

# Pedagogy & praxis: emerging issues from doctoral programs in design research

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**ABSTRACT:** As professional practices adapt and specialize to address the thorny complexities of real-world problems, it becomes increasingly important that practical applications of design research should be more quickly digestible, assimilated, and incorporated. This has motivated some practitioners to direct—or produce—the research studies they need. It is not always clear, however, that practice-based research ‘measures up’ to academic standards. The situation opens up discussions of alternative “practicum” research training—both for advanced (doctoral-level) research studies but also for applied research methods taught in professional design programs (Masters level). In particular, this study presents preliminary findings on a range of programmatic comparisons between Doctor of Design [DDes] and Doctor of Philosophy (PhD) in Design degree programs, exploring both their alignments and autonomy, in order to discuss the goals and methods of teaching practice-based design research. The study uses research training structures in Education as a model for comparison with Design. A typology is proposed to distinguish: (1) professional (entry-level) doctoral degree, (2) academic doctoral degree with a research focus, and (3) professional (advanced) doctoral degree with a research focus. Using ordinary text analysis tools, key passages describing goals and purpose; mission/learning outcome; structure; and delivery mechanisms from selected doctoral programs are analyzed. Then, keywords from professional doctoral programs (such as DDes, DArch, and DSc), are discussed. Emerging strategies, structures, and delivery mechanisms suggest that professional doctoral degrees may be able to engage more easily with professional practice and to offer clinical approaches for rigorous research as well as innovative design practices. This offers welcome opportunities to bridge academia and design industries. However, because not every concept-making practice constitutes “research,” a significant need remains for the development of workable definitions of research standards and systems. Student-practitioners in advanced doctoral-level design research programs thus require a command of professional ethics and research integrity, as well as setting clear boundaries between professional services and research investigations.

**KEYWORDS:** Professional design pedagogy; doctoral degree program models; Doctor of Design; applied research; research in practice.

## INTRODUCTION

Across design disciplines, agencies, and sectors, practicing professionals increasingly appear to be integrating research agendas within their design processes and commissions. Over the past two decades, notable practices embracing and marketing their involvement in research include Olin Studio (landscape architecture); West 8 (urban design & landscape architecture); Kieran Timberlake (architecture and planning); Perkins+Will (architecture); SITU/Studio (architecture and fabrication); Kaleidoscope Innovation (product development); BresslerGroup (product design); RKS (product design and branding); SocioDesign (branding and packaging); and of course many more. In offering research as a service to clients, as well as a method to inform design, these firms assert that their professional merits are based in large part upon emerging expertise in their fields—expertise that benefits directly from engagement in practical research.

The integration of practice and research suggests that, in design, as in the fields of law or medicine, traditional or received definitions and boundaries of terms such as ‘design’ and ‘research,’ or ‘pedagogy’ and ‘praxis,’ are becoming blurred. This blurring has consequences for how design researchers are trained. In response to self-described practice-based research agendas, based on cues from websites, journals, and even corporate structures of many

leading design firms, how should design educators respond (and students prepare) for the co-construction of knowledge?

Obviously, not all ‘research’ is created equal. Typically, the processes of data collection and analysis performed in the context of professional design services (such as market/site/program analysis, user needs analysis, or other forms of project-specific diagnostic work) will differ from those of academic researchers. Many professionals aspire to holistic synthesis in the context of their projects, while many academics aim to build and/or test focused theories contributing toward a shared body of knowledge. Given these differences, are there instances in which design firms and institutions may actually be driving toward the same, or even loosely related, goals? Certain commonalities suggest they might. One potential caution for blurring the boundaries between practitioner-researchers and academic-consultants is a weakness among untrained researchers who wish to lay claim to any study, any act of learning pre- or post-design—whether ideation process, case study, or product design, as a form of “research” (Craig and Ozga-Lawn 2015). Instead, for research to be considered legitimate and trustworthy, most will accept that appropriate training, systematic methods, neutral oversight, and dissemination, all remain necessary to assure high standards of research quality.

Yet, even given the intensified search for relevant new knowledge, most will also acknowledge that complex design problems demand coordinated attention from different stakeholders. Those engaged in research might include academicians, researchers, practitioners, economists, government policymakers, community members, and others who offer valuable alternative perspectives and experiences. Rather than decontextualize design problems by focusing solely on theory or methodology, as frequently seen in academic settings, practice-based research more often embraces an open-ended, situated clinical approach. This approach to learning research skills—and evaluating effective solutions—appears to be useful to industry professionals while also increasingly acceptable to the academy.

How then shall the changing needs of design industries, some of whom are increasingly taking (research) matters into their own hands, shape curricular response in design programs? First-professional undergraduate degrees (eg. BArch, BID, BLA), along with pre- and post-professional masters degrees (MFA, MLA, M.Arch, MGD, etc), have traditionally helped to shape perceived distinctions between degrees focusing on traditional employment in professional practices and those leading to a role in design research. Within this context, the doctorate traditionally has served as the primary path for gathering, channeling, and training future design researchers. Today however, given the extensive list of leading design firms engaging in high levels of both design and research, it is no longer necessary to choose either an academic career in research or a professional career in design. “Both-and” options are not only possible and available, but are increasingly desirable for both future employers and future employees. Several emerging doctoral program-types, each having a distinct nomenclature, now play a role in meeting the evolving design research needs by expanding the research capabilities of design professionals.

This paper therefore offers a survey and assessment of doctoral degree programs in design disciplines, especially in architecture, using narrative analysis to examine institutional and programmatic statements from websites and handbooks. Within that frame, this paper is nested within a larger, ongoing study that explores the following questions: How are different educational models currently described, and how do institutions anticipate changes to doctoral programs in design? Occurring at the nexus between theory and practice, and given the range of common methods for design research, what are the focus areas of these programs? And finally: What is the domain of research claimed by emerging professional research degree programs, and how do their visions for design research align or differ from traditional doctoral programs?

## 1.0 BACKGROUND.

### 1.1. “Design research” in the context of practice-based research

The fundamental relationship between *design* and *research* (e.g. pre- and post-design research, or research by/of/in and through design) constitutes a vast and ongoing discussion, quite beyond the scope of this paper (Deming and Swaffield 2011; Groat and Wang 2016; Nijhuis and Bobbink 2013). What is significant, however—from the emergence of the topic of design research around the 1960s until the present—is that protecting both research autonomy and disciplinary boundaries has long been at issue. Nigel Cross describes how the emerging field of design research was first seen in techniques borrowed from other disciplines, such as computer science (Cross 2007; Asimow 1962; Alexander 1964; Archer 1965; Jones 1970). After briefly rejecting a methodology of design research during the 1970s, the 1980s witnessed:

...the establishment of design as a coherent discipline of study in its own right, based on the view that design has its own things to know and its own ways of knowing them. (Cross 2007)

Despite the fact that design researchers frequently borrow methodological tools and approaches from other disciplines, the basis for subsequent research has been established on an acceptance of Cross’s notion of design as a “discipline” having a semi-autonomous domain. While a toolbox of research methods may be borrowed or transferred from other disciplines, in design (as in law or medicine, etc), various methods are typically favored and can and may be modified to address the scale and range of different types of research problems, be they theory-based or application-based. Debates regarding disciplinary boundaries, e.g. what questions are ‘core’ or disciplinarily-appropriate and/or appropriate methods of inquiry frequently emerge. These questions appear not only because of the complex structure of different subject matters of inquiry, but also because of the changing role of the researcher-practitioner, who may translate related methodologies into applications for design practice. Design researchers thus increasingly work in ambiguous modalities, including practitioners conducting design research through or about their commissions, or research professors consulting with practitioners.

The desire and, indeed, the strong mandate for academic institutions to identify alternative research methodologies to address complex real-life problems is widely shared among clinical (practice-based) programs, such as education, law, or medicine, where the activities of teaching, research, and practice are certainly clinically related (Nielsen et al 2013; Bulterman-Bos 2008; Spencer and Atkinson 2015). Many clinical programs seek to increase their social and economic relevance by forming research partnerships with industry in order to contribute more effectively. This co-construction of knowledge by blended teams from industry and academia may target issues ranging from potential solutions to specific crises (housing, storm disasters, food systems, public health, etc) to new trends in technology and production (digital fabrication, prefabrication, etc).

Current research into other disciplines includes a range of perspectives concerning the utility and value of advanced study for their profession and practice (Wergin 2011; Javis 1999; Giddings 2010; Cahn and Gray 2018). Understanding the utility and value of advanced study to influence practice thus begs for similar attention be paid to the design fields. However, comprehensive assessments of the utility and outcomes of doctoral degrees in design-related research and practice is not yet available. As a first step therefore, we have undertaken a survey of the nomenclature, purpose, and range of doctoral programs in design in the United States. The intent is to provide a baseline for ongoing discussion of emerging pedagogical needs in design-related doctoral programs.

### 1.2. Analysis of doctoral programs in design

This study is focused on American universities appearing on the “Times Higher Education World University Rankings” list (*THE Ranking* 2019). Only the top 100 ranked universities offering “Art, Performing Arts, and Design” doctoral degrees were initially examined.<sup>1</sup> The aim here is to understand the range and types of doctoral design programs based on institutional

frameworks and discursive perspectives. Primary data included text and imagery from official handbooks and websites for these 100 schools.<sup>ii</sup>

The main framework for classifying professionally-focused doctoral programs is borrowed from National Science Foundation (NSF) designations for professional degrees (e.g. Doctor of Architecture/ Environmental Design/ Engineering/ Fine Arts/ Education, etc.) (*NSF Report 2003*). Although it is outside the scope of this paper, the NSF taxonomy deserves closer study in and of itself; for instance, additional or alternative degree programs, especially those responding to emerging or critical definitions of “design” itself, may perhaps be added to the list in time. For now, however, this analysis takes place within the larger landscape of existing doctoral degrees across many disciplines in the United States. These can be characterized as follows:

- *Professional qualification doctoral degrees* tend to focus on application of current “best-practices”<sup>iii</sup> rather than on original research. There are many examples of doctoral degrees that serve as qualification for entry-level professional practice.
- *Academic doctoral degrees* tend to embrace academic research (theory building/testing) and applied research (in-between theory and practice). This pathway is typically chosen by those wishing to enter the professoriate.
- *Professional research doctorates* are advanced clinical research degrees. This option often features a variety of research methodologies and methods (e.g. case studies, diagnostics, prototyping) useful for reframing real time, real-world challenges faced by practitioners.

The main distinctions between these degrees can be positioned on a continuum of application (Figure 1). Exemplary fields and degrees include the following:

*Professional qualification doctoral degrees* typically lead to professional certification for licensure and practice, and are commonly used for disciplines of medicine, dentistry, law, pharmacy, etc. e.g., M.D. (Doctor of Medicine), D.D.S. (Doctor of Dental Surgery), Pharm.D. (Doctor of Pharmacy), D.V.M. (Doctor of Veterinary Medicine), J.D. (Juris Doctor), Psy.D. (Doctor of Psychology), and so on.

*Academic doctoral degrees with research focus* serve those students seeking to enter the professoriate in disciplines of design, education, humanities, science, and art, e.g. PhD in— (Design, Art, Architecture, Education, Geology, Management, History), etc.

*Professional doctoral degrees with research focus* typically require a prior professional degree, often a terminal Masters or professional degree, in disciplines of design, education, humanities, science, and art, e.g. DDes (Doctor of Design), DA/DAT (Doctor of Arts/Arts in Teaching), DArch (Doctor of Architecture), DAS (Doctor of Applied Science), DED (Doctor of Environmental Design), DFA (Doctor of Fine Arts), DPS (Doctor of Professional Studies), EdD (Doctor of Education), DGS (Doctor of Geological Science), etc. (*NSF Report 2003*, 183).

The sample of design doctorates we examined (*THE Ranking 2019*) contains all three categories: 1) *professional qualification doctoral degrees*; 2) *academic doctoral degrees with a research focus*; and 3) *professional research doctorates* (Figure 1). *Professional degrees* are distinguished by accreditation and their focus on preparing students for entering specialized practice. These programs prepare students to play active roles in a chosen profession and are often mandatory for licensure. Based on disciplinary demands, the entry-level professional degree may be offered at the Bachelor’s, Masters, or Doctoral level. On the other hand, both *academic doctoral degrees* and *professional doctoral research degrees* share common ground—a focus on research and original knowledge. The distinctions between a *Doctor of Philosophy* (in any subject) and a *Doctor of—* (in any subject) are far from clear-cut, however, and while further exploration into specific research expectations for each discipline is begging, it is beyond the scope of the current work.

	1. Professional degree	2. Professional doctoral degree with research focus	3. Academic doctoral degree with research focus
Discipline	medicine, dentistry, law, pharmacy etc.  MD, DDS, PharmD, DVM, JD, PsyD etc.	design, education, humanities, science, art etc.  DDes, DA/DAT, DArch, DAS, DED, DFA, DPS, EdD etc.	design, education, humanities, science, art, law etc.  PhD in (Subject)* Subject: Design/ Art/ Architecture/ Education/ History/ Law etc.
Focus	practice (licensure purpose)	research	research

**Figure 1.** Types of doctoral degrees. Source: (Authors 2019)

Within the ‘ecology’ of design doctorates, comparisons are most usefully made between academic research degree programs and post-professional research degree programs. These programs are distinguished by different audiences with different sets of interests: those seeking to engage traditional academic research and an emerging population of student-practitioners seeking deeper training in practical or applied design research. Our present purpose, therefore, is to question how design educators can assure that practice-based research ‘measures up’ to academic standards, and how alternative “practicum” research training in professional design degrees can produce useful *and* valid research in practice.

**2.0. A CLOSER LOOK: DEGREE PROGRAMS in DESIGN AND EDUCATION**

The field of Education provides a translatable example. The entry-level degree to be certified as a primary or secondary school teacher is the Master’s degree (in architecture or landscape architecture, this equivalent may be at either the Bachelor’s or Master’s level). At the doctoral level, the *Doctor of Philosophy (PhD) in Education* guides students through a research-intensive program as they prepare for an academic career at the collegiate level. The *Doctor of Education (EdD)* degree, on the other hand, more likely directs its graduates toward executive positions, nonprofit organizations, and administrative agencies (Nelson and Coorough 1994). EdD programs tend to support engaged practice, accommodating full-time practitioners as students with active roles outside of their academic endeavors. Therefore, EdD degrees might be more likely to have a focus on community engagement or organizational dynamics, while PhD programs maintain their position as research-based or theory-driven (Figure 2).

Research designs used in Education doctoral dissertations also illustrate some of the differences between the two programs: PhD dissertations mainly use correlational and experimental research designs, while EdD dissertations more often used descriptive and qualitative methods (Walker and Haley-Mize 2012). However, the distinctions between the two programs cannot be attributed solely to curricular or methodological differences; rather the distinction between the two programs is based on different research interests and purposes of graduate students. In other words, by welcoming student-practitioners, the EdD program is primarily shaped by their clinical, real-world approach and direct application to practice. Student-practitioners studying in EdD programs seem, therefore, to be reciprocal in shaping program objectives and methodologies. Student-practitioners are permitted to maintain a social or client-based focus without being confined to an academic domain (Aiken and Gerstl-Pepin 2013).

**2.1. Parallels: doctoral study in education and design**

This paper seeks to understand whether the principle of direct application of research in practice may fundamentally influence the direction of programs that teach design research. Disciplinary differences in research methods are almost immaterial. Given that ‘design

research' is established as a legitimate and defensible form of research, responsible mainly to the field of practice, pedagogical strategies for doctoral degrees in design fields must also be governed by the field itself (Deming and Swaffield 2011; Groat and Wang 2017; Cross 2007; Cooper 2017, Craig and Ozga-Lawn 2015, Bono and McNamara 2011). Taking this as our lens, the parallels between Doctor of Design and EdD doctoral programs seem particularly salient, especially the shared focus on societal needs through engaged and applied research strategies.

Doctor of Philosophy in Education (PhD)	Doctor of Education (EdD)
<ul style="list-style-type: none"> <li>• Academic career-oriented</li> <li>• Research intensive</li> <li>• Research-based or theory driven</li> <li>• Full-time, residential students</li> </ul>	<ul style="list-style-type: none"> <li>• Executive/administrative positions</li> <li>• Engagement with education practice</li> <li>• Clinical praxis</li> <li>• Practitioner-students, flexible</li> </ul>

**Figure 2.** Comparison of PhD in Education and Doctor of Education (EdD). Source: (Authors 2019)

While EdD programs may rely on primary-grade educational environments to enact applied approaches to research, the 'laboratories' of DDes programs rely on spaces integral to the design industries, such as firm studios, manufacturing plants, and project sites, where physically designed objects, communications, buildings, and public spaces are produced. In other words, where EdD students may deal with organizational, policy-based, and programmatic challenges, DDes students may work in physical environments, urban communities, complicated supply chains, or processual logistics.

Doctor of Philosophy in Design (PhD)	Doctor of Design (DDes)
<ul style="list-style-type: none"> <li>• Academic career-oriented</li> <li>• Research intensive</li> <li>• Research-based or theory driven</li> <li>• Full-time students</li> </ul>	<ul style="list-style-type: none"> <li>• Private sector/ industry</li> <li>• Engagement of practice (focus on society)</li> <li>• Clinical praxis (office as lab)</li> <li>• Practitioner-students</li> </ul>

**Figure 3.** Comparison of PhD in Design and Doctor of Design (DDes) Source: (Authors 2019)

### 3.0. FINDINGS: PRELIMINARY THEMES FOR DOCTORAL PROGRAMS IN DESIGN

This section shows preliminary findings of our ongoing comparison of traditional PhD degrees and professional doctoral degrees. One hundred design-related doctoral degree programs were identified and narrowed down through an analysis of specific narrative content from websites and program handbooks. For our present purposes, thirty-four (34) PhD programs in Architecture were found along with seven (7) additional design-related professional programs (incl. DDes, DArch., DS) that also encompass architecture. Their official websites and handbooks were manually reviewed, and keywords, themes, and program models cataloged. Work is currently ongoing; textual content is being coded in the aggregate using commonly available web-based text analysis tools.<sup>iv</sup>

The first level of analysis assesses descriptive *themes* (keywords related to programmatic content, mission, subjects, and learning outcomes). For example, keywords and themes from applied or practice-based programs (such as the DDes) include terms such as *interdisciplinarity*, *distance-learning*, *student-practitioners*, *independent study*, *research teams*, *leadership*, *innovation*, and *transformative design practices*. The second level of analysis identifies educational *models* (forms related to programmatic strategies, structures and delivery mechanisms). Key models from the findings include 'versus' pairs (PhD vs DDes): in forms such as *structured versus independent learning*; *residential versus distance programs*; *earned credits from coursework versus thesis or dissertation*; and traditional versus *hybrid formats*.

Content analysis so far actually illustrates many points of similarity between the two program types. For instance, there seem to be several overarching aspirations in common, in notions such as *innovation and new knowledge, guided or independent study* outside a classroom, *instruction in research methods*, and the thesis or *dissertation* as the primary output. Some themes used in applied and practice-based programs (for example “interdisciplinary”) are detected as themes in common with many PhD programs. Although our analysis is as yet incomplete, the details of specific themes are forthcoming as a subject for a separate paper. Below we share a few of the more significant preliminary findings.

### 3.1. Distinctions and similarities between program types

**Residency:** While most PhD programs typically necessitate full-time studentship and campus residency (at least during the first 2-3 years), some professional degrees offer a range of degree formats including online, in-residence, or hybrid models.<sup>v</sup> Significant variations appear, however, when distance learning integrates technology and hybrid platforms.

**Time to degree:** Traditional PhD programs show a range of credits/years in the program leading to degree completion; although, in the end, the degree implies the same credential value regardless of time spent. In respect to duration of program, there is relatively slight difference between the two degree categories.

**Content and deliverables:** Professional doctorates (such as the DDes) and PhD degrees are frequently described as dissertation-oriented, however the content, format, and purpose of research may differ sharply. Typically, PhD dissertations are positioned to focus on theoretical elaborations (though not always), and often take the form of a discursive tome or published articles. Professional doctoral degrees are positioned to focus on practice-based design research (though not always) and may take alternative forms, such as engaged work, program development, creative works or projects.

**Methodological focus and career pathways:** In the aggregate, PhD programs in environmental design are described using terms such as: *theory, building technology, representation, administration, publishing*, etc. Professional degree programs (DDes, DArch, DSc, etc) do not seem to be sharply differentiated from these terms. Many of the PhD programs we studied also claim to combine theoretical and practical skills, and suggest the inclusiveness and responsiveness of professional doctorates to prepare for many career options.

**Program mission:** One major difference between the two types of programs therefore comes down to program mission and student-centered culture. These emerge as a kind of reciprocal response to the needs and position of the student-researcher. Notably, many professional degree programs (DDes, DArch, DSc, etc) do not clearly differentiate their coursework from their students’ real world practice environments—a point on which we intend to focus further. How he/she needs to frame and deal with real-world problems, or how the research design is integrated into real-world contexts, seems to constitute the main distinction of such programs.

### 3.2. Learning outcomes

**Learning Outcomes:** Overall, the purpose of the PhD degree is not primarily to turn out more professionals for the design industry, but to create more critical thinkers to move the industry forward by working toward new knowledge. In this respect, learning outcomes can be positioned along a spectrum between, say, *critical and theoretical reflection, educating teachers*, and *participating in sponsored projects (e.g. technology)*. Beyond ensuring that research questions being asked are relevant and potentially impactful, PhD programs generally do not expect students to implement real-world applications of their research, nor to enter/return to industry practice. On the other hand, professional doctoral degrees (i.e., DDes, DArch) appear specifically to target professional practitioners eager to gain specialized expertise gained through research.

**Interdisciplinarity:** One significant difference between the two types of doctoral programs seems to be the expansive range of disciplines included (implicitly or explicitly mentioned) in

professional doctoral programs (such as the DDes), including: *graphic design, industrial design, landscape architecture, architecture, urban design, engineering, cultural geography, interior design, fine art, (art) media studies, information studies, city planning, law and public policy, fashion/textiles, communication design, product design, interaction design, UX design, environmental design, service design, historic preservation, computer science, geography, (art) photography, environmental and design psychology, business, education, museum studies, design for social innovation, design research, design theory, construction, material culture, environmental policy, digital design, health and well-being, real estate, surveying*, and so on. While not a mandate, the increased inclusiveness of professional degree programs suggests a growing trend towards complexity and interdisciplinary research approaches. And although interdisciplinary PhD programs (such as PhD in Design) may also respond to a broad range of disciplines, many if not most traditional PhD programs maintain their focus on the core discipline.

### 3.3. Discussion: practice-based design and the questions of ethics

Typically, the traditional purpose for both offering and undertaking a doctoral degree program is to produce new knowledge, whether theory or ‘know-how’, and thus to advance a disciplinary body of knowledge. In advanced design education, however, the boundaries between pedagogy and praxis are especially blurred, more or less porous according to discipline. Architects produce research as they tangle with design solutions while industrial designers may critically assess user-centered experiences through developing personas and behavior mapping. Rather than adhering to the historically strict dichotomy between theory and practice, with individuals settling on becoming either a practitioner or a researcher, there is an emerging hybrid third choice. The complex real-life problems now attracting many doctoral students necessitate the engagement of multiple subjects and approaches, resulting in emerging, alternative, and hybrid domains of study in both the academy and the professions.

**New Markets:** Preliminary content analysis of sampled doctoral programs highlights several emerging issues in design pedagogy at the doctoral level, including the transition of dissertation subject matter from theory-oriented to practice- or project-based research, in both types of degrees. Given increasing agency to frame their own research questions, it may be the changing student-practitioner who is defining a new educational market and thus reshaping doctoral education in design.

**Intellectual Property:** In professional doctoral programs such as the DDes, teasing apart the boundaries of professional expertise embedded in “best-practices”, from practice-based research, while simultaneously opening up potential alternative research applications, also raises critical ethical questions. For example, using the office environment as a “lab” for student-led research creates its own dilemma of intellectual property: who owns the new knowledge created? Is it the student/faculty team posing the question or the firm/ owner/client who actually secured the commission and/or signed the contract for services that the research is addressing? Some advanced professional degree programs propose alternative forms of co-authorship between academia and industry. However, where money is concerned, co-authorship can complicate ethics as well as professional relationships. How this is addressed is a matter of clear communication between the doctoral program, the student-practitioner, and their professional reporting structure.

**Research Integrity:** Another question for student-practitioners relates to the tensions between time and responsibility. What are the rights and interests of the academic institution overseeing the research enterprise? How are human and environmental subjects protected? How can the method/process of research be controlled in a service-and-deadline-driven professional office environment—especially if it is also to serve as a space of discovery for the student-practitioner? During the design/production process of complex product lines or physical environments, inevitably multiple agencies from different disciplines will need to be involved. In gathering project data from an active project office, how can ethical research practices (such as confidentiality and protection of human subjects) be sustained?

Other dilemmas and challenges abound. Naturally, ethical considerations must comprise a significant component of pedagogical design for design-related professional doctoral degrees. The question of ethics is intrinsic to the construction of knowledge, as well as its implementations to real-world problems. And although a detailed exegesis of ethical considerations are beyond the scope of this study, in order to highlight emerging needs for new doctoral curricula, we are finding research ethics, leadership, and co-construction of knowledge are crucially important themes.

## CONCLUSION

The paper has explored doctoral study in the design fields, specifically looking at the autonomy and potential alignments of DDes and PhD programs to question common understanding of how “design research” is taught and used. Even in this preliminary stage, analysis of doctoral program goals, learning outcomes, and structure may serve to illustrate how traditional PhD degrees in design schools and professional degrees (such as DDes, DArch, DSc) can be transformative for practitioners as well as the professoriate. Programmatic comparisons help open discussions of alternative forms of “practicum” training in relation to rigorous research training. This is not only important for advanced design students but also, potentially, in teaching research methods in entry-level professional design programs at the Masters level.

For design practices that are rapidly specializing to address complex real-world problems, there is a desire for research to be more quickly digested, assimilated, and incorporated into practice. Rigorous research training would give increasing agency and efficacy to design practitioners to direct—or even produce—the research studies they need most. This highlights an emerging need for alternative ways of thinking about strategy/structure, pedagogy, outcome, and mechanisms of design research. And because not every concept-making practice constitutes “research,” agreeing on workable definitions becomes a significant point of advance.

Professional doctoral degrees deliberately integrate research with professional practices, offering contextual approaches for student practitioners to engage with industry, government and other sectors. On the one hand, this attitude increases accessibility for both sides, creating welcome potential to bridge academia with design industries. On the other, practice-based approaches come with delicate ethical considerations and may create confusion between “best-practices” and research-driven practices. It remains to be seen how the design disciplines will solve these challenges.

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## ENDNOTES

<sup>i</sup> Determining the objectivity and accuracy of

ranking systems, or positioning American universities within the full community of global institutions also offering design education is outside of the scope of this research.

<sup>ii</sup> It is accepted that official handbooks and the websites of the schools represent an element of marketing or institutional branding; the content they contain therefore only describes the intention, aspiration, or perception of a degree program rather than offering any comparative metrics.

<sup>iii</sup> It is accepted that the demarcation of "best-practice" could also be utilized as a marketing strategy, and that definitions of "best-practice" need further critical investigation. For instance, the dominance of single approaches to practice and production, without inclusion of "alternative" methods or markets, should be questioned.

<sup>iv</sup> Preliminary content is currently being collected from publicly available websites, sorted and reaggreated using excel spreadsheet. We are experimenting with text analysis apps such as Textalyser <http://textalyser.net/> and manual coding techniques using Excel. Once we have sorted and identified preliminary themes, we plan to use NVivo software for definitive coding process.

<sup>v</sup> Some PhD programs incorporate online courses and may provide flexibility for students to work part time and/or work on research off-site