

Research design and the professional model

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Design, as a discipline, has several distinctive characteristics making it an interesting topic for inquiry within the domain of profession studies. In this paper we try to scrutinize, the tension between established notions of profession studies and the notion of design as a profession and how that tension relates to how professions are expected to be based on “scientific knowledge”. Based on the belief that different professions both have different kinds of authority and get their legitimacy from different sources, we discuss what it would entail to take the mindsets underpinning the traditional art-and-design seriously and whether other professions really are prepared for what that would entail.

Introduction:

Arguably, profession studies have, primarily, been occupied with processes connected with establishing and maintaining jurisdiction as well as with establishing and maintaining a privileged position in the labor market (Freidson, 2001:6). In spite of often being deeply ambivalent towards the phenomenon of professions, scholars tend to hold some common assumptions. Andrew Abbott e.g. claims that: "Most authors study professions one at a time. Most assume that professions grow through a series of stages called professionalization. Most talk less about what professions do than about how they are organized to do it" (Abbott, 1988). In addition, profession studies have typically been conducted within – or at least spearheaded by – the discipline of sociology. In spite of the fact that we draw heavily from some brief revisits to some of the seminal texts of sociology, this paper's vantage point is different. It stems from *within* industrial design; an occupation having some – but not all – traits of an ideal-typical profession. However, viewed from the standpoint of industrial design we believe that other issues will stand out as just as crucial when occupations, professional work and professions are under scrutiny. In other words, by the contrast design cause – being both similar and different to other professions – we hope to construct an illustrative case shedding some light on some issues relevant to the development of professions in general. Or to quote Max Müller who coined the famous motto of the comparative study of religion: "He who knows one, knows none." (Müller, 1873)

Following Abbott and many others we assume that professions make most sense when understood in a system, in relation to other actors and (sub)systems. However, in most cases, the ideal-typical approach to professional studies tends to emphasize the functional relations of individual professions with vital values and needs in the society; often at the expense of the complexity of social forces supporting such relations. According to Magali Sarfatti Larson the professionalization of occupations "pertains to general dimensions of 'modernization' – the advance of science and cognitive rationality and the progressive differentiation and rationalization of the division of labor in industrial societies (Larson, 1979:xiii). With that kind of "seminal backdrop" the industrial designer has some noteworthy intrinsic features like being a prototypical child of modernity – today in its teens – still bringing artistic rather than scientific values, methods and mindsets to the core of the (post-) industrial society and its (post-) industrial product development and production.

What makes a designer a designer?

Today design seems to be hard to seize as a consistent concept. So before going further we might acknowledge that there seems to be two major approaches to understand the *concept* of professional design. Two ways that also happen to illustrate a fundamental difference in – not only – how to understand concepts in general, but also revealing two basic mindsets being relevant for our further inquiry. Because in order to use concepts as "sharp tools" for thinking and communication we either seem to:

- (i) decide how to *understand* a concept – i.e. define it – in order to being able to *use* it
... or, doing the complete opposite ...
- (ii) *use* the concept in order to being able to *understand* it.

The first is generally acknowledged as the formally most correct and scientific way to proceed. However, within the diverse discourses of design, the issue of defining what design actually *is* seems to have reached a blind alley. Either it tends to be too specific to grasp the diversity or too wide – or blunt – to be useful as a sharp analytical tool. Today the latter tends to be predominant and can for instance be exemplified by Herbert Simon's broad definition, based on the notion that; "everyone designs who devices courses of action aimed at changing existing situations to preferred ones" (Simon, 1969:55). As a consequence, we seem to do what Antonio Gramsci perceives as the "the most widespread error of method" when he, in an analogous case, tries to understand the term »intellectual«:

What are the 'maximum' limits of acceptance of the term 'intellectual'? Can one find a unitary criterion to characterize equally all the diverse and disparate activities of intellectuals and to distinguish these at the same time and in an essential way from the activities of other social groupings? The most widespread error of method seems to me that of having looked for this criterion of distinction in the intrinsic nature of intellectual activities, rather than in the ensemble of the system of relations in which these activities (and therefore the intellectual groups who personify them) have their place within the general complex of social relations.

Antonio Gramsci, (1997:8)

When starting from an explicit definition based on "unitary criteria" we also tend to neglect the importance of the mindset of the traditions concerned; or by using concepts coined by Ludwick Fleck – the »thinking styles« of different »thinking collectives« (Fleck, 1979). Applying Fleck's notion of different thinking collectives (or Kuhn's *paradigms* or Foucault's *épistémè*), will reveal that seemingly identical issues and concepts tend to mean completely different things depending on, in which thinking collective it is used. The most crucial question might, in fact, be to ask; which are the differences that actually make a significant difference? One opinion is Reyner Banham's view on architecture when he rhetorically asks why we don't; "admit that what distinguishes architecture is not *what* is done – since, on their good days, all the world and his wife can apparently do it better – but *how* it is done... [and, he continuous] ...For the sources of these differences of professional behaviour, one need look no further than the place where architects are socialized into their profession, the studio" (Banham, 1990:23-24).

Therefore, in order to find a road through, this paper will avoid strict definitions based on common traits, similarities and "unitary criterions". Instead it will concentrate on what we claim is '*differences making a difference*', by comparing different *roles* and *traditions* in the *system* of product development. We will therefore initially focusing on some of the more specific characteristics attributed to the 'art-and-design *tradition*' and thereafter on how these relates to the characteristics of other traditions; or in other words, using the second, more reflective, relational and comparative approach. All we need is to start that process with a loose and tentative understanding of how to initially understand the profession of design.

Design and its traditional underpinning

One way of giving the concept design(er) a tentative point of departure is to paraphrase Reyner Banham's way of explaining what architects uniquely do i.e. that designers do design (Banham, 1990). This certainly gives us a *vague* idea about how to understand the profession of design. However it also, although indirectly, implies that it is up to the designers themselves to decide what can be regarded as design, probably based on the notion that the issue is too complex to be rationally explained to others. By that, it also implies that design is a sort of black-box, not understandable by those not trained as designers; i.e. it requires a training that typically is performed in a studio like setting (Schön, 1985); a setting that sometimes, by anthropologists, is compared to a tribal long-house, where the place and the rituals pursued are almost unique in the annals of western education (Banham, 1990:24).

Arguably, the 'art-and-design tradition has the conventional industrial designer as a role model. It can then be characterized through the way in which it brought in intuitive methods from the arts, hiding them in a Trojan horse kind of way, and applied them right in the middle of technical and economical rationality, i.e. within industry. We can therefore identify two traditional arenas underpinned by inherently different discourses, legitimacy and mindsets; the (i) cultural and the (ii) commercial arena, respectively. These two arenas receive their primary legitimacy from two different sources where the; (i) cultural arena is underpinned by a public cultural discourse (mediated by e.g. media, artists and critics) and the (ii) commercial by a more scientific discourse (mediated by e.g. the technical and economical traditions).

According to Magali Sarfatti Larson (1993) the oldest design professions, i.e. architecture,¹ receive legitimacy from art and its own discourses rather than from science. She also refers to a »dual coding« implying that the architect primarily tries to combine the demands from two completely different perspectives, none of them being science; (i) the one from the peers and (ii) the ones from the client. Partly is this archived by having the dialogue on two different levels; the first on a more conceptual level and the latter on a more instrumental. Two levels that seems to coincide with Larson's distinction between the extremely small and exclusive group of "a handful noted elite [architects]" (1993:4) that according to her constitutes the "discursive centers" – or the conceptual level – of architecture. And as she claims:

In all professions, in fact, there is a "discursive center," an ideal place where knowledge and discourse are produced. The social and intellectual distance between the discursive centers of the knowledge-producing professions and their underlying ranks is so considerable, in fact, that we may legitimately wonder whether any of these apparently well-delimited fields has any unity beyond its name.

Larson, 1993:8

So, at the center we have a charismatic bias of the ideology of art, exalting and mystifying the centrality of the "masters of design". At the base we have the normal day to day

¹ Some of the arguments that follows are inspired by her analysis of architecture and – nearly by paraphrasing – transferred to the "sibling" industrial design.

work performed by professional architects; or at “the center, there is Art, Architecture, Immortality; away from the center, there is service, building, business, and money if one is lucky” (Ibid:8). Between the base and the discursive center there tend to be a palpable tension, where an ambivalent base on one hand get some status from the association to the discursive center, on the other are not acknowledged for what they believe they actually are doing. This is perhaps most obvious when considering how: “Historians, critics, and the cultivated public uncritically take the work of the elite designers as representing the whole field” (Ibid:9).

Industrial design has a similar situation, but in comparison with architecture, design seems less able to intervene in the discourse giving it its own unique legitimacy. In fact, it seems like the design tradition – *as a tradition* – have problems to autonomously discuss on a more conceptual level. Instead it tends to use the perspectives of others – either from those established at the *arena of culture* or *the arena commerce* – and searching for legitimacy wherever they get their legitimacy from. The situation is not completely consistent on a global scale, but at least in Scandinavia, designers are less articulated than the architects in the public, cultural, media discourse. Somehow design doesn’t seem to have the same established discursive center at the cultural arena and are then leaving the field completely open to “historians, critics and the cultivated public” to choose their references according to their own preferences; and hence, probably, making the gap between the perceived discursive center and the actual profession even larger. In a corresponding way design also have problems to take an autonomously stance on the commercial arena; there being highly dependent on their colleagues or clients from e.g. engineering and marketing. The situation might be explained by the way designers, by tradition, are trained in a craft tradition that is now, for different reasons, changing dramatically. The dynamics can be illustrated by comparing design with an overview of different occupations, divided into craft, technician and profession:

Table 1; Characteristic of training by type of occupation. Modified from Freidson (2001:93)

Characteristics of training	craft	technician	profession	design ²
proportion of training in school	low	significant	high	high ³
teachers members of the occupation	always	not always	always	usually
primary training on the job	always	sometimes	seldom	seldom
full-time teachers	rarely	sometimes	usually	rarely to usually ⁴
teachers do research	no	no	yes	no to sometimes ⁴
university affiliation	no	no	yes	no to sometimes ⁴

² Design refers here primarily to industrial design and its background in arts and crafts. It is an additional column attached to the original table. The table is otherwise identical to Freidson’s table (2001:93)

³ The school-setting is typically a “design studio” as e.g. discussed by Schön (1985) or Banham (1990).

⁴ The ambivalence refers to a contemporary process of ‘academization/intellectualization’ where training institutions for design usually go from characteristics resembling craft to those more profession like.

Design and other professions

Arguably, we can conclude that design have some rather alienated, scattered and fragmented discursive centers at both the *arena of culture* and the *arena of commerce*; the latter typically characterized by being more instrumental, rational and scientifically underpinned. Just as at the arena of culture, design also seems to have problems to establish their own discursive centers at the arena of commerce; instead they tend to depend heavily on those traditions they typically cooperate with at that very arena. In order to understand the power games, tensions, possible opportunities etc. that this co-operation potentially gives, we will make a brief and *ideal-typical* overview between; (i) design, (ii) engineering and (iii) management, respectively:

(i) *The design profession*

The designer's primary drive is to find a new *solution* as from a user's perspective. Peers give credit to uniqueness and esthetical elegance. Among them, intuition is considered to be crucial, and methods used ("theory in use")⁵ are based on this notion. Notwithstanding, this does not manifest in any clearly espoused theory. Instead, they seem to keep their actual methods hidden; borrowing the more espoused ones from whomever they happen to cooperate with. They are seemingly far from rigorous, proposing solutions with no proper analysis underpinning them. However, that happens to be in accordance with a longstanding tradition of designers typically exploring and questioning the problems at hand by testing more or less far out solutions. Their method could therefore be characterized as »solution driven back casting« (Edeholt, 2006). In product development teams, designers tend to be the »proposer«. In a true *ideal type* manner, we would like to attribute design the crucial *know-where-to* knowledge, primarily on a user oriented and instrumental micro-level. However, doing that, we are not implying that design actually *know-where-to*, but that design has a solution-driven approach suitable to generate productive conjectures regarding possible – and also radically different – futures.

(ii) *The engineering profession*

The engineer's primary drive is a present technical *problem* in need of a solution. Arguably, core values among peers are e.g. realism, logic, rationalism, scientifically reliable, rigor and optimization of available resources. Typically, engineers work as efficiently as possible from a *well-defined* problem towards an optimized solution. Their method could therefore be characterized as »problem driven forecasting«. In product development teams, engineers tend to be the »problem-solver«. In correspondence to the *know-where-to* attribution given to design above, the ideal-type of engineering, arguably, have fundamental *know-how* knowledge, primarily on a technical and an instrumental micro-level.

(iii) *The management tradition*

The management's primary drive is a good economical *result*. The core values acquired by managers through the science of economics are seemingly similar to those of engineers. Their espoused methods favor a rational approach, in which the return on resources spent should be maximized. A rigorous analysis of the present situation, combined with identified trends, will make it possible to predict how to achieve such return. We therefore characterize their method as »result driven forecasting«. In product development

⁵ »Theory in use« should be seen in contrast to »espoused theory«, implying that there are often huge differences between what actually underpins your actions and how you describe it (Argyris et al., 1974).

teams, management tends to play the »facilitator« or the entrepreneur. To cut this overview short we would, in a true *ideal type* manner, like to attribute the tradition of management the important *know-what* knowledge of economics, and therefore primarily on a conceptual macro-level and often based on best practice analysis.

The commercial arena can be characterized by its triangular shape, with its angles – *problems, solutions* and *results* – interacting in an intricate pattern of tensions. The field is seemingly simple, giving each player a firm standpoint: one in each corner, based on their own *primary* interests. However, as in a hologram, if we break the field and disconnect each angle from the other, we seem to get three new similar fields, all with the same cornerstones: problems, solutions and results. The three new fields are seemingly identical, but their actual content depends on who is standing on them. The (i) disconnected engineer will probably be occupied with technical problems, technical solutions and technical results, while all the corners of the (ii) disconnected management will relate to the business, and finally the problem-solution-result field occupied by the (iii) disconnected designer will probably relate primarily to the product as experienced by the user. When comparing these three, *highly idealized*, descriptions of thought collectives with each other, some characteristic features appear:

Table 2; ideal typical and relative characteristics

	typical engineering	typical management	typical design
typical kind of knowledge	know-how	know-what	know-where-to
typical form of knowledge	codified and formal	codified and formal	tacit and informal
typical mindset	what <i>is</i> the problem	what <i>is</i> the opportunity	how it <i>ought to be</i>
typical drive	present <i>problem</i>	possible <i>result</i>	future <i>solution</i>
typical goal	optimized solution	maximized result	unique solution
typical perspective	technical	business	use(r)
typical legitimacy	scientific	scientific	arts & crafts
typical approach	empirical analytical	empirical analytical	holistic
typical innovation ⁶	technological innovation	business model innovation	product innovation

The distinction between two ideal-typical mindsets; (i) one occupied by the present »how it is« and the other (ii) by a future »how it ought to be«, is probably one of the most significant differences between design versus nearly all other academic disciplines. Failing to embrace the profoundness of this distinction will inevitably lead to misunderstandings and hamper interaction between people into what ‘things-are’ and people into what ‘things-ought-to-be’. It also give profound methodological differences resembling the one we discussed before regarding how to understand a concept; i.e. the two reverse approaches of defining the understanding of the concept in order to use it versus using the concept in order to understand it. In this case, the methodological point of departure can instead be distinguished by the; (i) problem- versus (ii) solution driven approach, respectively:

- (i) defining the *problem* in order to facilitate a rational *solution* finding process.
... or, doing the complete opposite ...
- (ii) intuitively suggesting *solutions* in order to understand and/or question the *problem*

⁶ According to the topology suggested by e.g. Markides (2006)

A possible explanation of these differences can perhaps be found in Herbert Simon's insightful phrase:

The natural sciences are concerned with how things are ... Design, on the other hand, is concerned with how things ought to be, with devising artifacts to attain goals

(Simon, 1969:58-9)

Design and the scientific tradition

Our previous starting point claiming that designers are those doing design implies both a similarity and a difference between design and science. It implies that design essentially is understood the way the designers themselves understand it and that, if in doubt, it is up to the tradition itself to make up their mind. This resembles the scientific tradition, typically institutionalized by its peer reviews. However the whole notion of a "black-box" is, on the other hand, just as contrasting to the scientific tradition; as in science a transparent method is just as paramount as it is not in design.

From time to time, scholars have studied this 'traditional' design tradition as an instructive contrast to the *espoused* theories of science. Bryan Lawson, for instance, tries to demystify the 'black-box' of design by pointing at studies showing a comparable pattern to what we already discussed; i.e. that science – just as engineering – tends to have a problem-focused strategy while design is more solution-focused (Lawson, 1997). Lawson claims that designers learn "about the problem through attempts to create solutions rather than through deliberate and separate study of the problem itself" (Ibid:43). According to Lawson, this is in accordance with their education, in which they tend to be taught only through a series of design projects, and mainly receive criticism regarding the solution they come up with. "As in the real professional world the solution is everything and the process is not examined!" (Ibid: 42). Within »productive thinking«, Lawson distinguishes between 'thinking in closed systems' and 'adventurous thinking'; between the rational and logical processes being convergent on one hand, and the intuitive and imaginative processes being more divergent on the other (Ibid:145).

Arguably, design has both an interesting and problematic relation to both academia and sciences of nearly all kinds. However in order to understand the significance of these relations we need to ask ourselves at least two questions; (i) what kind of sciences are we referring to and (ii) what is design's relation to those?

(i) Different kinds of science

From an epistemological and pedagogical point of view, most people seem to agree on the fact that a personal interest makes it easier to learn. In *Knowledge & Human Interests* (1987), Jürgen Habermas gives us some useful distinctions when he distinguishes between three forms of knowledge based on the three basic human interests we hold and finally how these relates to their most appropriate scientific tradition, respectively:

- Controlling nature – the technical interest – being empirical-analytic
- Social harmony – the practical interest – being interpretive or hermeneutic
- Individual growth – the emancipatory interest – being critical and change minded.

Each scientific method is a rational and valid process for knowing within its domain of knowledge. However, the argument is that to subject all forms of human knowing to a single methodology is inappropriate. In particular, Habermas criticizes the implementation of the natural sciences technological orientation and of the hermeneutic subjective orientation as the exclusive criteria for determining the validity of all forms of knowledge (Ewert, 1991:348). As a contrast design, having its discursive centres scattered all over the place, is consequently not firmly rooted in any of the sciences described. In fact, this situation seems to suit the *ideal typical* designer's mindset fairly well; i.e. as someone embarking on a holistic overarching approach integrating these three basic interests into a sort of wholeness of human interests. On the other hand, the mindset of the *ideal typical* designer also tends to be at odds with all these sciences as s/he have a more constructive mindset that is more occupied with what »ought to be« than what »is«.⁷

(ii) *Design's relation to science*

As the traits of design are, to say the least, a bit ambiguous in its relation to science it might be useful to reflect on the actual relation between design on one hand and science on the other. Nigel Cross (2006) makes a useful distinction between Science of Design that should be; "understood, just like *science of science*, as a federation of subdisciplines having design as the subject of their cognitive interest" (Ibid:99). It is contrasted to the approaches of the »design-science-movement«, having the goal "to develop a design science thus led to attempts to formulate *the* design method – a single rationalized method, as the scientific method was supposed to be" (Ibid:98). The latter having the roots in the technical tradition – *i.e. not in the art-and-design tradition* – and a series of international conferences in *engineering design* (ICED). Cross concludes that "design science refers to an explicitly organized, rational and wholly systematic approach to design; not just the utilization of scientific knowledge of artifacts, but design in some sense a scientific activity in itself ... [and continues] ... most designers holds that the act of designing itself is not and will not ever be a scientific activity; that is, that designing is itself a non-scientific or a-scientific activity" (Ibid).⁸

Therefore we can, or even ought to, make a explicit distinction between the *profession of design* and the *science of design*. Cross gives the latter the following topology:

- design epistemology – study of designerly ways of knowing
- design praxiology – study of the practices and processes of design
- design phenomenology – study of the form and configurations of artefacts

These different issues can all inform the professional designer to do a better job without requiring that the role-model of the designer's unique competence in its own process of designing need to be scientific in itself.

⁷ Habermas critical stance could again be contrasted with a corresponding but an even more designerly and constructivist approach as e.g. suggested by Johan Galtung (1977:62); where Galtung focuses on "reality creation" rather than on "reality interpretation". A third possible way of doing the distinction is Freidson's (2001:157-8) distinction between three forms of knowledge; (i) descriptive form (technical), (ii) prescriptive form (moral) and finally (iii) arts (cultural and esthetic). However, to discuss all these would be beyond the scope of this article.

⁸ Compare with e.g. Taylor's "scientific management" or even, as Larson refers to, the attempt of the early years of last century to rationalize – or to "Taylorize" the housewife's work in an "effort to create modern, scientific homes and efficient homemakers" (1993:33).

Merging and cooperation between different thinking collectives

Up to now the article has primarily tried to illustrate the differences of the mindsets of some professions that often have to cooperate in common product development projects. If we assume, as Fleck does, that these professions can be characterized as different *thinking collectives* and that they therefore have different *thinking styles* that is – at least partly – incompatible; then we really need to carefully consider how to best integrate them.

In order to construct a useful conceptual tool-box we can borrow concepts from Cultural Studies and Post Colonial Theory, and discuss different ideal-typical ways for different cultural groups – or thinking collectives – to interact, as: assimilation, integration, multi-culturalism, segregation and marginalization.

Table 2; ideal typical cultural interaction. Summary influenced by Ritzer (2007) and Cetrez (2002)

		culture of origin	host (or other) culture(s)	comments
(i)	typical assimilation	weak connection	strong connection	also coined "melting pot"
(ii)	typical integration	strong connection	strong connection	double competent
(iii)	typical multiculturalism	strong connection	strong <i>interaction</i>	<i>team member</i>
(iv)	typical segregation	strong connection	weak connection	traditionalist
(v)	typical marginalization	weak connection	weak connection	outsider

Using this topology we can foresee a set of different approaches when contemporary industrial designers interact with other thinking collectives:

- (i) *Assimilation*; was for a long time the ideal of immigrants coming to a new country. Ideally becoming as similar as possible of whatever characterize the host – or dominant – culture. Occasionally even becoming more prototypical than those inherently born into it. Sometimes the metaphor of melting pot is used; a metaphor that, taken literally, implies that the goal is to take away tensions and melting the ingredients together to a new stable and coherent structure. Stability and similarity might therefore be an appropriate blend of key-words. For the design profession it would probably mean that the whole mindset had to change to one that resemblance their counterparts', whether it's marketing, engineering or any other tradition.
- (ii) *Integration*; refers to the *interrelation* (i.e. a two-way relation) of elements in a social system and is in this context, and compared to the other concepts, primarily characterized by being "assimilated" *without losing the connection to the culture you are coming from*. It therefore requires a sort of double, or even multiple, competence and is for that reason most suitable when there are few (typically two) "cultures" interacting and that there are more similarities than differences between them. Similarity and consensus are probably appropriate key-words. Considering the diversity of "cultures" designers are interacting with the amount of training in order to receive necessary proficiency might be significant.⁹
- (iii) *Multiculturalism*; has a diversity of meanings, however, in this context, it could be compared to "integration", but with less focus on blending competences, and more

⁹ Being trained in industrial designer alone takes typically 5 years.

on interaction between discrete and different competences. Difference, pluralism, tension, tolerance, agonism,¹⁰ interaction and creativity are probably an appropriate blend of key-words. For design – and also for others – it would mean that they potentially were given the opportunity to refine their own core-competence *and* the ability to convey that to others with other competencies. This is probably to many the most ideal form of cooperation, however it tends to be hard to achieve and few seem to have realized what it actually entails.

- (iv) *Segregation*; is characterized by its lack of positive forms of interaction and focus on the separation of different relatively autonomous “cultures”. Tension, we vs. others, separatism, antagonism and difference are probably an appropriate blend of key-words. In our context it might e.g. refer to a very traditional stance to what design is. However that requires that the group having that stance have a substantial size and/or influence, otherwise it would probably rather be characterized as marginalized (see below).
- (v) *Marginalization*; is when a group has none or very little influence on others, including their own “culture of origin”. Difference and indifference are probably two appropriate key-words. In our context it might either occur – as indicated above in (iv) – if designers don’t engage with others; but also if other cultures have been able to alienate designers from their own discursive centers. Moreover, it might as well develop if designers aspire for the integration in (ii) without being able to achieve the multiple proficiency required; ending up being too mediocre in both design and the other’s domains of competence.

Some present trends concerning product development and the profession of design

Understood literally, the profession of industrial design nearly seems like an outdated or obsolete concept in our so-called post-industrialized society (Edeholt, 2003). Nevertheless industrial design, as the prototypical design profession of the »art-and-design-tradition«, is in fact probably more in vogue than ever. However many professional designers claim that the sudden interest in design is a mixed blessing. Not primarily because the concept of (industrial) design is changing, *per se*, but rather because the primary drive of this change is located outside the tradition itself and hence the already huge gap between the profession of design and its discursive centers tends to increase even further. Or – if using the profession’s own wording – the professional designer often claims that s/he can’t recognize their own profession in the description conveyed in the present discourse of design and that the “designers” relating themselves to that discourse typically are not recognized as “elite designers” among the design tradition itself. They seem, in fact, to be complaining of being marginalized in the process of developing their own professional discursive underpinnings. However, most seem to agree in that changes actually are inevitable *and* also indeed needed; but for more fundamental reasons than those usually pinpointed in the public discourses of design. Here is a brief overview given for two important contexts; the contexts of (i) the profession of design, *per se*, and their (ii) education and training, respectively:

¹⁰ Agonism can most easily be understood in contrast to antagonism. Being agonistic you have an explicit different standpoint; however in contrast to antagonism you accept that others may have different standpoints (see e.g. Mouffe, 1999 or Schaap 2006).

(i) *Profession*

As a profession, design already has some characteristics – as e.g. high status – making typical patterns of professionalization hard to apply. On the other hand it also has some characteristics that *seems* to indicate such a process – as e.g. the claims that external perspectives doesn't seem to be able to reveal the real content of the black box of design. In order to come to terms with this ambiguous pattern, there are a few fundamental changes in the professional work of the designer that has to be considered. We will here briefly describe typical changes concerning the artifacts (or products) designed and the organization of the product development process:

- The most fundamental changes concerning contemporary products are probably the increased complexity on one hand, and an increased dimension of more abstract parameters on the other. The change is driven by several factors, such as; the integration of computational power in many daily products, the need to find other aspects than pure function and/or beauty when commercializing products in a society characterized of abundance, globalization, new ways to bundle both products and services in one single offer, etcetera.
- The most fundamental change concerning the organization of product development is probably best pinpointed by the term »integrated product development«, i.e. bringing different competencies and/or stakeholders together upfront when developing new products. The change is both driven by complexity issues as discussed above, but also by measures of efficiency with the goal to reduce the time needed to get a product to the market (i.e. TTM or Time-To-Market).

For the design tradition have this two aspects alone meant a tremendous profound change in the conditions to perform their work. One has to consider that design, in fact, are coming from a craft tradition where they, relatively isolated in their studios, could keep a holistic overview of the whole product *without revealing* anything of the *process* they used to do that – i.e. in what usually is coined the black-box of design. But now, suddenly, designers are expected to join small teams of other professions, that often are relatively articulated about their processes and – in addition – often being rather suspicious regarding the *actual* processes of design.

(ii) *Education and training*

As mentioned above the typical training setup is the »design studio« where the students are socialized into the typical and unique mindset of design. According to Banham; “one of the things that sustains this uniqueness is the frequency with which students are discouraged from pursuing *modes of design* that comes from outside the studio” (1990:24, our italics). Donald Schön who analyzed the studio setup at length in his *The Design Studio: an exploration of its traditions and potentials* (1985) are rather pinpointing the fundamentally different mindset revealed in the epistemology of the design studio compared to other espoused theories of professional education. His main conclusion is, in fact, that the mainstreams of professional education have a lot to learn from the studio concept as it is better suited to train students to handle the kind of real-world, complex and “wicked” issues professionals usually are dealing with.¹¹

¹¹ In fact the studio has also been identified as a role-model for research and producing of new knowledge in general (see e.g. Gibbons et.al. 1994)

However, nearly two decades later is Fiona Duggan (2004) giving a rather discouraging report concerning the actual status of the design studios in art-, design- and architectural schools in UK. The identified symptom is that the studio seems to be underutilized and often being provocatively empty to those paying the bill for the space occupied. The reasons are complex and the solutions suggested by Duggan may appear a bit too instrumental. Nevertheless she concludes that:

greater student mobility accompanied by more complex juggling of both student and institutional priorities, [less and] more concentrated teaching days, poor quality studio provision and greater student reliance on [IT-] technology, has resulted in the pattern of studio use shifting from *live-in* to *drop-in*, and the nature of studio identity being increasingly forged by *events* rather than *space*

Fiona Duggan 2004

It seems obvious that, on one hand, a design studio as the one Duggan describe will not be very efficient as the tribal long-house described by Banham. But on the other hand it also seems that some features of it – as e.g. the separatism described by Banham – might be outdated.

Conclusions

Fincham suggest that “the most political and economically successful expert groups are those who are able to ‘blackbox’ their expertise – that is, compartmentalize key elements of their knowledge base and technical instrumentation so that they become simplified and standardized in a more mobile and portable form” (quoted in Reed 1996:583). Looking from the outside this also seems to be exactly what the “traditional design traditions” tries to do. However we believe that this conclusion conceals some much more important and fundamental issues, including how to accommodate for both different thinking collectives in a collaborative setup and for artistry among experts trained as rational problem solvers. In both cases it, in addition, seems necessary to consider the power balance between, on hand, a very tacitly performed knowledge and on the other the explicit and codified knowledge being so predominant among profession getting their legitimacy from a more scientific discourse.

From many corners, including engineering, management and even sociology¹², there is an espoused interest in the »art« of their professions. However, the question is if they really are prepared to accommodate the underpinning mindsets? On the other hand there is also a reversed espoused interest of a more academic and scientific endeavor from design; and, of course, a corresponding question asking how they intend to accommodate mindsets requiring a much more articulated and transparent process. In doing that, design probably need to be extremely wary about just importing models of behavior and explanations from other fields. Because, what is at stake, is in fact a mindset uniquely geared towards finding *new alternative solutions*, *questioning what we have* today and asking ourselves, *how things actually ought to be*; and we believe that, that is a mindset our contemporary society urgently need.

¹² See for instance Robert Nisbet (2001) *Sociology as an Art Form*. Somerset: Transaction

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