'Design' in Principle and Practice: A Reconsideration of the Terms of Design Engagement

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ABSTRACT   This paper reflects on the principles and practices of design in a time of great social change. Its narrative begins with a reflection on the structural reasons why design practices and professions are acquiring even greater social significance than they have had in the past. After a context-setting examination of notions of 'creative economy' and 'knowledge society', the paper moves on to explore the subtly shifting semantics of 'design', tracing key aspects of the changing contexts and practices of design. The paper introduces the notion of a 'shift in the balance of agency', which affects the roles and relationships of designers and users and which increasingly demands design interdisciplinarity. The

paper concludes with the suggestion that, given the dramatically changing social and economic terrain in which the design professions are today located, we need to broaden our repertoire of design practices.

The case we want to make is this: the changes of our times are of such significance as to suggest that we should rethink the fundamentals of design, its basic principles as well as the dimensions and range of our everyday professional practices. Not only is design now of pivotal significance in newly emerging economic and social orders; what is demanded of design and designers is also changing. Sometimes this represents no more than a subtle shift in tone; at other times, the changes may require us to participate in basic transformations in our ways of conceiving the design processes and doing design work.

KEYWORDS: design theory, design practices, creative economy, social change

The Role of Design in the 'Creative Economy' and 'Knowledge Society'

Seen in a larger social context, the locations and functions of design are changing. In an earlier industrial era, value was primarily located in fixed capital, tangible production inputs and the utility of consumable products. However, in recent times we have heard much talk of the increasingly important roles of innovation, creativity and design as sources of value (Peters et al., 2008; von Hippel, 2005). At the level of the enterprise, value is to a significant degree today also located in the 'intangibles' of branding, technological ingenuity, product aesthetics, intellectual property, product customizability and customer service relations (Benkler, 2006; Demarest, 1997; Martin, 2002). These intangibles are all contributions of one or other of the design professions.

At a micro level, this shift in value is expressed in the discourses of knowledge management (Davenport and Prusak, 2000; Frappaolo, 2006; Kalantzis, 2004). These place a powerful emphasis on the importance of managing intangibles. At a macro level, the shift is reflected in the discourses of the knowledge society (Drucker, 1998; Peters and Besley, 2006; Peters et al., 2008) and the creative economy (Florida, 2002; Landry, 2008). The proponents of these discourses argue that competitive advantage for persons, communities and nations is today sourced in technological know-how, product aesthetics and service relationships.

These changes place the design professions in a strategically vital location. However, in many respects, this resiting means that

today's design contributions differ from their traditional specialized techno-functional and aesthetic roles. Design is located deeper and more pervasively in the socio-economic system. For these reasons it needs to refigure relationships with users. It needs to become a more broadly interdisciplinary practice. It needs to take broader responsibility for the consequences of design action. These are the themes we will take up in subsequent sections of this paper.

Meanings of 'Design'

To start with a foundational question, what do we mean by 'design'? We want to go back for a moment to the most elementary and seemingly prosaic of semantics. Upon this, we will then build a case for the changing social significance and shape of design today.

'Design' has a fortuitous double meaning:

- *Morphology:* On the one hand, 'design' denotes something intrinsic to any object – inherent patterns and structures irrespective of that object's natural or human provenance. Things have designs. Design is morphology. This is design, the noun.
- *Agency:* On the other hand, design is an act of conception and an agenda for construction. This meaning takes the word back to its root in the Latin word, *designare* or 'to mark out' (Terzidis, 2007). Design involves a certain kind of agency. People 'do' design. This is design, the verb (Cope and Kalantzis, 2000; Kress, 2000, 2009).

We can make this duality of meaning work for us to highlight two integral and complementary aspects of design. However, in the past, design was more often considered to be an abstract-technical or intrinsic-aesthetic phenomenon. Design, in other words, was understood more as an object than as a form of action (Findeli, 2001). Becoming a designer was a process of learning how to conceive and execute objects. The meaning of the word was biased towards the sense of design as morphology.

Today, for the reasons we will outline in the following sections of this paper, we may benefit from a shift in semantic tone which balances design as a found, morphological state with design as a fluid and dynamic process of agency.

Design as a Process Transformation

If we restore agency to its rightful place, we link the thing-ness of a design – its mechanical forms and aesthetic realizations – to processes of human action (Papanek, 1972). 'Design', says John Thackara, 'is what human beings do' (Thackara, 2005). We connect designs with meanings, a phenomenon which Klaus Krippendorf calls 'the semantic turn' (Krippendorf, 2006). Lucy Suchman speaks of the 'deeply mutual constitution of humans and artefacts' (Suchman, 2007).

When we restore agency to the meaning of the word, the design narrative may run like this:

- *(Available) Designs:* We live in a world of designs, available to us in the form of our cultural and technical heritage – found natural and human-made objects in our world of everyday experience, in the plans and interpretations of focused and specialized areas of knowledge, in situated actions and social processes (Scollon, 2001; Suchman, 1987). Designs are available to us as semantic resources, at once meanings in the world (intrinsic 'sense') and meanings for the world (meanings we ascribe to the world through 'sense-making'). Meanings present themselves as if they are inherent to tangible objects, architectures, landscapes, social processes, human relationships and cultural forms. Husserl calls these found objects the stuff of 'sedimentation' in the 'lifeworld' (Husserl, 1970). We also give meanings to these things, varied according to the peculiarities of our life-formed perspectives, the focal points of our attention and our motivating interests.
- *Designing:* Using the semantic resources of available designs, we engage in acts of designing. And when we do, we never simply replicate available designs. We always rework and re-voice the world as found. When language or imagery or space-making are understood to be design processes, each act of meaning merely reworks available design resources. But, in another sense, no two stretches of several hundred words, and no two photographs, no two built structures, even when they seem most predicable or clichéd, are ever quite the same. Designing (of meanings, objects, spaces) always involves an injection of the designer's guiding interests and cultural experiences, the always unique configuration that constitutes his or her subjectivity and identity (Kress, 2009).
- *(The re-)Designed:* The process of designing, of making a meaning in the world, leaves tangible and intangible traces – a linguistic utterance, an image, a space, an object, a structure. As the design narrative draws to a momentary close, the world has been transformed, perhaps only in a small way or perhaps in a larger way. Indeed, for having been through this transformation, neither the designer nor their world will ever be quite the same again. The redesigned is returned to the world, and this return leaves a legacy of transformation. The redesigned joins the repertoire of available designs and so provides openings for new design narratives (Cope and Kalantzis, 2000; Kress, 2000, 2009).

This account of design-as-meaning differs from traditional morphologically oriented accounts which emphasize the reproduction of relatively stable canonical technical and aesthetic forms. Rather, it allows space for identity, subjectivity and situational specificity. It allows for differences, divergences, dynamism – as integral aspects

of all design work, rather than the exceptional product of originality in a more morphologically oriented understanding of design.

We are not only talking about the design professions here. We are also conceiving design as a foundational paradigm for representation and action. Let us consider a young child making a model building from blocks. The available resources range from modelling a building in blocks to the built forms in the child's surrounding environment, which are the cultural reference points for re-representation in the model. Yet no two models will ever be quite the same. They tell of a subtly nuanced experience, intention and interest on the part of the child. Kress calls such acts of making 'motivated signs': 'It is the interest of the sign-maker at the moment of making the sign that leads to the selection of the criteria for represent[ation]' (Kress, 2003). By recognizing this as a design process we grant agency to a young sign-maker undertaking a piece of work.

Design is never simply an instantiation of received conventions, derived from what might at times seem to be the stable disciplinary rules of technology or aesthetics. It is always and necessarily a process of transformation. As such, it is an engine of change. Design is of course stabilized by the fact that we derive patterns of understanding and programmes of action from structures of meaning which often appear rule-like in their persistent, at times insistent, presence in the world. It is also stabilized in the traces we leave in the redesigned. However, design is also and necessarily an act of re-voicing, reworking, re-meaning.

The Contemporary Significance of Agency

Developments of world-historical proportions have over the course of recent decades added particular urgency to the agenda of agency, demanding that we balance design-as-morphology with design-in-action.

We are in a moment when the logic of modernity is being radically reframed. In an earlier modernity, Fordist enterprises were run by line management. Bosses bossed, their orders passed down chains of command and control. Markets were sites of mass consumption of generic products. 'Any colour you like as long as it is black', said the phlegmatic Henry Ford, presuming to know what was best for all consumers, uniformly (Ford, 1923). Mass media provided a limited range of informational and cultural options through a few communications channels. We watched movies and sitcoms. We read novels, drawn vicariously into a voyeuristic relationship with narrative. Teachers taught and learners got their answers right (or failed). Government leaders commanded, reaching at worst for the governmentalities of fascism and communism (Adorno et al., 1950), and in better cases producing the 'repressive tolerance' (Marcuse, 1969) of bureaucratic 'welfare' states. The citizens of these states, by and large, complied. Jaspers called this regime 'mass rule', the institution of 'mass order' (Jaspers, 2009).

We might characterize one of the key features of our more recent times as an epochal shift in the balance of agency. Here are some symptoms of change:

- In workplaces of the developed world at least, the command structures of Fordism are being replaced by the self-regulating voluntary compliance processes of post-Fordism: self-managing teams and the requirement that every worker personifies the vision, mission and culture of the organization (Cohen, 2003; Cope and Kalantzis, 1997; Kanter et al., 1992; Lash and Urry, 1987; Piore and Sabel, 1984; Reich, 1993).
- Mass consumer markets are being replaced by mass cust-omization (Pine, 1999) and the logic of niche marketing. Even the inner logic of the commodity is changing, now more open to variable designs in which 'prosumers' (Toffler, 1980) contribute as partners in the design process. Then there is the widespread appearance of a new kind of artefact, the product with a configurable and reconfigurable interface (Krippendorf, 2006). As a consequence, no two computer desktops or combinations of iPhone applications are the same. Even industrial products such as automobiles and home appliances, intrinsically less open to user customization than software, are presented with a bewildering array of functional and aesthetic options.
- Competing with the old mass media, we have infinitely configur-able new media. The radio hit parade where mass audiences listened to the most popular music is being displaced as a cultural phenomenon; people now make their own playlists for their iPods, where no two playlists are the same and consumers can even participate in what Lessig calls a 'remix culture' (Lessig, 2008). Instead of the handful of network television channels, we have thousands of cable and satellite channels and millions of online video options – serving any number of interests and identities. We can create our own viewing programmes, cut our own viewing angles on interactive television, even make our own television programmes and broadcast it through YouTube to an audience of maybe a handful or maybe millions (Brighton, 2009; McChesney and Nichols, 2010).
- For narrative pleasure, we play video games, now a bigger industry than the movies, in which we are a character and can determine in part the ends of the narrative (Gee, 2005).
- Teachers, meanwhile, find themselves teaching the students of generation 'P' – for 'participatory' (Jenkins, 2006) – impatient with reproducing transmitted facts and theories, requiring instead engagement with their identities and experiences, and space to be knowledge-makers themselves, observing facts, building theories, and connecting generalizations with the particularities of their own lifeworlds (Kalantzis and Cope, 2008).

- Instead of powerful central states telling citizens what is good for them, we have increasingly participatory politics which only works when built from the ground up: from within local communities, interest groups, professional organizations, workplaces, affinity groups and knowledge communities (Haythornthwaite, 2009; Leadbeater, 2004).
- As for governance, who governs the World Wide Web? Nobody in the conventional spaces of government, because, like so many of today's emerging spaces, it is self-governing – and, in any event, beyond the jurisdiction of any government conventionally understood (Benkler, 2006; Lessig, 2002).
- Even the heritage of social patterns of design agency is deeply disrupted. These used to work across dichotomies of designer/consumer, actor-artist/audience, writer/reader (Burbules, 2009; Burrows et al., 2002; Cope and Kalantzis, 2009; Loi et al., 2001). We are all users now.

These are just some of the shifts indicative of what we are calling an epochal shift in the balance of agency.

The changes we are living through are not always or necessarily harbingers of progress. For better and, at times, for worse, this shift in the balance of agency may underwrite a social order that remains rife with endemic injustices. The new regime may at times be a site of post-Fordist hyper-exploitation, rampant consumerism, narcissistic identity formation and neo-liberal renunciation of government and regulation (Beck, 1994; Harvey, 2005; Lash, 1994; Virilio, 1997). Whatever one's commitments, supporting or condemning one aspect of these changes or another, this much is clear: agency now counterbalances top-down power. It means that for every new development that we might judge from one perspective to be a travesty, we may from another perspective find that we are presented new openings for redress.

In the design professions, this broader drift in the balance of agency has been evidenced in a turn away from the heroic design personality of an earlier modernity. Consider, for instance, that archetypical commanding personality, Howard Roark, modern architect and towering individual in Ayn Rand's hyper-capitalist novel, *The Fountainhead* (Rand, 1996). At the vanguard of unadorned modernism, he stands alone against the world, unwilling to compromise his designs, and for his singularity of purpose, he triumphs. In almost the same moment, anti-capitalist Mexican artist Diego Rivera was painting the heroes of modernity into the murals of the Rockefeller Center in New York City. Looking over the mighty works of modern man – the cities, the bridges, the industrial landscapes whose horizons are punctured by smokestacks – stand the heroic engineer, the heroic architect, the heroic intellectual, the heroic political leader, the heroic gang-supervisor and, his Rockefeller

patrons also hoped, the heroic capitalist. Rivera was removed from the job when it became evident that amongst the faces of the heroes was a likeness of Lenin (Rivera and March, 1992). Notwithstanding twentieth-century sensitivities to their ideological differences, Roark and Lenin were equally commanding personalities, and in that sense at least substitutable in the tableau of modernism. Both left and right, in their time, lionized commanding personalities. And for every commanding personality, there had to be a multitude of unquestioning functionaries. Upon their compliance, the system depended. The ideal citizen in the central state was compliant; the ideal worker of the capitalist or communist industrial enterprise was compliant; the ideal learner in the classroom of disciplined knowledge was compliant; the ideal consumer impassively consumed generic products; the ideal product was designed by professionals who, by virtue of their designing vocation, must know best. These kinds of commanding personalities are today becoming increasingly anachronistic.

Today's design workers are required to be more modest in their aspirations than Howard Roark. They are counselled to be more respectful of users, more sensitive to user differences and more attentive to the knowledge users may bring to the design process. They need to be aware of the mediating role that artefacts play in the lives of human beings (Verbeek, 2005). They need to understand the interface of objects and meanings in the 'nexus of practice' (Scollon, 2000, 2001). This becomes a basis for the principles and practices of 'participatory design' and 'user-centred design' (Krippendorf, 2006). These turn the designer into conversationalist, facilitator, mentor and pedagogue – in this way destabilizing a legacy of self-understanding in the designer who had formerly presented himself/herself as a technocrat or aesthete. Certainly, expertise and aesthetic commitment remain, but the centre of gravity has shifted in an ideal design relationship with users.

Design as Interdisciplinary Practice

From analysing the changing social conditions of design, we want to turn now to the practices of the design professions. What is the stuff of 'discipline' that underlies these professions? We use the word 'discipline' advisedly here, to denote a focus of attention and accumulation of expertise that distinguishes activities in the work of the design professions from things we do routinely because we are human, and because in our ordinary existences we mean, we make, we act. Design is in our natures. But we want the 'design' we do as vocation to denote a certain kind of additional work and extra effort. What happens when we discipline this aspect of our nature?

To make a necessary distinction, we will start speaking of two layers of meaning in the word design: design with lower case 'd' which we cannot help but do; and Design with a upper case 'D', or disciplined design. What justifies the shift in case?

Disciplinarity is generally considered to be constituted in these ways: as contents (architecture, industrial design, graphic design, engineering ... and this list could get quite long, getting longer even nowadays); as methods (of conception and planning, of graphic representation, of quantification and calculation and the like); as concepts (vector, consultation, algorithm, user-analysis); as sites of apprenticeship (school subjects, university departments, internships, first jobs); as peer communities (workplaces, professional organizations, relationships with colleagues); and as modes of public communication (conferences, websites, journals, magazines, books, blogs). To be seen and to see oneself manifestly partaking in these disciplinary practices is how one recognizes a design professional when one encounters one. They are the visible aspects of vocation.

However, more subtly and profoundly, discipline is constituted by sensibilities of practice: an epistemic frame (peculiar ways of knowing, deeper than everyday casual experience – an architect knows a building in different and in significant respects and deeper ways than an inhabitant or visitor can); a mode of discourse (engineers know things differently because they speak about them differently, with the semantic precision of technicality not found in the everyday or 'natural language' practices when one talks about crossing bridges or working at computers); a way of seeing (web designers see screens in different and, in some senses, more perspicacious ways than regular readers, based on navigational logic, layout, and underlying code functions from which variable renderings can be achieved across different web browsers and reading devices); a way of acting (a professional stance, an orientation, a demeanour, an ethics); and a kind of person (a professional identity, a person who feels and thinks and sees some part of the world or some aspect of the world with a particularly studied focus, interest, responsibility, even obligation).

Where, then, does Design sit amongst the other disciplines, the other sites of knowledge, apprenticeship and professional community that exist in the world? Nigel Cross speaks of three cultures of human knowledge and ability. The Sciences study the natural world; the Humanities, human experience; and Design, the artificial world. Their methods are distinctive: the Sciences use controlled experiment, classification and analysis; the Humanities, analogy, metaphor and evaluation; and Design, modelling, pattern formation and synthesis. The values of each culture also vary: the Sciences – rationality, neutrality and a concern for 'truth'; the Humanities – subjectivity, imagination, commitment, and a concern for 'justice'; and Design – practicality, ingenuity, empathy and a concern for 'appropriateness'. Amongst the three, the Designer is characteristically the doer, the maker, the technologist (Cross, 2007).

However, we increasingly find that these traditional delineations are becoming blurred. There are new, hybrid professions which cross

Science, the Humanities and Design – people working in digitized communications, artificial intelligence, information architectures, design management or interface design, for instance (Krippendorf, 2006). There are new imperatives in every area of Design, requiring ever stronger integration of Sciences and Humanities with Design. Two of the bigger imperatives of our time are sustainable Design (Manzini, 2006) and inclusive-equitable Design (Vavik, 2009). We cannot achieve these objectives unless we have the capacities and the will to move beyond our discipline groupings, in other words, to be interdisciplinary. We have to bring Humanities, Science and Design together.

Interdisciplinary work is grounded in the historical practices of more than one discipline, and consciously crosses disciplinary boundaries (Klein, 1990). We need to become interdisciplinary for pragmatic reasons, in order to see and do things that cannot be seen or done adequately within the substantive and methodological confines of a single discipline – things as big these days as 'sustainability', or 'globalization', or 'inclusion'.

The deeper perspectives of disciplinary work need to be balanced with and measured against the broader perspectives of interdisciplinarity. More finely grained within-discipline views may prove all the more powerful when contextualized broadly. Interdisciplinary approaches need to be applied for reasons of principle, to disrupt the habitual narrowness of outlook of within-discipline work, to challenge the ingrained, discipline-bound ways of thinking and acting that produce occlusion as well as insight. If the knowable universe is a unity, disciplinarity is a loss as well as a gain, and interdisciplinarity may in part recover that loss.

Interdisciplinary approaches also thrive in the interface of disciplinary and lay understandings. They are needed for the practical application of disciplined understandings to the actually existing world. They are the raw material of dialogue between designers and their clients. Robust applied knowledge demands an interdisciplinary holism, the broad epistemological engagement that is required simply to be able to deal with the complex contingencies of a really integrated universe.

For the Design disciplines, interdisciplinarity is unusually important – where it is never possible simply to gather and analyse data, or to build conceptual edifices, or be engaged in critical deconstruction. Design can and does involve all of these things, but it also demands a peculiar interdisciplinarity because real-world engagement and transformation are so integral to its mission.

In this sense, the principles and practices of Design may also become a central concern of every discipline. Interdisciplinarity may require that we apply Design principles and practices in other disciplines. We may also find more people being designers than we ever imagined was possible. There are many more people who are Designers by profession (instructional Designers, organizational

Designers, labour process Designers, information Designers, communications Designers, artists and curators as Designers). And in an era of participatory culture (Haythornthwaite, 2009), we will find growing numbers of people who are Designers by persuasion but not profession: amateurs with specialist interests; energetically self-defining homemakers; people offering their Design capacities in the digital 'commons' (Benkler, 2006); or participants in peer-to-peer production (Bauwens, 2005).

Expanding Repertoires of Design Practice

How do we translate this shift to interdisciplinarity into Design practices? What, specifically, do we have to do to expand the repertoire of our design practices to meet the demands of inter-disciplinarity that arise in the contemporary era?

In order to begin to answer these questions, we want to work over the d/Design distinction again. Design with a lower case 'd' is all. But if design is all, the word is shorn of its clarity, its useful specificity. This is why we need two understandings of design, the 'd'esign that is in our natures and the disciplined 'D'esign that is sufficiently focused to be deserving of our recognition as Design, proper. But where does 'd'esign end and 'D'esign begin?

'I like boring things,' said Andy Warhol. Henri Bergson called disorder an order we cannot see. Venturi, Brown and Izenour (1977) quote Bergson and Warhol in support of their project to learn from the Las Vegas 'Strip'. 'The emerging Strip is a complex order. It is not the easy, rigid order of the urban renewal project or the fashionable "total design" of the megastructure'. By this, they meant to unmask the pretences and insensitivities of modernist design. They wished to acknowledge as design the 'honky tonk improvisations' and what might be regarded 'commercial vulgarities' (Venturi et al., 1977). *Learning from Las Vegas* deconstructs with dazzling intellectual flair the vernacular and commercial grammars of space, sign and structure, uncovering neglected design features of things found pervasively in our everyday lives. The modernist, by comparison, seems to have wished to impose abstract principles upon an at times unappreciative public.

However, in the rush to relativism, do we have to abandon all principles? 'Las Vegas's values are not questioned here' (Venturi et al., 1977). If there are peculiar virtues written into Design principles and forms of action characteristic of good Design practice, what is Design's other? If Design can no longer be located exclusively in formal places of work and institutionally accredited spaces of work; if there are now so many amateurs doing Design work; and if Design is being done in professions which are new, hybrid and not classically understood to be Design vocations – then where is it and what is it?

We can start to know Design by defining its counterpoints. What is undesign – something less than Design, understood normatively? Undesign is when things are made or done which are thoughtless

or glib, unreflective or unreflexive, disrespectful or prejudicial, intolerant or obstinate, resource profligate or environmentally damaging, narrowly self-interested or insensitively opinionated, or which are non- or dysfunctional. (Of course, there is designing in all these things, with the small 'd', the stuff in our natures, but for the moment we are trying to determine what is not deserving of the label 'Design'.)

With their lower case 'd's, (available) designs, designing and the (re)designed are everything. 'Everyone designs', says Herbert Simon (Simon, 1996). We do not want to be elitist about this. Nor do we want to insert 'politically correct' loadings which imply that certain designs are intrinsically more virtuous than others. Our measure of Design, whatever its ethical or ideological proclivities, and whoever its progenitor, is the degree of reflexivity in the process of 'Designing', the thoroughness of its designer in anticipating in a multi-perspectival way, the complex dynamics of context and use.

To do something by Design is to do it with a peculiar intensity of focus, in a designerly way. Design is premeditated, a series of extraordinarily focused stages of thinking and action: conceptual-ization, enactment, evaluation. Design is reflexive, aware of the range of its potential applications. Design is contextually aware – of its antecedents, of the scope of present needs, and of possible future consequences. Design is respectful, open to alternative perspectives and practices. Design is resource-prudent. Design is functional, creating things for the world which are useable, useful and enhance the quality of people's lives.

A lot of 'd'esign (meaning and making things), does not attain 'D'esign's ideals. With the lower case 'd', design is of our human natures; but like other things in our natures, we can also develop a normative agenda by extrapolating from the ordinary. From 'is', we can move to 'ought'. From 'd'esign, we can move to 'D'esign.

How does one do more insightful and trustworthy Design? Following is a Design schema, a taxonomy of Design processes. These are some of the kinds of things you do to do 'Design', and do it well (Table 1).

Table 1 represents a repertoire of Design work practices and a set of pedagogical tags with which to 'mark up' or 'tag' the range of Design processes deployed by Design Professionals. It is also a way of mapping the range of learning engagements undertaken by Design initiates (Kalantzis and Cope, 2005, 2008). It suggests that both improved Design and more balanced and powerful Design pedagogy may be achieved by expanding one's repertoire of Design practices. It suggests that better Design involves a balance of complementary Design practices, or a justifiable imbalance (related to specific defined purposes, specific agendas or the subsequent integration of a narrowly focused practice into a wider programme).

Each of these Design processes is a way of thinking and seeing, an orientation to the world, an epistemological take, a sensibility or

Table 1 Design processes.

EXPERIENCING	ANALYSING
Identity work (experiencing the known)	*Explanatory work (analysing functionally)*
For instance:	For instance:
– connecting with experience – being explicit about perspective – articulating interests, motivations, agendas, purposes – being self-aware of representational modalities – metacognizing, or thinking about one's thinking in order to think with greater acuity	– establishing cause and interpreting effect – parsing structure and analysing functions – reasoning deductively and inductively – specifying plans, projects, programs – figuring solutions in relation to problems formulated
Empirical work (experiencing the new)	*Critical work (analysing critically)*
For instance:	For instance:
– observing methodically – measuring, recording, describing – experimenting, testing – consulting, interviewing, surveying – researching similar or parallel cases	– interrogating goals, agendas, biases – exploring scenarios and conjecturing options – creating narratives and modelling alternative trajectories – hypothesizing, conjecturing, predicting – evaluating outcomes – inferring and articulating ethics
CONCEPTUALIZING	APPLYING
Categorical work (conceptualizing by naming)	*Pragmatic work (applying appropriately)*
For instance:	For instance:
– defining terms – creating visual keys – identifying physical elements – classifying	– implementing according to plan – making things work, mechanically and humanly speaking – engaging stakeholders – realizing solutions
Theoretical work (conceptualizing with theory)	*Transformative work (applying creatively)*
For instance:	For instance:
– generalizing, linking concept to concept – quantifying and calculating – modelling, diagramming – paradigm building – … and other abstracting	– creating hybrid, interdisciplinary solutions – risk taking – exploring hard-to-foresee, lateral transfers – putting things to unanticipated use – challenging paradigms

way of feeling, and for shorter or longer moments in time, a way of living. These Design processes come in no necessary order. You may do some and not others in a particular Design practice. The distinctiveness of a Design practice may be identified by 'marking up' or 'tagging' the stages in the act of Design, thus bringing to explicit attention the weighting and sequence of Design moves. What is the mix and match? What are the transitions from one Design orientation to the next? These transitions might be likened to key shifts in music

or mood swings in psychological affect. Indeed, those elusive things, innovation and creativity may even occur in the moments of key change or mood swing, more so than in routine practice.

Conclusions: Towards a Transformational Agenda for the Design Professions

The transformations under way in our contemporary social environment are enormous. As we have argued in this paper, the consequences for the Design professions are enormous too.

In the first instance, Design is located more centrally in society's immediate agendas by the discourses of the 'creative economy' and 'knowledge society'. More subtly and pervasively, however, we are in the midst of a semantic shift from design as the technical and aesthetic stuff of objects to a more balanced view in which design is also embodied meanings, from design as morphology to design as (also) agency. This sits in a broader context, which we have called a shift in the balance of agency. Evidence of this shift is to be found across a whole range of social domains, reflecting a transition from a society of command and compliance to a society (for better or, at times, for worse) of greater agentive autonomy. In the Design professions, this means that we need to forge closer relationships with users. It also means working in design teams that make virtue of their differences, and creating objects and social relations which are open to multiple uses and meanings.

The scope of these changes is such that we need to reconceive Design as an interdisciplinary practice. How is 'D'esign as an intensely focused practice to rise above its grounding in 'd'esign as an everyday human reality? To answer this question, we suggest a broadened and necessarily interdisciplinary repertoire of Design processes, involving identity work, empirical work, categorical work, theoretical work, explanatory work, critical work, pragmatic work and transformative work. Different Design programmes can be identified by reading the patterns and emphases in the deployment of these Design processes.

Our times not only place Design more centrally within the contemporary agendas of 'creative economy' and 'knowledge society'. They also set ambitious targets in an expanding range of responsibilities for design action, including environmental sustainability, cosmopolitan diversity and user self-realization. Our job is more demanding but the potential rewards are also greater. Designers should seize this moment.

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