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DESIGN AND SIGNATURE PEDAGOGIES: WHICH IMPLICATIONS?

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ABSTRACT | In the range of theories and practices related to the field of design, several “designerly” ways of knowing (Cross, 2007) can be detected, in which the axioms inherently characterizing the discipline converge independently from the multiplicity of professional domains in which it branches out. From an educational point of view, such qualities are commonly geared to the arrangement of learning experiences aimed at facilitating students in developing the ability to manage from both cognitively and executively the procedures connecting the ideation of a product, a service, or a process to its actual concretization. Particularly relevant in this regard is the confrontation with a “design culture” (Julier, 2008) appearing to be constantly in search for a balance between identity and transversality, pointing out a juxtaposition in relation to which the educational system is faced with a twofold responsibility: on the one hand, that of transmitting to students an awareness about the existence of a professional and academic design community, endowed with a specific disciplinary status; on the other hand, that of fostering the acquisition of skills that will enable future designers to fruitfully integrate also within other knowledge areas. It is thus necessary to equip those working in the field of design education with both technical and intellectual tools that would empower them in addressing their teaching in order to appropriately interpret and enhance this polarity. On this basis, a particularly useful contribution is offered by the Scholarship of Teaching and Learning (SoTL), a current of post-secondary studies oriented toward the consideration of the educational approaches adopted in the context of individual disciplines as indispensable factors in the processes of knowledge formulation and transmission. Attributing to the dynamics associated with teaching and learning a pivotal role in constituting the perspectives underlying codified knowledge, SoTL interprets education itself as a further upstream discipline, within which expertise can be reflexively built up (Hutchings, 2000). One of the most significant contributions introduced by SoTL lies in the theory of “signature pedagogies” (Shulman, 2005), a conceptual construct aimed at delving into the fundamental criteria that shape, to an only partially conscious extent, the mindset of scholars, educators and professionals; in configuring a bridge between the theoretical and practical dimensions, these frameworks reflect the *forma mentis* shared by the members of individual disciplinary communities, expressing the main cognitions they possess regarding how it is most appropriate to act, think and know in order to operate appropriately in their respective fields. In the wake of various studies emerging in recent decades on the topic of the relationship between design and signature pedagogies, this essay identifies the concept as a notion of particular strategic interest in order to understand more deeply the “hybrid” disciplinary status of design, and consequently to orient its educational practices. In accordance with these premises, such a relationship will be first framed from an internalist perspective, reflecting a principle of disciplinary affirmation, and then explored from an externalist perspective, consistent with an assumption of cross-sectoral integration.

1. Design Pedagogy Between Identity and Transversality

In the range of theories and practices that can be associated with the domain of design, several “designerly ways of knowing” (Cross, 2007) can be detected, in which the axioms inherently characterising the discipline converge regardless of the multitude of professional domains in which it branches out. In fact, the inclusiveness of design discipline is indeed impressively wide, ranging from the ideation of industrial products to the development of communication artefacts or the fabrication of fashion items, with frequent contamination with the domains of art, architecture, science, engineering, and business management. The training of this particular profile presupposes the arrangement of learning experiences aimed at enabling students to acquire the ability to manage from both a cognitive and an operational point of view the methodologies connecting the conception of a product, a service, or a process to its actual concretization.

Recent developments in the social, technological, and economic landscape, however, highlight the need for a substantial revision of design pedagogy itself, from the structure of educational institutions to the relationship between students and teachers, involving also the context of professional practice (Pontis & van der Waarde, 2020). Particularly relevant, in this sense, is the inescapable confrontation with a “design culture,” (Julier, 2008) that appears to be constantly in search of a balance between the level of identity and transversality, defining the extremes of a juxtaposition which faces the educational system to a twofold responsibility: on the one hand, that of transmitting to students an awareness about the existence of a professional and academic design community, endowed with a specific disciplinary status; on the other hand, that of fostering the development of skills that would enable future designers to fruitfully integrate also within other sectors.

In light of such premises, it is necessary to equip those working in the field of educational research related to the discipline of design with both technical and intellectual tools that can support them in arranging their teaching activities to effectively understand and address this polarity. In this perspective, a particularly significant contribution is offered by the Scholarship of Teaching and Learning, a current of post-secondary studies that began to spread since the early years of the new millennium in the international academic landscape, with particular reference to the Anglo-Saxon and North American scenario. At the heart of the Scholarship of Teaching and Learning lies the investigation around the so-called “disciplinary perspectives,” understood as the specific point of view through which individual disciplines incorporate and implement their criteria for acquiring, formulating, and transmitting knowledge. Attributing to the dynamics associated with teaching and learning a pivotal role in shaping disciplinary perspectives, the Scholarship of Teaching and Learning interprets education as an additional upstream discipline, where sectoral experience can be reflexively developed (Hutchings, 2000).

One of the most significant contributions introduced by the Scholarship of Teaching and Learning resides in the theory of “signature pedagogies” (Shulman, 2005), a conceptual construct aimed at delving into the fundamental criteria that help to shape, to only a partially conscious extent, the mindset of scholars, educators and professionals. Providing a bridge between the theoretical and operational dimensions, such criteria reflect the *forma mentis* shared by the members of individual disciplinary communities, expressing the main cognitions they hold regarding how it is most appropriate to act, think and know in order to operate in their respective areas of expertise (Thomson & Hall, 2015).

Since its formulation, Lee S. Shulman's theory has been received with increasing interest in the international landscape of educational research, intercepting an increasingly broad and heterogeneous range of disciplines, from mathematics, physics and natural sciences to medicine, humanities, and social sciences up to psychology, art, music, and theatre. In its early beginnings, the concept has been mainly understood according to an internalist attitude, aimed at a stance of disciplinary affirmation; in more recent years, instead, the concept has been frequently inquired through perspectives connoted by a more pronounced interdisciplinary scope. As far as a field such as design, marked by an intrinsic propensity toward cross-sectorality, is concerned, this polarity takes on particularly emphasised traits, which resonate with a still unsolved tension between the affirmation of a disciplinary identity and, on the other hand, the propensity toward a transversal attitude.

With reference to an illustrative sample of studies corresponding to these two main strands of research, this essay identifies the concept of signature pedagogy as a notion of particular strategic interest in order to understand more deeply the “hybrid” disciplinary status of design, and consequently orient its educational practices. In light of these assumptions, the relationship between signature pedagogies and design is first framed from an internalist perspective, reflecting a principle of disciplinary affirmation, and then instead explored from an externalist perspective, which reflects an assumption of cross-sectoral integration.

2. The Concept of Signature Pedagogy

The research approaches developed by the Scholarship of Teaching and Learning involve a systematic study of the models underlying the transmission of disciplinary knowledge, starting from the detection and the in-depth analysis of the educational formats through which learners assimilate and put these models into practice (Shopkow, Díaz, Middendorf & Pace, 2013). In shifting the focus away from the strictly content-related plan on which individual curriculums are based, these approaches place emphasis on those educational formats that are able to encompass in an experiential way the set of job-specific competencies that students are about to learn (McKinney, 2007). In fact, each discipline refers to a specific pedagogical horizon expressing itself, on a case-by-case basis, in a well-defined system of theoretical and methodological coordinates, which support learners in developing the set of skills, cognitions and expertises that are necessary in order to practice the future profession.

Since its establishment the Scholarship of Teaching and Learning has developed a broad repertoire of investigative criteria aimed at supporting educational research in its sectoral multiplicity, in order to develop a deeper awareness on the most relevant disciplinary models that come into play in training to the various professions. Particularly interesting in this regard is the notion of signature pedagogy, a conceptual construct introduced in 2005 by the American psychologist and educator Lee S. Shulman with reference to the main formats, highly characterising in disciplinary terms, that underlie educational activity oriented toward the training of specific professional profiles. Specifically, the concept was introduced in the context of an interdisciplinary program inquiring the relationship between pedagogy and professions promoted by the Carnegie Foundation for the Advancement of Teaching, an educational studies centre based in Stanford (CA) of which Shulman was president at the time.

According to Shulman, the notion of signature pedagogy identifies those particular educational modes that, in a recurrent and pervasive manner, prescribe what, in a given field, is considered as knowledge, and the criteria according to which this is systematically subjected to analysis, approval, critique, or denial. In their very implementation, signature pedagogies generate substantial repercussions within the fields from which they derive, designating their instances of scientific and deontological authority, and thus consolidating the institutional architecture that serves as a support for such paradigms, and which in turn works in perpetuating them.

With reference to the most literal, yet hermetic, meaning of the term “signature” – etymologically speaking, the term derives from the Latin verb *signare*, which can be translated as “marking”, “imprinting”, “designating” – the concept paves the way for acquiring a broader awareness about the central role that certain specific educational models have traditionally played, and still play, in shaping culture as we consider it today. While emphasising the existence of an indispensable bond connecting signature pedagogies with their own respective field – or fields – of reference, Shulman’s theory remarks, at the same time, how all of them share a similar conceptual organisation, structured according to three main layers of meaning: a surface structure, concerning the visible operations of teaching and learning, and their corresponding outputs; a deep structure, referring to the universal and personal assumptions underpinning the teaching activity; and an implicit structure, embodying the moral values that legitimise a certain discipline in the wider system of knowledge.



Figure 1. Examples of signature pedagogies in the context of different disciplinary fields: the frontal lecture in relation to disciplines with a theoretical stance, both scientific and humanistic; the laboratory in the field of natural sciences and, in general, applied research-oriented disciplines; clinical training in the field of medical and nursing sciences; the studio in reference to disciplines with an artistic and design orientation.

By simultaneously incorporating the epistemological and ontological roots inherent in the different branches of knowledge, the concept situates the relationship between learner and teacher within a state of mutual “interiorization” in which, according to Michael Polanyi (1966), the tacit components underlying any approach to knowledge reverberate.

Research about signature pedagogies can give significant directions in order to build a deeper disciplinary awareness, that is functional, on the one hand, in conveying a condition of educational continuity in the different levels of individual curriculums and, on the other hand, in defining clear boundaries between different professional realms (Poole, 2010). However, this interpretation is not exclusive: the notion of signature pedagogy can also be framed following a cross-sectoral perspective, as a useful conceptual vehicle for encouraging the growth and consolidation of new communities of practice arising from the mutual interrelation between different disciplinary fields (Takayama, 2009).

Since its original formulation, the theory elaborated by Shulman has been received with growing interest and consensus by exponents of the Scholarship of Teaching and Learning and, more broadly, within the international educational research landscape, intercepting an increasingly broad and heterogeneous range of disciplines. Over the years, the design community has also begun to offer its scholarly input in this direction, and although the literature related to signature pedagogies is still rather fragmentary, a first core of research that confronts the topic from a disciplinary point of view is gradually being deposited. The following paragraphs will present two main strands of research detected within this body of literature:

a first attitude focuses on the detection of the signature pedagogies which specifically pertain to design; a second attitude, instead, is devoted to the interpretation of the design discipline itself as a signature pedagogy.

3. Signature Pedagogies in Design

As mentioned, a first strand of research carried out over the years within the Scholarship of Teaching and Learning on the topic of the relationship between design and signature pedagogies has been characterised by an interpretation of the concept tending toward a principle of disciplinary affirmation: in these cases, the inquiry has followed a predominantly internalist stance, which has expressed itself through research approaches aimed at classifying, and subjecting to critical analysis, the educational models through which individual disciplines have been, and still are, conventionally taught and learned (Ciccone, 2009).

Design pedagogy presupposes the arrangement of learning experiences aimed at enabling students in acquiring the ability to manage from both a cognitive and an operational point of view the methodologies connecting the conception of a product, a service, or a process to its actual concretization. The training of this particular profile presupposes an educational experience marked by a high degree of specificity, which is expressed according to approaches that are often very distant from the model of “formal education,” typically organised according to chronological and hierarchical criteria, commonly adopted in many other fields. This peculiarity can also be found in relation to fields bordering that of design, identifiable under the aegis of the so-called “creative disciplines,” in which the educational activity appears to be strongly characterised by the implementation of aspects related to instances of sociality, inclusiveness, permeability and flexibility (Thomson & Hall, 2014).

A first strand of research about the relationship between design and signature pedagogies has thus been oriented toward the identification and investigation of educational formats highly connoted in disciplinary terms, attributing to them an active role in shaping the identity of the field itself. Exemplifying this approach is a study on signature pedagogies in the disciplines of design and art originated in 2006 by the British scholar and educator Alison Shreeve as part of the Teaching Landscapes in the Creative Arts Subjects research program sponsored by one of the United Kingdom's Centres for Excellence in Teaching and Learning. Shreeve returns the more strictly design-related outcomes of this experience in an essay published in 2016, in which the concept of signature pedagogies is introduced in relation to the design domain indicating those educational formats through which students learn to think and act as designers.

Within her contribution, precisely titled *Signature pedagogies in design*, Shreeve initiates a first, structured attempt to classify the most recurrent and significant formats that come into play in the context of design education, arriving at identifying a series of relevant signature pedagogies, of which we are going to look at some examples.

The studio, whose origins lie in the notion of “workshop apprenticeship” codified in the arts and crafts tradition, refers to the spatial context in which design education concretely takes place in its material and immaterial components, and where experience, both individual and shared, is placed at the centre of learning; the space of the studio determines educational conditions in reference to which the boundaries between the figure of the apprentice and that of the professional are often blurred, imprinting into design pedagogy a connotation that is, from the very beginning, strongly oriented toward professionalism.

The brief, referred to what is probably the most significant and recurrent formats employed in design pedagogy in order to progressively introduce learners to the cognition of the principles, methods and processes underlying design, namely through the execution of specifically formulated exercises; this approach reflects the project-based nature of most design pedagogy, where learners are expected to take an autonomous approach to finding their own way through the brief, and the finished design or artefact are open-ended and largely unknown to the tutor at the time of writing the guidelines.

Materiality, Identifying the experiential connotation that inherently qualifies design pedagogy, where the entire educational process should predominantly express in the form of physical objects, which prepares students to develop a certain know-how preluding the design profession; the focus on materiality reflects a paradigm where theoretical teaching is placed at the service of practical experimentation, and learning (in its performance, as well as in its assessment) is primarily based on the production of artefacts, expressing and revealing the accumulation of experience.

In its methodical and systematic attitude, Shreeve's inquiry of 2016 concerning signature pedagogies in design highlights a repertoire of paradigmatic approaches to disciplinary education, which paves the way for carrying out detailed investigations focusing more in depth on the singular ones. On these premises, a particularly topical horizon of inquiry lies in assessing the impact that the advent of digital technologies has generated, and will certainly continue to generate in the near future, in the reprocessing of these teaching models from both the cognitive and the structural point of view (Fleischmann, 2020).

4. Design as a Signature Pedagogy

In contrast to the previously outlined approach, a second strand of research carried out within the Scholarship of Teaching and Learning on the topic of the relationship between design and signature pedagogies has followed a diametrically opposite attitude, that is, interpreting the concept according to an externalist perspective. In agreement with this attitude, the notion is interpreted as a conceptual means for understanding how signature pedagogies can be employed across different disciplinary domains (Werder, 2013), and thus projecting the inquiry into a perspective with a more distinctly transversal scope. Rather than in a logic of disciplinary affirmation, this second strand of research interprets signature pedagogies as opportunities for sectoral hybridization, which can cross the boundaries that traditionally exist between individual knowledge domains, and which often tend to inhibit their mutual dialogue. In the specific case of design – which, as already mentioned, is itself characterised by an intrinsic propensity toward interdisciplinarity – the adoption of this perspective can open up particularly interesting insights of investigation, both from the field of design to the other sectors and *vice versa*; in fact, it provides an opportunity for scholars, teachers and educators to develop experimental approaches to teaching and learning that do not limit design to a merely instructional role, but methodologically seek to integrate it with other disciplines, fostering an effective knowledge exchange.

Even with the plurality of its potential applications and implications, such a purpose is consistent with the principle according to which it will not be possible to increase the quality of our educational systems until teachers begin to act as designers, and not simply as instructors (Spence, 2001).

Building on similar assumptions, this investigative attitude leads to questions about if, and how, it would be possible to borrow educational formats conventionally pertaining to the sphere of design in order to apply them as signature pedagogies within other disciplinary and professional fields. Exemplifying this approach is a study promoted by the Organisation for Economic Co-operation and Development (OECD), in which design is considered among the most relevant signature pedagogies to be involved in order to generate opportunities for enhancing creative skills and critical thinking in primary and secondary education. Carried out within the international project “Fostering and Assessing Creativity and Critical Thinking Skills in Education,” the study was aimed at defining a set of rubrics on what it means to teach, learn and make progress in order to help students succeed in the context of contemporary, knowledge-based economies. With this goal in mind, between 2019 and 2022 the OECD worked with a network of schools in eleven countries, encouraging involved teachers in reviewing and improving their existing lesson plans according to a list of signature pedagogies useful for nurturing students' creativity and critical thinking. Encompassing approaches such as, for instance, metacognitive pedagogy, dialogic teaching, research-based learning, and the Montessori method, this list also includes design thinking, a procedure implying a systemic approach to problem solving based on the sequential conception, prototyping, testing, and iteration of new ideas.

In its narrowest sense, design thinking can be interpreted as the set of cognitive, strategic and practical methodologies used by designers while practising their profession; more broadly, it refers to the body of knowledge that has been developed about how people reason when engaging with design problems. Closely related to the realm of entrepreneurship, the design thinking method is now widely established also as a pedagogical approach in the context of “innovation courses” in both university and schooling, engaging students in learning experiences in which they are led to think and act like designers (Vincent-Lancrin et al., 2019).

The OECD rubrics thus interpret design thinking according to an understanding deprived of the more strictly business-oriented components, as a vehicle for providing educational experiences in which students are asked to inquire through different means to imagine innovative and multiple solutions. Potentially embeddable into all subjects in the primary and secondary school curriculum, the signature pedagogy of design thinking is meant to develop students’ creative and critical skills in an applied way, emphasising their propensity toward exploration, openness, and sharing of knowledge (OECD, 2023).

Identifying design as a signature pedagogy can support learners in getting familiar with the phases that shape the design process in order to expand and consolidate their ideas, giving rise to educational formats that can be either implemented in short sessions in a specialised field or in longer interdisciplinary projects. In this sense, such identification may foster the development of “design literacy” strategies effectively capable of conveying the aptitude to relate creatively and critically to situations characterized by a high degree of complexity, ambiguity and ineffability (Christensen, Hjorth, Iversen & Smith, 2019).

5. Conclusions

In the totality of their disciplinary prerogatives, signature pedagogies contribute substantially to qualifying the designer's educational journey, supporting learners in developing the set of skills, cognitions and expertises

necessary to operate knowledgeably within the corresponding professional scenario. As seen, analysing the notion of signature pedagogy from an internalist perspective involves its acknowledgement in the role of a conceptual means which can be employed for understanding more deeply the system of disciplinary coordinates in which the design community recognizes and identifies itself. This perspective promotes an investigative approach aimed at decoding the linguistic and semantic paradigms through which, following Donald Schön (1983), designers describe and interpret the consequences of their actions, the implications of their discoveries, and the distinctive features characterising their acting in the world.

In turn, the interpretation of design in the role of a signature pedagogy corroborates the possibility of inquiring its potential role as a cultural substratum common to multiple fields of knowledge, not necessarily aimed at the development of a professionalism but, rather, at the acquisition of a mentality. A point of view, this one, that recalls the arguments expressed more than half a century ago by Herbert Simon (1969), according to whom design could constitute the core of any professional education with which schools of engineering, as well as those of architecture, economics, law and medicine, must inescapably deal.

Both perspectives pave the way for the development of structured approaches to research in the field of design pedagogy, and the production of further efforts in this direction would be definitively welcomed, detailing the investigation, when needed, at the level of the specific disciplinary branch. From this point of view, a promising field of application can be that of “basic design”: this term designates a particular phase, placed at the beginning of the design curriculum, which promotes holistic and experimental methodologies aimed at supporting students in acquiring knowledge about the fundamental principles of the discipline. Such a stance may be corroborated in view of the high degree of pervasiveness by which basic design pedagogy spreads within both the curriculum — as its experience keeps echoing throughout the design training pathway — and the profession — as its principles recall those coming into play in everyday design

practice. In fact, working on this particular educational phase endorses the possibility to identify, and transmit through appropriately formulated exercises, the elementary grammar underlying the theory and the practice of design, providing students with a set of basic technical and intellectual skills preliminary to any further specialisation.

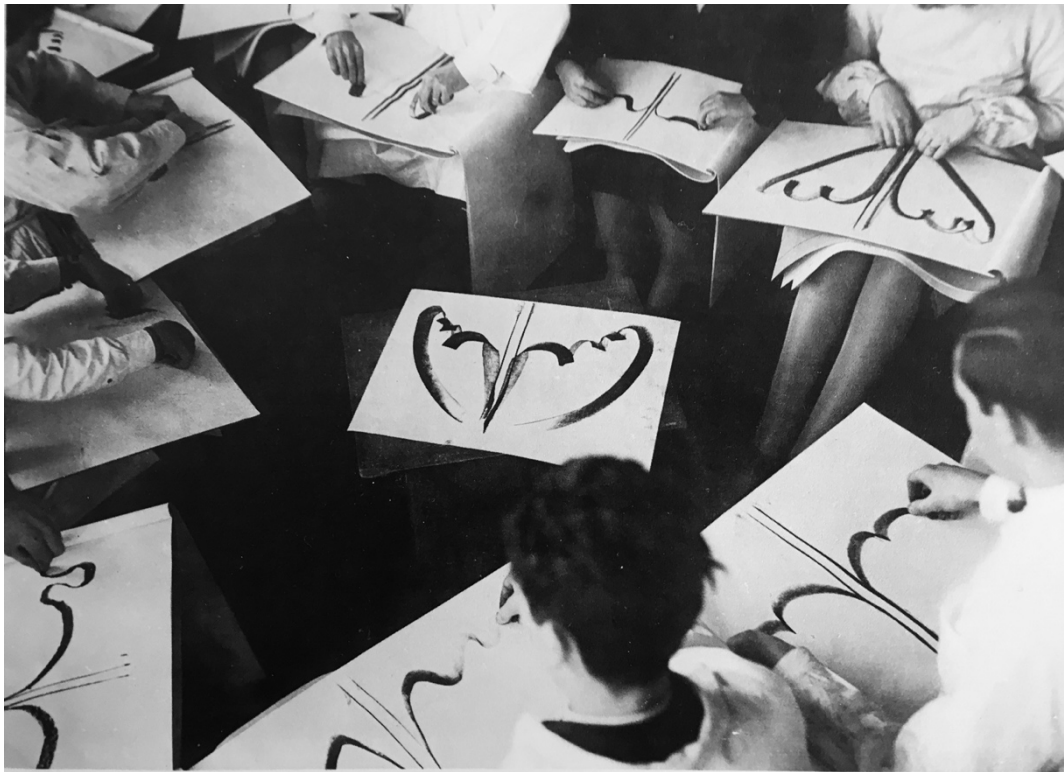


Figure 2. Johannes Itten: Basic design teaching class at the Staatliches Bauhaus of Weimar.

The impact of basic design reverberates not only upon the designer's intelligence of complex systems, but also upon the designer's professional responsibility (Findeli, 2001), and it is no coincidence that it has been interpreted as an essential educational phase by several of the most authoritative exponents of design pedagogy. By operating on the theoretical foundations of design practice, the dimension of basic design subjects the design discipline to a process of continuous revision and reprocessing, covering a function which in a certain sense, could be comparable to what in other sectors is defined as "basic research".

Weaving together preparatory training and disciplinary foundation (Anceschi, 2006), this model has traditionally played a crucial role in the history of design education, rooting on strong historical, theoretical, and methodological instances, and undertaking wide acknowledgement also within the contemporary disciplinary community: indeed, it is important to identify strategies for incorporating recent technological innovations into basic design pedagogy, focusing on the potential of digital tools from a critical point of view, in order to assess the value of this educational approach while adapting the course to a digital setting.



Figure 3. Josef Albers: Basic design teaching class at the Black Mountain College.

In light of the catalyst role it plays within the overall design curriculum, and the circularity it triggers in relation to the sphere of professional practice, basic design could even be considered and investigated in turn as a signature pedagogy in the general landscape of design education (Author, 2020): since basic design

represents one of the contexts where disciplinary statements are formulated more explicitly, such identification could provide a privileged point of view from which, on the one hand, address strategies for implementing this model in the contemporary context and, on the other hand, transpose it into other knowledge domains.

As a whole, the reasoning brought forward within this contribution corroborates the consideration of the concept of signature pedagogy as a useful interpretative lens through which it is possible to observe and

describe the phenomenology of design pedagogy in its varied expressions and manifestations. With the considerations here outlined, it is hoped to nurture a greater and more structured awareness about a conceptual construct that, bridging the level of theoretical speculation with that of professionalism, can provide useful insight in identifying and critically inquiring the processes involved in shaping the disciplinary status of design.

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