

Postgraduate Design Education in Germany: Motivations, Understandings and Experiences of Graduates and Enrolled Students in Master's and Doctoral Programmes

Gavin Melles
Swinburne University, Australia

Christian Wölfel
Technische Universität Dresden, Germany

ABSTRACT Germany has a long tradition of excellence in design, highlighted by influential institutions such as the Bauhaus and the Ulm School, which continue to globally influence design practice and

education. Design fields are principally located in three of the major institution types in Germany: the *Fachhochschulen* (Universities of Applied Sciences/Polytechnics), *Kunsthochschulen* (Universities of Art) and the traditional universities. In all schools and departments practice-based work and traditional research approaches compete for a focus in institutions adapting to the implementation of the Bologna restructuring of Higher Education in Germany. In this new context, what design as an academic discipline (*Designwissenschaft*) looks like is being defined and debated by academics. However, this discussion is taking place without much reference to the content and nature of existing programmes or the student experience. This lack of empirical input from students, whose experiences and understanding are a key measure, form the basis of this funded research study. Based on qualitative and quantitative data (n = 154) from a survey of enrolled and completed doctoral (n = 39) and master's students (n = 116) gathered during a German government-sponsored research exchange, this preliminary study assesses the motivations, experiences and understanding of design research. The study concludes with an assessment of design as a discipline in Germany based on this data.

KEYWORDS: Germany, design research, design education, science of design

Introduction: Structural Changes and Pressures



The economic and social recovery of a postwar divided Germany was closely linked with the success in that country of product design, and underpinned by institutions such as the Bauhaus, HfG Ulm and the German Design Council, among others (Betts, 2004; Bürdek, 2005; Hückler, 1997; Selle, 2007; Spitz, 2002). Particularly, in the post-Second World War period, the different institutions charged with design education, including *Kunstgewerbeschulen*, gave way to the development of a differentiated further and higher education sector. In the post-Ulm era (1968) of education change design fields re-emerged in one of the three main sectors: the polytechnics (*Fachhochschule*, FH), art and design academies (*Kunsthochschule*, KH, also named *Hochschule für Gestaltung*, HfG or *Hochschule für Bildende Künste*, HfBK) or the traditional university sector, including the newer technical universities; a small but growing private university sector has also added to this number.

In terms of doctoral education, a few art and design academies have developed PhD or *Dr. phil.* programmes (e.g. Hochschule für Gestaltung Offenbach am Main or Bauhaus-Universität Weimar) with an explicit design focus. This practice-based tradition with an ‘artistic’ component is already present in the arts schools (*Kunsthochschulen*) as typical for the Fine Arts doctorate (see e.g. Nolte, 2010; Lenger, 2009). In the mainstream university sector (*Universitäten*), including the more recent technical universities, design fields, particularly industrial design, can be found in faculties of Architecture or Engineering (e.g. TU München, TU Dresden). Here *Dr.-Ing.* degrees are possible. As newer disciplines, such as interaction design, have developed, other faculties, including Computer Science, now also host design fields. Similar to their Anglo-Saxon polytechnic counterparts, the *Fachhochschule* sector cannot offer doctoral training at present. However, the distribution and spread of design noted above means that any comprehensive account of where design fields in higher education are located is difficult.

The Bologna restructuring of higher education has aimed to help Germany regain some of its lost prestige in higher education (see Teichler, 2005; Vehrkamp, 2006). International comparisons particularly with the USA have played a key role (see Lenhardt 2005; Liefner *et al*, 2004). Although the Federal Ministry of Education and Research defines the Bologna framework as national, the different *Bundesländer* (federal states) in Germany have individual control over education and research policy and practice. This has meant that the replacement of the (typically) 10-semester studio-oriented *Diplom*, for example, has not been instituted Germany-wide (see Schwarz-Hahn and Rehburg, 2004). Another recent change in the sector has been that since the early 1990s more structured training programmes for doctoral programmes, including in design, have been introduced based on UK and US models although the traditional apprenticeship model remains influential (Baldauf, 1998).

Master’s and Doctoral Degrees: New Tensions and Directions

As Petzina (2005: 202) argues, the classic dividing line between ‘research-oriented’ universities and other ‘applied’ institutions in Germany is no longer as clear. Schade (2007) notes that *Fachhochschule* have helped blur this line by calling themselves Universities of the Applied Sciences (Schade, 2007: 27). Lub *et al* (2003; and see Kehm and Teichler, 2006) claim also that because bachelor’s and master’s degree titles granted by universities and *Fachhochschulen* are not officially distinguished, this has ‘made the new degrees an important means in the *Fachhochschulen*’s struggle for equal recognition with the universities’ (2003: 256). Given these developments, it is perhaps not surprising that discussions are underway for *Fachhochschulen* to offer doctoral degrees in Germany (see Schwarz, 2007 for Austria).

Universities have also had to respond to pressure to be more industry-relevant, creating some tension and competition between schools, especially at the master's level, and new pressures on students and faculty (Stallmann, 2002; Wuggenig, 2008; see also Kunzmann 2008). The new master's degrees with different degrees of research embedded have been enthusiastically adopted by the *Fachhochschule* (see Ludwig, 2000), and promoted as a better fit for a professional career than the prior diploma study (see Freytag, 2005). Bürdek (2008), however, has suggested that such degrees have suffered from vague objectives and practices, which are a consequence of an atomized bureaucratic point system under Bologna. Design graduates from FH who wish to go on to doctoral studies also require additional bridging studies to bring their training up to the 'scientific' standards of the universities; this is a requirement that can seem arbitrary (see also Grotensohn *et al*, 2007).

Building on prior discussions in the English-speaking world on design as a discipline (see Cross, 2001), one term *Designwissenschaft* has emerged in Germany as a focus of discussions about how a design discipline might solidify out of this variety. The term is currently used by many institutions as part of mission statements about the academic pursuit of design at postgraduate level (see, for example, Folkwang (Arts) University (<http://www.folkwang-uni.de/home/wissenschaft/institut-fuer-kunst-und-designwissenschaft/>)). According to Romero-Tejedor and Jonas (2010) *Designwissenschaft* is, however, frequently used indiscriminately as a synonym for design theory and research. The term has, understandably, often been literally translated as *Design Science* but is semantically much closer to Cross's (2001) notion of a design discipline.

Recent arguments about the nature of a distinct *Designwissenschaft* emphasize the ubiquity and uniqueness of design in society and culture as a unique contribution of design schools (see Brandes *et al*, 2007; Mareis 2011). In practice, however, the term is employed to describe fields that some would consider tangential or contrary to typical design considerations. These include gaming design (Edegger, 2008), engineering design (used alongside *Konstruktionswissenschaft*; see Eekels, 2000) and information systems (Bichler, 2006). In addition, the term competes with another central term for the Fine Arts, *Kunstwissenschaften*. Rummel (2000), for example, rejects *Designwissenschaften* as a relevant term, as it isolates design processes and objects from general cultural processes (*Kulturwissenschaft*) (2000: 6). In sum, it is a key term in the discourse about design in higher education but hardly a notion of widespread use or agreement (cf. Durling 2002).

In sum, the landscape of postgraduate design education is diverse, and characterized by tensions and change around the nature of design as an academic discipline. What certain academics and institutions (through their mission statements) think about this issue and its relationship to higher education is somewhat clear. However,

how students perceive these changes and how they define practice, theory and research remains an unknown. In view of the lack of empirical work, funding was sought and obtained through the German Government DAAD (*Deutscher Akademischer Austauschdienst*) to conduct a research and teaching visit to Germany in summer 2010. Surveys of doctoral (n = 39) and master's students (n = 115), were also complemented by seminars and teaching in a number of universities (in German). The analysis and resulting picture suggest a developing but differentiated picture of *Designwissenschaft* in Germany.

Survey setting

One database suggests there are 74 bachelor's and 34 master's programmes in design fields.¹ The most complete *Hochschulerktorkonferenz* (HRK) database² lists 118 master's programmes in design fields, including, however, programmes that are specialities of Media Arts, Architecture, and Engineering. Degrees granted, depending on institution, include the existing *Diplom* degrees, Master of Arts (in FH and KH), and Master of Science (MSc) degrees tend to be the norm in universities.

The list of institutions enrolling candidates with design subjects into doctorates is much smaller, and the recency of doctoral degrees has meant that there have been few completions or theses available. Some information about the cohort of enrolled doctorates is available on individual institutional websites which publish completed and ongoing doctoral projects. A recent inspection of such sites (viewed May 2012), for example, showed Folkwang University of the Arts shows 10 completed and 10 ongoing doctorates; The Design Research Lab at Universität der Künste Berlin has seven *Dr. phil.* enrolled; TU München show 8 currently enrolled *Dr.-Ing.* in Industrial Design; Universität Wuppertal 11 in industrial design; HfG Offenbach am Main 5; Bauhaus-Universität Weimar completed *Dr. phil.* in *Gestaltung* has 7 while the practice-based PhD (Art & Design Candidates) show 15 currently enrolled. *Habilitation*, a postdoctoral qualification enabling academics inter alia to supervise and examine doctoral work, has in design fields also totalled possibly as few as five to date.

Despite this incomplete picture, a pilot study was developed to begin to fill the research vacuum. The study was conducted as an internet survey based on semi-standardized questionnaires (see <http://opinio.online.swin.edu.au>). Master's and diploma students were recruited directly from institution websites where information was available. Faculties with responsibility for this area were also contacted, and, during the study and research visit in June/July 2010, personal contact with students was also used to encourage survey completion. Following demographic details, questionnaires to both groups (doctoral- and master's-level students) asked about motivations for enrolment, experiences with research methods and

theories, evaluation of writing, speaking and practice dimensions of the research, and a statement on the relationship between practice, theory and research in the field of design; the questionnaire was administered in German. Analysis of the qualitative data was conducted by both authors separately coding the text inputs for keywords and themes and both convergence and divergence then incorporated here in the analysis.

Results – Demographics: Participants and Topics

Tables 1 and 2 illustrate the demographics of participants. A total of 17 institutions participated in the *Diplom*/master's survey. In Table 1 the two universities that did not have *Fachhochschule* or *Kunsthochschule* status are asterisked. Two German students enrolled in master's at a *Fachhochschule* in Basel (Switzerland) were included. Two-thirds of the participants ($n = 76$) were enrolled in Master of Arts, a significant number ($n = 32$) in the *Diplom* degree (master's equivalent) and a small number ($n = 4$) in Master of Science degrees (all at TU München); a few participants ($n = 3$) left this category unanswered.

The spread of fields answering were in the overwhelming majority (40.5 per cent) in Graphic and Communication Design, Industrial and Product Design ranking second (22.5 per cent) and Design Management (14 per cent) in third place. Other fields included were fashion, photography, multimedia, service design and interaction design (combined ~18 per cent); a significant minority (11 per cent) gave another unspecified field as their answer.

Table 1 Demographics of participants in the *Diplom*/master's survey

<i>School – master's programmes</i>	<i>n =</i>
FHNW, HGK Basel	2
FH Düsseldorf	6
Kunsthochschule Weißensee Berlin	7
Folkwang Universität*	9
HBK Saar	16
TU München*	4
HTWG Konstanz	9
HAWK Hildesheim	16
FH Augsburg	5
KH Burg Giebichenstein Halle	1
FH Reutlingen	4
MHMK München	1
HS Magdeburg	1
FH Hannover	3
FH Potsdam	5
HS Mannheim	2
HfG Schwäbisch Gmünd	16
Unstated	8
<i>Total</i>	115

Demographics for the doctoral students were as follows (Table 2): nine institutions were canvassed, all of which the first author visited for further interviews with staff and students. One university, whose PhD programme had just begun, namely HfG Offenbach am Main, requested specifically not to participate. The majority of responders, as indicated above, were still enrolled at the time of the survey and at different stages of their candidature; a number commented on this fact in their answers.

Table 2 Demographics of participants in the PhD survey

<i>Institution</i>	<i>Degree</i>	<i>Total (completed)</i>
Bauhaus-Universität Weimar	PhD & Dr. phil.	5
Bergische Universität Wuppertal	Dr. phil.	6 (1)
Folkwang Universität der Künste Essen	Dr. phil.	5 (3)
Hochschule für Bildende Künste Braunschweig	Dr. phil.	4 (1)
Kunsthochschule Kassel	Dr. phil.	6
Technische Universität Berlin	Dr. phil.	1
Technische Universität Dresden	Dr.-Ing.	5
Technische Universität München	Dr.-Ing.	5
Universität der Künste Berlin	Dr. phil.	2 (2)
<i>Total</i>		39 (7)

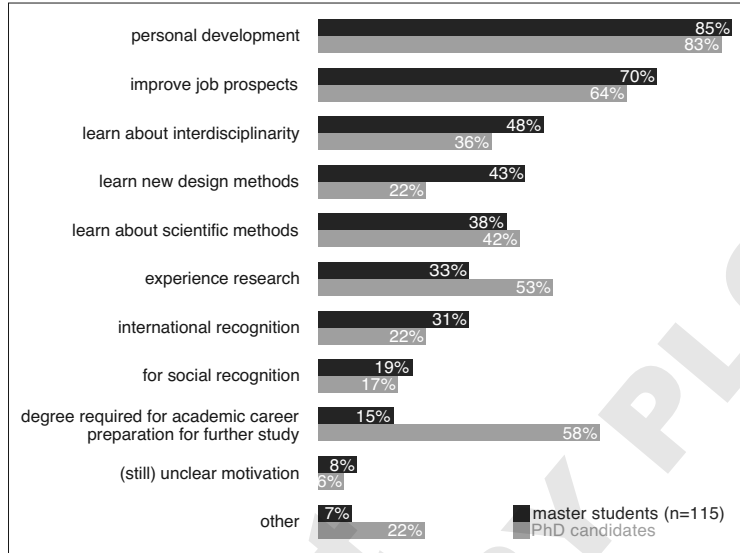
Postgraduate Motivations: Similarities and Differences

Motivations for postgraduate enrolment vary from individual to individual, and this study employed categories which had been mentioned in the literature (e.g. Bauer, 2008; Messing and Huber, 2007; Puzicha and Tucholsky, 2010); the survey of motivations for master's and PhD groups was equivalent with one exception. The master's/*Diplom* study included the category 'preparation for further study, e.g. PhD enrolment' as an option. In the doctoral survey this category was replaced by the need for the degree for an academic career; this distinctive pair is calculated below.

Two areas where there were major differences between both cohorts (in either direction) were, perhaps not surprisingly *experiencing research* and *learning new design methods* (Figure 1). For master's studies additional motivations (8/115) were: getting to know people with whom collaboration would be interesting, professional development, interest, master's degree as essential for teaching, working on a project that one probably would not experience in professional life and learning about new areas. For doctoral studies the top three motivations were for personal development, improving job prospects and meeting the requirements for an academic career. The significance of a doctoral degree for an academic career is as important in Germany as elsewhere.

Two-thirds of the doctoral respondents added additional comments; a common theme in these elaborations was the personal

Figure 1
 Motivations for enrolling a master's (n = 115) vs. PhD (n = 39) in design based on the survey.



enrichment students gained from the process. Others elaborated on the specific need they had for the qualification in their university position or in some cases in their profession, especially where this was in a technical domain, e.g. mechanical engineering; a minority cited social recognition as a motivation.

Use and Understanding of Design Methods, Theory, Research

Research methods and theories in design research tend to divide broadly into those which link closely to design practice, e.g. prototyping, and those with a more general social science application (e.g. Laurel, 2003). The second question asked both groups of postgraduates to report on their use and understanding of research methods. The list was developed with reference to relevant practices in Germany, taken from Brandes *et al* (2007); multiple selections were possible. The table and images below rank and compare the responses of both groups to this question.

As expected, traditional research methods (observation, interview and literature review) feature more highly for PhD than master's students (Table 3). For this latter group, familiar practice-oriented design methods for concept generation and data gathering ranked higher. Thus, at the PhD level the choice of 'scientific' methods bring design under the general umbrella of the human or social sciences; or in other relevant fields, e.g. engineering. This is a vexed question for some academics as many practice-oriented methods are included now in design *research* texts that collate practice-oriented methods (e.g. Laurel, 2003). For those who see a distinction, this blurring is problematic; for those who believe such methods are also tools to research, there is no issue.

Table 3 Methods and theory of use (each group 12 highest ranks)

<i>Master's students (n = 115)</i>	<i>Rank</i>	<i>PhD candidates (n = 39)</i>
Brainstorming (58)	1	Observation (25)
Group discussion (53)	2	Interview (21)
Observation (41)	3	Literature review (20)
Mind maps (40)	4	Semiotics and semantics (18)
Semiotics and semantics (30)	5	Mind maps (17)
Materials research (28)	6	Brainstorming (17)
Questionnaires (25)	7	Philosophy (16)
Storytelling (24)	8	Questionnaires (13)
Rhetoric (20)	9	Usability testing (13)
Trend research (18)	10	Interdisciplinary studies (13)
Literature review (18)	11	Historical research (12)
Usability testing (17)	12	Semantic differential (11)
Philosophy (17)		Ergonomics (11)

The final comment section asked about the relevance of the chosen methods to study. Here also a range of additional methods for both groups were listed, including sociology, IDEO Methods Cards, producing prototypes; creative techniques, marketing and project management. For the PhD students among the other category (option 46) the following four methods were listed: model theory, sketching, moodboards, raw prototypes or mock-ups, design-based research and *gestaltung* (design work). The results are shown in Figure 2.

Comments on Methods Choices

For the master's students, given the typical project focus of studies, the number of methods used and the short time frame were a decisive factor; some respondents mentioned the fact that they had limited time to be acquainted with some methods. A number of respondents referred to methods as project dependent. A number of doctoral respondents referred to the break between pre- and post-doctoral methods, so that practice-oriented design methods were partly or wholly replaced by more generic social science methods and processes, e.g. qualitative research, at the doctoral level. Those working in more technical areas such as human-computer interaction and industrial design referred to lab tests, e.g. usability tests and 'traditional' methods, as expected. Some of the observations on this question, which asked about this relationship, did provide additional comments of interest about the use of methods and theory prior to

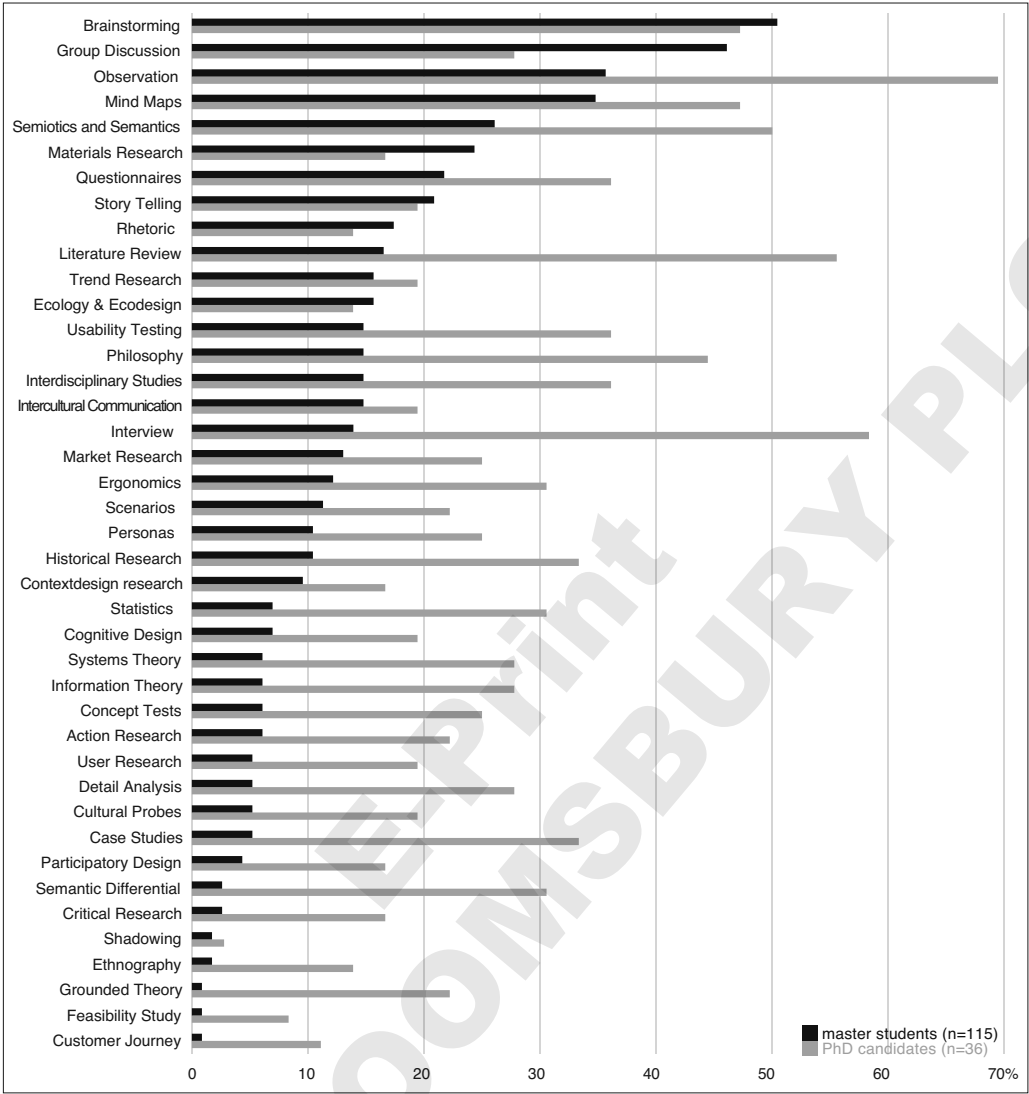


Figure 2
Comparing methods choices.

and during doctoral work, indicating something of a split between the two areas, and a conceptual leap for doctoral ‘research’ students.

One common complaint for both groups was a lack of structured introductions in research methods and ‘scientific’ processes through coursework. A small number of students (enrolled in the practice-based PhD at Weimar and those working broadly in interaction design in the Design Research Lab in Berlin), referred to direct intervention and co-design being an element of research practice: ‘Since this is a Design Dissertation, it is not about a neutral observer role but rather changing the situation that I “test”. As a result I will probably use elements of Action Research.’ In sum, the employment of distinctive design methods at the research level and beyond the

practice-oriented phase of bachelor's/master's or diploma studies is attested but has yet to displace normative expectations at the doctoral level for more generic 'scientific' methods.

Challenges: Writing, Designing and Speaking

Academic writing constitutes a challenge to many art and design students as their studio- and practice-based training typically does not place a heavy emphasis on this. Related studies point to the difficulty students in these areas have in conceptualizing the relationship between (academic) writing and creative work (e.g. Hockey and Allen-Collinson, 2000; Pritchard *et al*, 2005). Design student conceptions of the research component of postgraduate degrees in comparison to project work also vary (e.g. Dickinson *et al*, 2007; Shreeve *et al*, 2004). Although writing demands vary for master's (and diploma) study, typical figures for theses in *Fachhochschulen* in this area is around 40 pages while in the university sector this may be considerably more, e.g. 140 pages at TU Dresden. Doctoral theses meanwhile are of conventional breadth (80,000–100,000 words) with no exemplars yet of practice-based PhDs to compare.

In the survey, both master's and doctoral students ranked writing as overall more difficult than either spoken or, where relevant, design work. For the master's students, two main themes were the lack of experience with scientific writing in prior training, and the fact that it was difficult to answer the question given that the respondent was at an early stage. Although this is understandable, it could be the case, for example, that silence on this issue was also due to a lack of prior experience by students with writing in bachelor's study and a lack of explicit instruction in writing (pedagogy problem). A number of students ($n = 8$) explicitly commented that they had little or no experience with writing prior to further study for the master's, alluding to specific weaknesses in instruction. Another somewhat 'hidden' factor was the number of respondents with German as a second language ($n = 9$), for whom writing in particular constituted a particular challenge. Because most studies were involved with practical project design work, comments on the challenge of the design work (in comparison to the doctoral students) were also frequent. Presentation and designing skills, however, are developed in undergraduate studies and while some students mentioned the (general) challenge of compressing a project into a short presentation was difficult and nerve-wracking ($n = 9$), there was no sense in which this constituted a real problem. In general, it must be said, there were many comments on the general time-consuming nature of postgraduate work, and the pressure to deliver; such comments however are hardly specific to design.

For all doctoral students, writing the dissertation represents a challenge. This may be particularly so for students in design and other creative fields. In their quantitative response to ranking the difficulties of writing, speaking and design work, a majority of doctoral

respondents (30/39 = 77 per cent), ranked writing as the most difficult component of study. The two major themes were the lack of writing training in prior studies and the lack of clear guidance by the institution or supervisor during the research process. Students face the general challenge of managing a diverse literature, consistent with the interdisciplinary nature of design research work and writing. Nearly a third of respondents (n = 9) explicitly mentioned the general complexity of doctoral work as an intellectual exercise, particularly as an interdisciplinary field; an observation that is hardly unique to the field. As one student remarked, 'My topic is interdisciplinary oriented and involves very many disciplines. That makes the work interesting and challenging but also makes the written formulation difficult'.

Of the respondents, 20 per cent (n = 6) alluded to a lack of clear guidance or communication by supervisors and the institution because in one or other case there is a lack of frameworks and experience. This included the fact that the 'newness' of the design doctorate in one particular institution lead to uncertainties of supervision and format, as in the following example. As with the master's students, some alluded to the early stage of the doctorate as a reason for being unclear about format and requirements. Comments which were less frequent included a difficulty for students in managing work and study balance and for one candidate the difficulties faced as being a speaker of German (or English) as a second language – a phenomenon on the increase as foreign students enrol in German PhDs. In relation to the introduction of the practice-based PhD, one of the Weimar candidates expressed uncertainty about the eventual relationship between project and practice in the submission.

Understanding Practice–Theory–Research – Defining the Intersection

The final section of the study asked respondents to comment on the relationship between theory, practice and research in design. The question was answered by 73 of 115 (average response ~70 words) of all respondents from the master's study, and 32 out of 39 of the doctoral candidates. Again, common themes were discovered for both groups.

Theory, Practice and Research are Interdependent

Overwhelmingly, students view practice as either the priority or as the defining criteria for the relevance of theory and research. One mitigating factor was that because design is mostly located in *Fachhochschulen* this limits the meaning of research: 'an academic design culture is less strongly positioned as in other countries. I do not think one can currently speak of the acceptance of "scientific" methods in design courses' (doctoral candidate). The great majority of respondents referred to an interdependent relationship between theory, practice and research, albeit commenting at times on which preceded which in time or priority in a project. It should be noted also

that many respondents interpreted theory as a reference to writing as opposed to a separate conceptual or intellectual advance.

In relation to practice, one respondent argued that research could get in the way of seeing the client/user situation adequately. A number of respondents pointed to the overwhelming importance of practice, to the extent that design could exist through practice alone, albeit outcomes could be improved through a greater 'research' engagement. The 'scientific' aspects of design research can become an obstacle to communicating good design, as argued by one student: 'I find as a designer that the scientific approach is very demanding; results are mostly in paper format expected and published. A designer solution, an application or a prototype as such does not fit a scientific publishing house'. Another student said, 'Design is a creative activity in companies. An excessive academic approach is not necessary or often useful in specific fields'.

Particular rationales were offered for the widely acknowledged need for theory and research other than that these were in principle mutually dependent or to avoid 'reinventing the wheel'. Foremost, these included the idea that only through research and theory could the design process and outcome be ensured of better potential for success, and not have to depend on intuitive guesswork. As one respondent put it, even designs with no apparent theoretical base but with simply a visual appeal, 'to be successful required understanding of perception, colour and form theory'. The potential sources of theory and research were multiple, including, as one respondent put it, 'Society, Politics, Environment, Medicine, Technology, Art'. What comes first – practice, theory or research – was also a matter for some comment. The relationship could be 'different in the development of each project'. Design in practice is involved with many fields, and a number of respondents referred to the intrinsically interdisciplinary nature of design research and practice. These are not, however, necessarily key competencies of designers, suggested one student: 'Research in all fields that does not relate to aesthetics or use of products should not therefore necessarily be attributed to design'.

Significance of Interdisciplinarity

Both master's and doctoral students alluded to interdisciplinarity as a defining feature of postgraduate design, although the exact nature of this differed, for example, some referred explicitly to working with psychology and engineering, while others remained uncommitted. As with the master's students there was a common reference to how design research was characterized by interdisciplinarity and the use of multiple methods are explicitly or implicitly often mentioned as characteristic of all studies. However, questions remain about the distinctive nature of design methods and approaches compared to other fields, such as: What are the unique methodological selling points of Design Research? How can Design and Design Research

be marked out or differentiated from other disciplines in definitional terms? What place does Design Research assume in the University Canon – will it be categorized with one of the established disciplinary domains or will it fulfil an overarching function?

In addition to interdisciplinarity, other particular characteristics of design research were noted by individuals. These included the need for design research to consider social relevance and responsibility, as one student said: 'Design research must also take place in the context of design for third world countries'. Also, design was seen to be intimately linked to human-centred issues of health and well-being through the practical design process. One participant, for example, talked about the design of clinic and hospital spaces for patients and health teams:

to plan and design for these people is a complex challenge for everyone concerned: architects, civil engineers and specialist medical engineers, facilities managers, interior architects and communication designers. During this process, questions about technical function, the smooth running of procedures and processes, hygiene for medical and nursing supplies must be as much taken into consideration as questions of durability and profitability.

The Difficult Distinction between Design and Fine Arts and Crafts

A number of students alluded to or explicitly mentioned how design and fine/visual arts were distinguished or not in terms of design research. As one student put it: 'Aesthetics is strongly dependent on personal taste and often an object of philosophy or art. In contrast to art, the designer must, through his activity, create industrial produced goods, which must fulfil functions. Aesthetics must therefore follow an objective'. A few students described their position as an intermediary between both broad fields. One student, who had trained as a tailor and studied fashion design, pointed to the advantages such an artisan training could have for working in a practice-oriented design study. A few respondents explicitly mentioned the lack of understanding by the public and other fields of design theory and research, its relationship with fine art and art practice in general being unclear and leading to misunderstandings. Design, 'a much more industrial concept' than art, required a different more practical and user-centred approach. One respondent, however, was quite explicit in referring to a design process that was, 'very open and not directed at either materials or form or even function', then describing studio drawing and sculpturing with no specific reference to function or user.

Pedagogy Problems

Implicit and explicit in some of the comments regarding the priority for practice and application against theory and research was not

only an intrinsic dislike of theory but a disjunction between theory and practice exacerbated by bad teaching. Particular problems were raised regarding the quality of teaching and supervision in higher education. Several respondents pointing to quality issues in their institutions: 'Design theory and research are not, in my opinion, in the early semesters sufficiently well taught'. The supervision of students, whether practical or theory-oriented, could also be wanting, with several pointing to the need to learn independently. An example from one school makes this patent: 'At the [name of school] very little design research takes place or current art and currents/trends are examined. It is left to the student to do this by themselves, and it is naturally difficult to motivate oneself and tackle such a complex topic.'

Raising the Profile of Design

A particularly common concern was the need to bring design from the margins to the centre of public and academic consciousness. A 'cheap' understanding of design as style added to luxury goods was another intellectual obstacle to design being taken seriously: 'Particularly in Germany a major enemy for Designers is a dangerous "cheap mentality" among middle class clients'. In addition to the greater emphasis in higher education potentially improving this poor understanding, a number of other strategies such as including design in the education training of non-designers are implemented. In order to mitigate a superficial grasp of design, the field needs to raise its profile. A more frequent engagement with other scientific fields was also recommended as a way of improving design's profile, although handing research over to cultural studies and other fields was not the way to go: 'In my view, design research in Germany in comparison to international research activity still needs to catch up, but is increasingly becoming better known'.

From the doctoral students, one reflection by several students was that a clearer definition of the relationship between theory and practice and *Designwissenschaft* in general would enable Germany to participate in broader international discussions. One of the Weimar-Bauhaus PhD students noted, 'That the development of increasing numbers of academic projects and offerings in the area of design research is now taking off also in German-speaking areas is essential for the field to be and remain visible in international exchange and standards'. The professionalization of design discourse might lead to the field playing a broader role in discussions about the future: 'On the one hand the professionalization of design practice through theory and research is very important so that Design (again) will be capable of participating in important discussions about the future'. As one doctoral candidate noted, developing design theory could help with professional legitimacy:

Design theory I find essential so that we designers are not (seen as) only unskilled labour who execute projects but also who

can take responsibility for our activity, i.e. that we construct values and principles which define how we might operate.

Economics, Functionality and Design – A Priority

Economics and commercial questions define design. One student, recently returned from an overseas experience, had, as a result, changed his opinion about the rhetoric of the importance of culture for design, noting that principles such as these gave way to commercial and economic imperatives. The focus on the user–client should be the priority with the aim of attracting as many clients as possible. According to one respondent who referred to aesthetics and user factors as the key competencies of the designer, other academic research skills were not key competencies for designers. In some cases this was interpreted as being aware of the user reaction to the visual properties of the product. Numerous other respondents, however, suggested design theory and history was essential to reach the target user group.

Other important user factors included delivering the functions required by users (the target group), economically and ecologically. The economic angle and consumer needs were, according to one respondent, the crucial factors which limited the designer's freedom to design (*Gestaltungsspielraum*). Economics also featured in one response which pointed to the need for theory and research to avoid producing goods which might then be produced a thousand-fold with errors. Several doctoral students also alluded to the significance of economic and innovation processes. As one respondent put it: 'I understand design in my research area as the connecting together central success factors for (business) innovation and founding teams. For me, design is the combination of customer need, feasibility and economic factors'.

Scepticism Regarding the Scientific Pretensions of Design

One obstacle to the development of design research is, claimed several candidates, that it has limited significance in company contexts. Design as practice-oriented and arts and craft-linked (e.g. graphic design) is not a discipline but can contribute to others:

I don't believe that design theory – I specifically don't mean marketing and sociology methods- plays or will play a major role for Graphic design practice. In my understanding graphic design is primarily (art and) craft activity with few theoretical interests which would justify it being acknowledged as an independent discipline. (Doctoral candidate)

As another respondent noted, 'Designers see themselves as problem solvers, research is pragmatically viewed and external (scientific) studies often remain not acted upon. Designers are (however)

conscience of the fact that sound consultation and developmental research cannot be managed without scientific support (doctoral candidate).

In conclusion, the consensus of students is that research, theory and practice hang together and this interdependent relationship, although sometimes complex and problematic to put into practice, is important. Underpinning many responses from both groups was a desire for more legitimacy for design. Given the overwhelming belief among participants that practice, commercial and user requirements was the deciding factor in the usefulness of theory, and that design typically had to pragmatically access theories and ideas from a range of domains, the nature of the theoretical engagement is neither abstract nor deep in a philosophical sense. A significant number of students see the engagement with theory and research as a path to better recognition of the seriousness of design, an enterprise that still requires the input from fields outside of design. It should be noted that this positive perspective by students, of course, says nothing specific about their understanding of theory or how it is taught.

Summary and Discussion

This study examined postgraduate student views on their motivations, experiences with research methods and theories, views on writing, speaking and design, and perspectives on the relationship between practice, theory and research in design. The study aimed to develop a more empirically based account of what design as an academic discipline (*Designwissenschaft*) means to postgraduate students. This was the first such study of its kind in Germany to focus on this issue and should be followed by further systematic work. The fact that master's and doctoral student responses were brought together in this report may be viewed as a weakness in the study as the time frames and expectations differ. However, as indicated in the results, many similarities exist across both groups in terms of such issues.

In general, respondents revealed an understanding of the value of combining research, practice and theory in producing high quality responsive designs. There were some exceptions to this with a significant minority suggesting practice and creativity were priorities, and some suggesting design as a field or practice that could proceed without being complicated by theory and research. Many also recognized that design research and theory remained on the periphery of mainstream 'scientific' discussions and practices and much was needed to be done to address this. Definitions also frequently alluded to interdisciplinarity as an essential feature of design, although to what extent this was theorized remains unclear. There was also recognition that Germany lagged behind other nations in developing design research and theory. Flaws in the design of programmes in several institutions were indicated with respect to the teaching of research, practice and theory. Finally, several respondents explicitly

linked the significance of design research and theory to specific fields, e.g. interaction design.

The experience of students prior to doctoral enrolment remains largely embedded in practice-oriented, non-theoretical domains and the transfer into doctoral degrees is consequently a challenge, particularly in the area of writing and theorizing the thesis. A growing number of completed and enrolled candidates, however, suggests that the growing emergence of completed theses and the further expansion and development of programmes will lead to greater consensus on disciplinary characteristics. However, for this to develop, it will require debate and discussion that does not exclude adjoining disciplines, e.g. engineering and architectural design, nor remain focused on the rhetorical characteristics of design.

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Notes

1. http://www.fachhochschule.de/FH/Fachhochschule/FH/Gestaltung_Design/FH.htm.
2. <http://www.hochschulkompass.de/studium.html>.

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Biographies

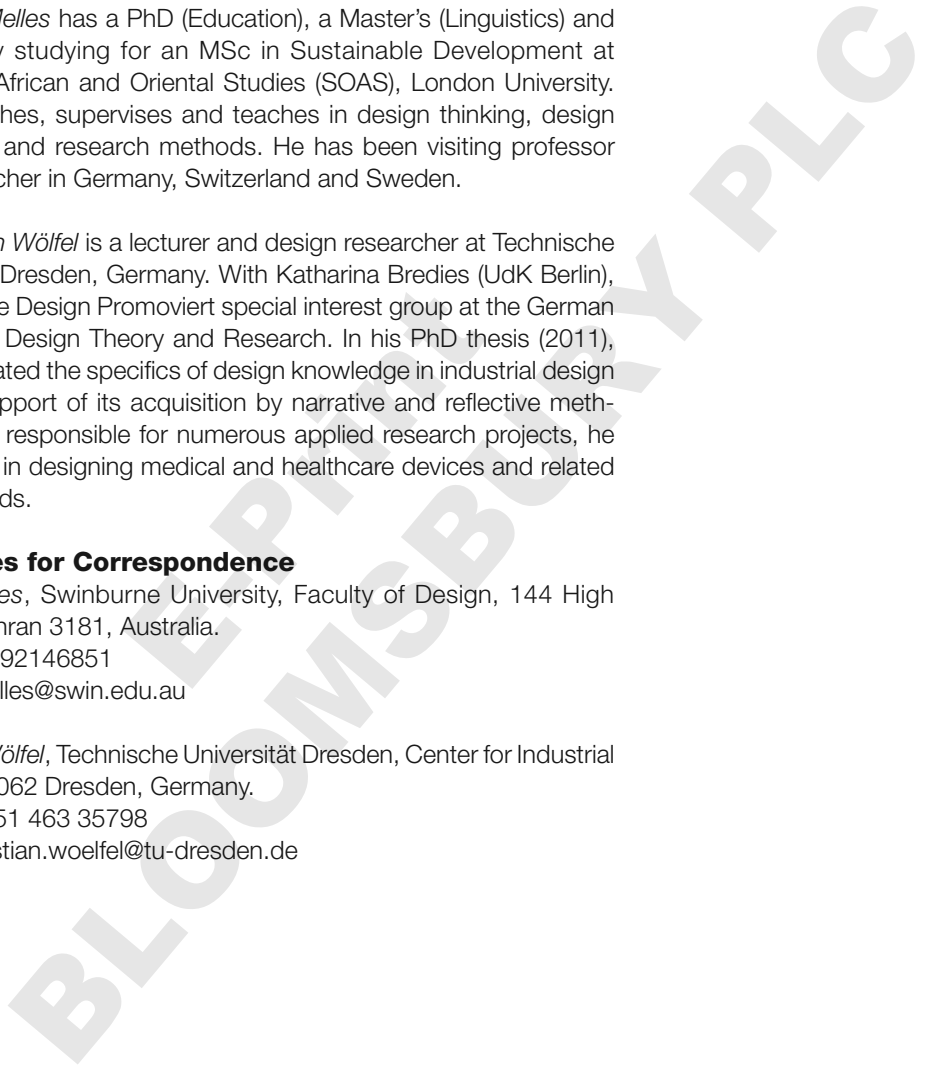
Dr Gavin Melles has a PhD (Education), a Master's (Linguistics) and is currently studying for an MSc in Sustainable Development at School of African and Oriental Studies (SOAS), London University. He researches, supervises and teaches in design thinking, design education, and research methods. He has been visiting professor and researcher in Germany, Switzerland and Sweden.

Dr Christian Wölfel is a lecturer and design researcher at Technische Universität Dresden, Germany. With Katharina Bredies (UdK Berlin), he leads the Design Promoviert special interest group at the German Society for Design Theory and Research. In his PhD thesis (2011), he investigated the specifics of design knowledge in industrial design and the support of its acquisition by narrative and reflective methods. Being responsible for numerous applied research projects, he specializes in designing medical and healthcare devices and related capital goods.

Addresses for Correspondence

Gavin Melles, Swinburne University, Faculty of Design, 144 High Street, Prahran 3181, Australia.
Tel.: +61 3 92146851
Email: gmelles@swin.edu.au

Christian Wölfel, Technische Universität Dresden, Center for Industrial Design, 01062 Dresden, Germany.
Tel.: +49 351 463 35798
Email: christian.woelfel@tu-dresden.de



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