in what they are saying. All three features rely on language. This largely overlooked fact should encourage those who design something for its beauty to listen to who talks of which differences, not to objectify them. The alternative to a discipline of what matters is the claim that what matters, for example beauty, is in the eyes of their beholder. This individualism would offer no justifications for designing artifacts that are commonly appreciated. Arguing that individual

preferences undergo cultural drifts rings more true, but preferences cannot be observed without a context defined in language. Indeed, cultural drifts in perception can be studied only by linguistic engagements with those who enact their articulations. Thus, the ability to design differences that succeed in making a difference for others calls for respecting the possibility that the stakeholders of a design – users, bystanders, and stakeholders with more abstract interest – see things unlike how designers see them. Designs need to survive in communications among many stakeholders, not just among designers. Acknowledging the social and linguistic bases of design shifts attention from technology – Herbert Simon’s (1969) emphasis – to a discourse that is human-centered and culturally sensitive. This is a shift from solving problems given to designers to wicket problems (Rittel & Webber, 1973) in whose articulation stakeholders decisively participate. It requires that designers take seriously how non-designers talk of the differences that matter to them.

The arguably simplest way that differences are made sense of resides in the use of attributes. Most attributes come in pairs of opposites: good-bad, beautiful-ugly, elegant-unrefined, ingenious-ordinary, exciting-boring, efficient-cumbersome, safe-dangerous, and profitable or not. Their use entails distinctions and creates differences. Describing something as outstanding distinguishes it from what it is not. Beauty implies ugliness. It is the articulations of differences by the stakeholders of a design, not designers’ conceptions that make or break a design.

Verbal attributions reflect not only their speakers’ perceptions and actions, they also are fundamentally social. Their appropriateness tends to be the result of negotiations if not struggles among those who have a stake in what they distinguish. In conversations someone might call a particular car a lemon. Someone else might deny it and asks for reasons. The reasons given may be accepted or not. That process can continue until a consensus is reached on what that car really is or disagreements persist, perhaps explained by different interests in a car. Whatever objectively distinguishes one car from another is secondary to the attributes they acquire in conversations. A consensus that it is a lemon explains how people end up seeing, treating, and using that car, or staying away from it. The Thomas theorem applies: “If men (sic) define situations as real, they are real in their consequences (Thomas & Thomas, 1928). One can hardly believe one thing and do the opposite.

Recognizing this empirical fact allows designers to undertake empirical research on how the perceptions of differences by targeted populations, the stakeholders of a design, users, critics, sales persons, or competitors, relate to the differences designers can control. The challenge is to design artifacts whose differences elicit desired attributes from those who have a stake in them (see section 3.3 in Krippendorff, 2006).

### **Why introducing differences into a culture?**

Not only do artifacts acquire attributes that make sense to those who have a stake in them, their users become characterized or typified (Berger & Luckmann, 1966) for performing with them as well. People are characterized and seek to distinguish themselves by the artifacts they associate themselves with, how they handle them, and to which end. Everybody acts in view of such characterizations. We buy clothes not because they happen to fit but mostly in anticipation of what others would say when we are seen wearing them. We surround ourselves with furniture in the expectations that the friends we invite will judge us favorably, for example having taste, being daring, conventional, old fashioned, or having no sense of style at all. Often such characterizations distinguish between in-groups and out-groups, between superior and inferior users, between rich and poor, or between those who care and those who don’t. We drive cars that somehow match our personality. We visit restaurants we are not afraid to mention to friends. We expect approval and try to avoid being pegged into categories we do not feel

comfortable with. The artifacts we surround ourselves with communicate how we differ from those who do not have the same and by implication who we are, who we want to be, who we want others to see us as. We use artifacts to perform our identity.

A time honored axiom of communication asserts: “one cannot not communicate” (Watzlawick, et al., 1967: 51). Performing with artifacts inescapably communicates differences between us as individuals or members of social groups, to others. We cannot escape being observed, judged, and categorized in social terms. For once, if everyone seeks to distinguish themselves from everyone else, not only do the artifacts that designers make available for us to perform our identities become a scarce resource, each distinction drawn by one affects the distinctions drawn by others. The competition for available difference sets in motion a dynamic of social differentiation that designers are expected to fuel.

The nature of the differences that designers are creating is clearly secondary to the differences that matter to their stakeholders. People rarely acquire something new because it is better, cheaper, or more beautiful, but because it enables them to distinguish themselves within their communities and in opposition to those with whom they do not wish to be associated. While the nature of these differences is secondary to their performative qualities, without creating usable differences, the dynamics of identifications would be impoverished. It is no exaggeration to say that design is the prime driver of social differentiations.

## **Flows of differences**

Efforts to preserve, improve upon, or overcome existing identities are not limited to individuals or groups. The identity of manufacturers, corporations, and nations are constantly challenged by competing efforts to control the meanings of available differences. Let me list a few rather different identities and sketch the dynamics that shape them. We can distinguish:

- Individual identities, or personalities
- Leaders as opposed to followers
- Group identities, including professional identities
- Social class identities
- Corporate identities
- Brands
- National identities.

These identities not only occur on different levels of inclusion but also invoke rather different dynamics. They take place within different social, economic, and material constraints that influence how identities are performable, can evolve in time, and be communicated to those who matter. Designers need to know or have to have at least a sense of how differences are performed and communicated.

For example, fashion in the clothing industry. High fashion tends to be introduced to the public through celebrities at highly publicized events, such as fashion shows or Oskar nominations. The price of outfits is never mentioned but famous designer names substitute for the perception of being unaffordable by ordinary folks. But there are plenty of manufacturers who will imitate these designs for customers who want to be seen as fashionable much like celebrities are. Expense is one variable that prevents the immediate spread of unusual designs. But in the case of fashion mass production diminishes this barrier. However, once a fashion is available at department stores, it no longer distinguishes fashion leaders from followers and calls on designers to create new, attractive, and not immediately reproducible differences for celebrities to retain their leadership. Here, design feeds a trickle down cultural dynamics but only on the top of social stratification. The masses of ordinary people, older populations who continue to

wear what was fashionable long time ago, and poor people who by their clothes second hand, while not aspiring to be fashionable, are not prevented from being categorized in contrast to those who care to move up the social hierarchy of the fashion world. Fashion designers know this dynamics well and introduce the differences of their design where they matter most.

Much research on the diffusion of innovation, perhaps starting with Everett Rogers (1962/2003) groundbreaking work traces the process by which new technologies come to be accepted. Rogers defined 'innovators' as willing to take risks, being younger, often members of privileged classes, in contact with scientific sources, and having financial liquidity to absorb failures. Following this category of adopters are 'opinion leaders' with advanced education, 'early majorities,' requiring assurances of success, 'late majorities,' and 'laggards,' the latter being adverse to change, follow traditions, and live in relatively isolated communities. Rogers identified several factors that influence an individual's decision to adopt or reject a technology, mostly ignoring, however, the communicative roles that the public use of technologies can play in their spread throughout communities. His approach subscribes to the trickle down conception of accepting innovations. It does not offer explanations of how their meanings are negotiated, what identities these adopters acquired in society, and in whose terms technological differences are communicated. In other words, he ignored the language of those who enacted the adoption process.

The trickledown dynamic is also invoked when usability researchers collaborate with so-called leading users. Isolating such users from the conversations in which the attributes of differences emerge, identities are claimed or attributed, and differences are communicated before performing them in public severely limits insights into the flow of differences. Incidentally, the trickledown theory also assumes that ultimately everyone would benefit from a design. This theory is rooted in the enlightenment ideal of universality, formed during the industrial ideal of mass production, and has no place for cultural contingencies and a conception of language as constituting social realities.

For another example, consider motorcycle clubs in the U.S. Their members identify themselves by what they wear, the brand of motorcycles they ride, Harley Davidson being of almost mythical importance in such clubs, and how they talk about their machines, their experiences on the road, and their members. The identity of such clubs is a life style that their members have developed, continue to cultivate, and display by riding in groups and showing up in ideally large numbers at favorite public destinations. Non-members who like riding a Harley Davidson are hesitant to be caught in public for fear of being identified with belonging to a motorcycle gang. People who ride a Vespa are most likely ridiculed when trying to join such a club. The club's identity is communicated to outsiders, causing a variety of reactions. But cultural barriers prevent the spread of performing what makes a difference to club members. The trickledown theory does not apply.

Group identities are common, often protected by numerous devices which accounts for the fact that most products do not have universal appeal. For drivers of Lamborghinis and Ferraris, Porsche drivers are low class, and for Porsche drivers most other cars are not outstanding enough to talk about. There are of course objective differences between cars, but all of these models are drivable. Lamborghinis are particularly uncomfortable, but this may not matter to their owners who distinguish themselves from other drivers by their economic ability to maintain them, and having other automobiles for everyday use. Here trickle down conceptions do not work either but for reasons other than motor cycle clubs. Differences are on public display, communicated widely but inaccessible to many.

The obstacles against performing communicable differences are manifold and designers may need to take note of them. Among them is their materiality – large estates are not as easily



movable as inexpensive consumer goods – their scarcity – rare works of art are not as easily acquired as are their reproductions – their costs – Lamborghinis are not only expensive cars but can hardly serve ordinary transportation needs – the risks of being ridiculed – low for celebrities who can afford scandals, eccentric habits, but high for the officers of formal organizations – and computer literacy – high in young and educated populations and low for the elderly, uneducated, and poor. This list suggests that there are many barriers against the spread of performing communicated differences. The most common, standardized, inexpensive, and universally accessible mass products are the ones that display hardly any differences and are largely unsuitable to serve the formation of identities.

I did not mention corporate identities. Such identities consist of all public articulations of what a corporation is known for, especially the artifacts it produces, the services it performs, and the public it depends on. For example, BMW's "ultimate driving machine," Audi's "Never Follow," Mercedes Benz' "Unlike any other," all claim their automobiles to assure desirable identities to their drivers. To maintain a competitive advantage in the market, a corporation needs to be arguably distinct from that of its competitors. As soon as one firm advances its products, competitors need to respond in kind for their identity to stay current. In fact, much of corporate public relations efforts are directed to enhance the public identity of a corporation and protect it against losing its contrast to competitors and imitators. In such a dynamic environment, efforts to maintain corporate identities require considerable resources, and the design is always part of such efforts. Incidentally, corporate identities and brands tend to be associated with logos. Not so incidentally, copyright law says nothing about their appearance only that they be sufficiently distinct from and not confusable with those in use. Evidently differences matter.

### **So, what is the point of designing differences?**

Let me summarize the above before embedding designers into its framework.

I am suggesting that designing differences that make a difference in society is more important than the differences that designers propose. Differences, innovations, improvements and disruptions of what exists rarely are universally meaningful. Even measurable ergonomic improvements, usability, formal aesthetic qualities, and economic benefits are important only as far as they mean something to those facing them.

Differences that make a difference surface in the use of language, in articulations of perceptions and experiences. They become manifest in attributions of visual (aesthetic), physical, or social qualities, descriptions, explanations, evaluations, or judgments. Articulations of this kind coordinate the perceptions of speakers towards differences of shared interests. Inasmuch as they are the outcome of conversations, they are essentially social phenomena, not only of individual significance.

Articulations of this kind have real consequences when acted upon. This is why it is important to regard articulations not as isolated descriptions of an epistemologically inaccessible reality but as constitutive of how humans interactively construct the realities of their lives, which includes communicating with each other and interfacing with their artifacts. The test for whether something matters involves observing what people do with their articulations.

Because language coordinates perceptions and actions, it is possible to empirically study what matters by interacting with, listening to, recording, systematically eliciting, and analyzing how differences are articulated, enacted, and afforded by the artifacts in use.

A prerequisite of utilizing evidence of such articulations in the design of differences is designers' suspension of their own perceptual certainties and an effort to understand the understanding of those for whom their design is intended. In processes of communicating differences, which

always challenge familiar practices, understanding the consequences of other's understanding is always in flux. It is therefore not enough to record existing language habits and conventions, but observe how the communication of differences changes them. Such changes may have various motivations, ranging from the opportunity to improve the distinction between one's identity and that of others, or to protect it in the face of differences appropriated by others. Design research needs to focus on what is variable and what resist variation.

Differences that make a difference are manifest in the individual, social, and ultimately cultural changes they enable or cause. For designing differences responsibly, it is important to consider the dynamics a design unleashes. Obviously, not all differences are communicated in a trickledown manner, changing the practices of a whole population over time. For example, the performance of some differences is limited to relatively closed groups – the instruments of the medical community make scarce sense to farmers, race car drivers, and gardeners. Some differences, when performed, strengthen one community to the detriment of another – the products of Wall Street surreptitiously increase income inequalities. Performing of some differences undermines existing social structures – the computer revolution, the internet, and social media have challenged rigid political hierarchies. And the performance of other differences can threaten whole cultures like the increasingly efficient exploitation of non-renewable resources. Evidently, the differences that designed artifacts communicate can travel diverse paths and designers need to have a sense of where they lead to. Artifacts that introduce large differences can move people into uncharted domains. The latter paths are more difficult to anticipate than those created by small differences.

In a design culture, which I have characterized as one in which its participants are able to construct their own worlds from what is available (Krippendorff, 2006:145), professional designers can survive as such only if the differences they communicate spread the ability to design to ideally everyone, without specifying what is to be created.

### **What distinguished professional designers from others?**

I contend that designers are not immune to being categorized and identified in the public sphere according to the differences they create for the benefit of others. Two centuries ago, industrial manufacturers employed designers as applied artists. A century later industrial design became a vocation taught as a sideline at art schools. Today, their identity is changing. The question I wish to address is what professional designers can and should do to distinguish themselves as members of a profession capable of making unique contributions to society.

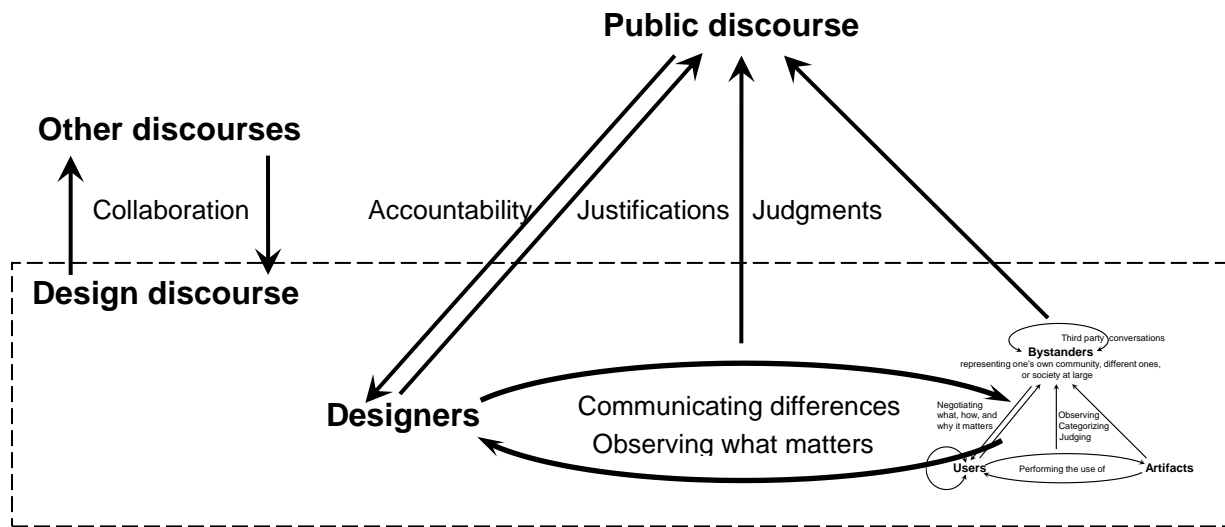
Undoubtedly, designers too surround themselves with artifacts meant to communicate how they want to be seen. Just observe the objects that designers tend to display in their studios. Most of them are selected to make employees feel proud to work there, display their accomplishments to clients, and give stakeholders and users who might be invited into a project the impression of important things being developed here. Letting the work of designers speak for their identity is a traditional way of communicating what they do. It is not too different from the intuition displayed by people purchasing clothing in view of what friends would say when being seen wearing it. Knowledge of this kind is reflexive in the sense of embracing the understanding that others bring to a context of use, focusing on something that could be otherwise, and acknowledging that others have their own way of interpreting what they face. I do not want to belittle the difference between ordinary social competencies and professional knowledge, but the communication of differences underlies both situations, albeit on different levels.

I believe that communicating the identities of professional designers by means of the appearance of the artifacts they design severely limits the scope of the design profession. Until recently, designers went along with the identity that their clients, critics, other disciplines, and

society at large assigned to them. I suspect that this is encouraged when holding on to the traditional attention to manufactured products, addressing their marketability and usability for end-users, while ignoring the larger network of stakeholders that ultimately realizes a design and not reflecting on what any design contribute to the public identity of their profession.

Unquestionably, contemporary objects of design have become increasingly immaterial. Interfaces, services, information systems, social organizations, and political campaigns are substantially rooted in the use of language. The production of contemporary artifacts also tends to require enormous organizational and economic coordination and failures can incur considerable disruptions. This encourages decision making in multidisciplinary teams. In such teams, designers are often recognized for knowing many things but nothing in depth, and they lose out when engineers bring their calculations to the table, market researchers their statistics, and economists their financial assessments of the feasibility of a project. Without convincing evidence to support their claims, designers are easily sidelined in such collaborations.

Let me situate designers in the triangular relationship used above, linking them on the one hand to their subject matter, elaborated above, and on the other to the public and to specialized disciplines, one could call them 'bystanders' that have their own discourses. I want to answer the question of what it takes for designers to shape their own professional identity, commensurate with the difference they make in society. I shall be brief, raising points for discussion.



To be respected by stakeholders, particularly by members of disciplines with whom designers need to collaborate, designers have to claim **an undisputable area of professional competence**, one that no other discipline can address, is of central importance in society, and for which designers are willing to be held accountable.

Inasmuch as design is by definition innovative, providing the possibilities of others to improve their conditions of living, I am suggesting that designers focus on **designing differences that make a difference** in their stakeholders' lives with two important qualifications: First, that these differences be assessed in their stakeholders' terms, not only in designers', and second, that they minimize detrimental effects on other communities. Both qualifications seem ethical but also instrumental to an identity that is acceptable by (almost) everyone affected by what designers do. There are many disciplines that are concerned with creating futures, ranging from engineering to politics, but I know of no other discipline that concerns itself with the material

support of individual, social, and cultural constructions of realities in which other people can feel at home.

Empirically, the differences that artifacts make in the lives of their stakeholders become evident in how they talk about using and performing with them. Except for physical forces and material constraints, nothing can make a difference in people's life without their stakeholders' ability to **attribute meanings** (in use, in language, in genesis and in ecology – see Krippendorff, 2006:77-205) to artifacts, uses, users, and commentators. Attributions always make distinctions, create meaningful differences, and this includes the identity of all stakeholders involved. It follows that the commitment to designing something that makes a difference in others' lives calls on designers to take the articulations by others seriously in how designers talk among themselves. Inasmuch as design activities are coordinated in language as well, professional designers need to cultivate a discourse that is capable of reflexively embracing the discourse of their stakeholders.

Discourses consist of texts, talk, and the objects they produce. A **professional design discourse** is that special way of talking, creating, and researching possibilities that enables designers to coordinate what they are doing, collaborate on proposals to change something to the better, and **demonstrate their competencies, subject matter and identity** as distinct from that of other professionals, scientists, engineers, and artists among many. It has become trendy for designers to take 'design thinking' as their distinctive ability. I suggest that the professionalism of designers cannot be established by claiming a particular mentality or displaying a style but by practicing a discourse that creates the variety of differences for individuals and social organizations to redefine their identity and for whole cultures to remain viable.

Designs are proposals to stakeholders to make use of projected differences. Proposals are stated in language, supplemented by demonstrations, simulations, experimental results, and calculations, in a design discourse. Every design includes the challenge to compel stakeholders to bring it to fruition and use. For a design discourse to remain alive, successes and failures need to reflect back on the design discourse in which terms designers present themselves in public, cooperate in working out their proposals, and communicate differences that matter to others. Successes or failures also influence the public identity of professional designers and determine the respect designers have earned from those they work with.

The purpose of design education could be said to teach and practice a highly respected design discourse. Educational institutions tend to have the luxury and capacity to examine that design discourse, systematically evaluate what accounts for successes and failures, develop and test design methods and computational aids – all in the service of improving the respect that professional design deserves for its contributions to society and culture. They also could be a sponsor of design research. To me, **design research** serves four major purposes.

First, it needs to guide inquiries into the network of stakeholders that designers need to recruit into their project, which differences matter, to whom, how they are made sense of, interpreted, communicated, and used, as well as the dynamics they unleash.

Second, it needs to develop, publish, and test design methods. Such methods may articulate ways for inquiring into what is variable (desirable differences from what exists), creating possibilities that could make sense to others, exploring available technologies, making decisions, balancing competing approaches, costs and benefits, advantages and disadvantages, but also technologies of cooperation among designers and stakeholders that may be invited in the design process.

Third, it needs to develop ways of making proposed designs compelling to those who could realize them: demonstrations, simulations, consistencies with established theories, stakeholder commitments, and cost-benefit analyses in cultural terms. Compelling arguments for a proposal to introduce differences that have not yet mattered to others presents a unique epistemological challenge to disciplines that are accustomed to collect data in support of scientific hypotheses of something that already exists.

Fourth, it needs to strengthen the design discourse in terms of which designers can claim their identity as indisputable experts in their subject matter, which goes along with accepting to be accountable for what they propose. This may be accomplished by publishing design histories, researching the productivity of design methods, certifying educational institutions and teachers to do research and teach design, and prepare design students for the world they are ask to shape responsibly.

I like to leave two questions for discussion: Why does the current identity of professional design not have the respect it deserves as the primary driver of the social-cultural developments. And which intellectual, institutional, and methodological developments need to be encouraged to strengthen the design discourse to the point of being able to stand its ground in collaborations with traditional disciplines.

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