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Guiding the PhD in design: Experiences from six programs

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Guiding the PhD in design: Experiences from six programs

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Abstract: In the DoCS4Design project, six established PhD programmes in design pooled and compared the diversity in their practices in guiding PhDs (e.g., 3- or 4-year programmes, small or large amounts of formal education, small or large numbers of staff and students). Panelists from the six programmes discussed these differences together with 60 conference participants. Starting from a review of practices at the six programmes (the ‘Map & Glossary’), the conversation covered several themes: strategic and institutional aspects of the PhD programs, logistical and administrative aspects of these programs, and fundamentally: how (diversely) do we define what is the PhD in Design. The conversation then explored how the programs, DRS and other design organizations could be more effective in supporting PhD students, advisors, and programmes, and deal with new requirements, e.g., toward more interdisciplinary and more international experience, and preparing PhD students to take leadership in research teams more than being solitary researchers.

Keywords: Doctoral Education; PhD in Design; Graduate School.

1. Introduction

In 2018, we (the six universities) came together and started to have regular meetings to exchange experiences. We did this partially to understand better what we do ourselves, learn from each other, and see the possible value we all hold together. When we explored our practices, it quickly became clear how different everything is: duration, responsibilities, formalities, and opportunities. In addition, for language, each institution uses different terms to describe everything. Two years ago, we applied for an Erasmus+ European-funded project DoCS4Design in which we would give more structure to the sense-making and develop some initiatives to better PhDs in Design. As the first outcome of this effort, we created a brochure



titled “PhD in Design—a Map and Glossary.” The map describes the practice of the PhD programs with a single set of chosen terms (e.g., “candidate”), and the glossary unpacks each of these “privileged” terms into the various forms used (e.g., PhD student, candidate, PhD researcher, etc.). With the different terms often come nuances in precise meanings, which we cover to a small degree. Aiming for completeness here would not help because the terms are not often clearly grounded in descriptions or regulations, and their usage changes.

Our aim in the DoCS4Design project is to identify guiding examples and complementarity across and within institutions, not to define an ideal curriculum, to pursue the standardization of the PhD, or to create a ranking of practices. The varieties in local, institutional, and national cultures, especially in their underlying norms and attitudes, are seen as a source of richness through diversity and greater richness through connection and exchange.

These diversities between us should not be taken as a hurdle to overcoming the Babylonian language confusion blocking us from constructing a unified great single model. The European University Association recommends diversity in research approaches and topics and people and their international and interdisciplinary work as a way to cross-pollinate and interdisciplinarily connect, hence making use of a broader, larger mass (Kristensen, 2005). Other forms of diversity pertain to the gender, age, economic, cultural, and educational backgrounds of the people involved. Furthermore, diversity between institutions depends on geographic location, university research topics, and educational focus.

Understanding these differences can help us (or others) position our discipline in our own universities, discover solutions we might adapt to our own situations, and find complementary partners for building synergistic collaborations.



Figure 1. The conversation involved 50 participants in the room, and 6 online

To illustrate these differences, for example, suppose you run into someone who tells you, “I’m doing a PhD in Design.” What does that mean? This might mean that they are in a three-year or four-year program, within that they are in their first year, third, or fourth year.

It might be that they are in a school where there are 120 PhD students or in a school where there are only a handful of candidates. These are very different situations. Smaller schools might have limited reach and expertise, while, at larger schools, people tend to get lost in the masses. In all of these scenarios, we tried to sketch this broad array of situations. Moreover, these diversities do not just exist between our respective institutions, but also within them: they help us realize how much the PhD education is, can be, or should be geared to accommodate the individual competencies of those taking on this intensive path. In our reflection on the programmes, we have used three lenses: People, Process, and Content; in the conversations we used these to guide our conversation.

2. Three lenses: People, Process, Content

2.1 People (Candidates, Advisors, Organizations,...)

What had brought us together was a moment when all our six programs were in transition, a time when we were in the process of revisiting and planning change. The first topic that we discussed was people. As we presented during our introduction, we were trying to map the type of PhD students we have. We also very quickly realized that it goes far beyond the PhD student toward the whole ecosystem of people involved. One of the key discoveries and insights that we had is that the advisor-advisee relationship is the cornerstone of PhD research, but it relies on a much larger ecosystem of relationships and opens up for many more participants, and it is not exclusive to just that.



Figure 2. The discussions were introduced with a comparison of practices at the six institutions, which can be found in the 85-page report 'PhD in Design – a Map and Glossary' (available for download, see references).

In response to the notion of the expanded ecosystem of relationships, the panel discussed that celebrating diversity remains the cornerstone of PhD education. Over the past few years, we have noticed a growing amount of diversity among candidates in terms of background education, not solely from a design background but from other disciplines as well. Also, the years of professional experience vary among candidates; some have very little experience, while some come back to academia after a good amount of professional experi-

ence. In terms of nationality, it was very evident that in the UK and US, the majority of individuals applying for a PhD are international and come from abroad. Through our effort, we have noticed that our PhD programs are designed, to a certain degree, to the country of origin, and a large number of the PhD graduates remain working in the country where they have received their PhD. On the other hand, the rules for appointing advisors vary among our institutions, from the more traditional approach of a one-to-one master-apprentice relationship to a more structured advisory system where more advisors are engaged, which also raises the need for more qualified faculty members to be involved in the activities offered for the PhD students.

The second insight the panelist discussed in relation to the people involved in these programs was that a PhD in Design has the challenge of complying with university policies and shared resources while setting up unique supporting structures for doctoral research in design. Any given program has to deal with a delicate balance that fits the university's policies and the uniqueness of being a PhD in Design. This is especially true when setting up a structure that is unique for the program and complies with the policies, structure, and resources of the university. PhD - programs in each of our institutions and countries have developed long before a PhD in Design began to be granted. Therefore, our programs and structures have arrived at this point, driven by different background assumptions and different origins of the institutions involved. Nonetheless, there is the challenge of fitting how PhD in Design programs fit within the universities, and it is evident that all of our institutions have found quite successful solutions to this challenge. Whatever the solution, there are various friction points.

Throughout our conversations, we have found that some programs are geared toward engineering, natural sciences, humanities, or artistic research. As a discipline, design sets it slightly apart, and each program needs to tweak its approach. Then, of course, many of the PhD programs are multidisciplinary or are moving in that direction, which creates an added layer of complexity to the fitting issue. Once an institution has a working solution in place, this solution will not last forever as a set-in-stone solution. All of our schools think of PhD in Design programs as an evolving target, both in the content and institutional structure. Therefore, the structure that supports PhD programs needs to be reflective and have the ability to foresee the future for setting up institutional terms.

Opening up for discussion, the audience presented a question regarding the change that shapes the configuration of the PhD in Design, wondering whether that change is driven by external factors or internal ones. Driving change that shapes PhD in Design programs can depend on both external and internal factors. Here, depending on the institution and current institutional configuration in place, one can interpret the flexibility of change.

At TUDelft, for example, and informally, the university created the graduate school in 2012. A master-apprentice system that was turning into a structured one. The university imposed a number of rules, such as the four eyes principle, which requires that PhD candidates should have two supervisors rather than one, as well as yearly reported progress according

to certain rules. The design school at TUDelft stepped forward to play an active role in shaping the program at the university level, in part in order to not be overwhelmed by a model generated from the practices at the much larger engineering schools. This is one of several examples where the external is the university and the internal reaction comes from the design school.

Another example the panelists covered was in the British context; although some of the changes certainly happen at a university level, they can happen at the national level. There are certain policies that the government imposes that shift all PhDs across the entire country. The same also applies to all European countries, where change can happen at the national level as imposed by the government, whereas universities in the US have more independence when recruiting students and faculty members who might be funded by industry.

Another point of discussion brought up by the audience concerned the institutional logic and narrative that shaped and justified the different versions of PhD in Design practices. The panelists' response was that the programs are constantly updated because students are evolving, funding environments are developing, the context is changing, and the programs respond to all these changes. Therefore, the rationale of the narrative is constantly in flux, and this is a reflection of all of the dynamics that each institution is subjected to.

As a result, these narratives can be manifold, and PhD in Design programs need to react to them as they arrive. In our experience as the directors of these programs, we noticed all of these forces coming together as an entire top-down narrative from EU to national to institutional to departmental level. In addition to the changes that come from within, in the end, it is about being able to navigate through changes and establish visions as directors and faculty of those programs; this is the reason why we came together to discuss these constant challenges of upgrading the PhD programs.

2.2 Process (Examination, Duration and Milestones, and Beginning...)

The timeline of a PhD leads to the completion of the highest degree available in the field of Design, qualifying the candidate as an independent researcher. In the description, we worked backward in time. This guided us to structure our discussion into three topics: examination, duration and milestones, and beginning.

The timelines at our schools are very different; three- or four-year-long programs and students might extend their time at the program. So measuring success is also something that depends on each case. Often there is one year of education preceding the research, and in some programs, courses run along a research project that starts on day one. In some programs, all candidates are enrolled at the beginning of the academic year, in others whenever there is a funded project. Also, the time balance between education and research varies. Hence, there is a whole range of how the process is done. Each institution experiences different expectations of incoming students as they embark on their journey as PhD candidates, whether it is a three- or four-year PhD program.

The discussion among the panelists touched on how the quality of incoming candidates is determined. Some programs require students to practice research methods before entering the program, in some cases asking the students to go back and do a one-year master's program where they cover some of those research methods. Also, Some (still) have the expectation that graduates will continue in postdoc positions toward an academic career. Yet, as in other disciplines, this is no longer the only (or dominant) career path: an increasing number of graduates work outside academia in industry and other organizations, or as entrepreneurs.

Another point of attention was the selection process. Each institution has an extensive process of recruiting, which involves taking a holistic approach to evaluating the candidates in terms of qualifications, financial viability, fit into the program culture, and the fit between institution and candidate regarding research area and agenda. The panelists discussed the selection process as the starting point in all of the institutions and continued to expand on how such a process is an extensive, rigorous, and structured one. Some of these requirements would involve prior educational background and proficiency in English because all the programs are offered in English.

Financial support is another criterion that varies among institutions. In some programs, the students are self-funded, and the tuition fees might be tens of thousands of Euros per year, while at some other institutions, financial expenses might be covered by different institutions' scholarships or grants, or the candidate's PhD is a salaried job in a funded project. In addition, the legal position of the PhD candidate varies. In some institutions, PhD candidates are employed, while at other institutions, they enter as students, which means that their rights and duties can vary.

In response to the previous discussion, a question arose from the audience: How are the structure of these programs responding to the demand of some experienced practitioners who want to do their PhD on the side and continue working at their workplace? One observation was that although a Master's in Design is considered a terminal degree in professional practice, professionals with 10 to 15 years of experience in the job market are hitting the ceiling and want to continue to develop. For that reason, they do look for a PhD in design as a way to expand and do research within the ecosystem of advising at the institutions. As a response to this demand, the IIT Institute of Design, for example, has created what is called the PhD Corporate Partnership Initiative, which allows people who are in their work environment to have their company sponsoring their PhD and to elevate their work environment into a research lab. This approach allows individuals to do a lot of experimentation and changes focused on their design practice. So it is still possible to do a PhD while being engaged in work, and all the institutions are very open to the possibility to engage PhD students employed by an external organization. Typically, a PhD is a very personal and flexible endeavor, and candidates have lots of flexibility when pursuing their program.

However, the panel stated that there is a tension that depends on the status of the student. For example, in the UK, students have a different degree of flexibility depending on their

VISA status. Because these degrees of flexibility and challenges vary from country to country, the common denominator is that most programs have made it possible to obtain a PhD by addressing the fundamental challenges of funding, residency, and duration. As a workaround for this issue, Sweden runs what is called industrial PhDs, and the relationship between a company that would be funding the PhD at the educational institution might work very differently in neighboring Scandinavian countries. For instance, Aalto is taking many experienced designers as part-time PhD students, and they are given twice the time required to do the PhD, doing it alongside their jobs with flexible configurations regarding time allocation and funding sources. Doing a PhD on the side is a complex path to navigate through, and each of the institutions values this so highly that there is always one way or another to make that happen for the experienced professionals.

Most of the time, the main challenge in this arrangement is the rigor of the final dissertation, that in all our programs has to be a single-author document (often alongside one or more scientific publications in journals and conferences). PhDs have therefore to find the time, focus, and depth to be able to do that.

2.3 Content (of Original Research and Doctoral Education)

How much time is devoted to research, how much to education, and what are the degrees of freedom of the research focus? One last point was on how the ability to develop original research in design relies on providing the candidates with access to relevant expertise and academic/societal network. A PhD student alone cannot just succeed without access to a whole range and network of experts and expertise; it usually is not a lonely journey of complete discovery. The panel illustrated this with a historical perspective; most programs in the early days had a kind of lone hero who decided to do their PhD and could self-organize the support they wanted to pursue in their research. The other dominant model in the early days was the master-apprentice one, in which PhD students had a core professor who took them tightly knit to their research and educational competencies and interests. Over the years, this guidance shifted from an individual advisor-advisee relation to a more structured and organized form.

This change is not without difficulties. The panel continued to discuss the problem of having people who do not come with their own networks and do not neatly match any professor's area of research. When programs are growing in numbers, such issues can emerge. As a current insight, doing a PhD in design is more difficult than most people advising would care to think. Therefore, it is worth thinking through how the requisite expertise, funding, motivation, and background skills come together into a package that can lead to a successful PhD. If there was a high uniformity among PhD programs, this would not be a big issue. However, given the diversity within and among our programs, working out those networked expertise and competence relationships is a core challenge.

Another point discussed during our DoCS4Design project was the degree to which candidates can choose their own topic: are candidates constrained by available expertise in the

staff, agendas of the program, or funding agencies? What drives the research agenda varies greatly among the programs. Carnegie Mellon (CMU) offers a PhD in Transition Design, so everyone enrolled in the program is focusing on (something related to) Transition Design. CMU's case represents a school-wide approach to driving the research agenda, which is very unique compared with the other institutions. However, the panelist went on to state that other institutions have some varied models as well; often, it is principal investigator (PI) driven, so it is based on what the PI is interested in. Then, candidates or potential candidates have to make sure they align their research interests with the principal investigator and with the funding they receive. This model is dominant both at Politecnico di Milano and TU Delft.

In other cases, the candidate brings their own funding, and is free to choose a topic of interest, yet needs to align with advisors and expertise that are present or can be brought in from outside. Some institutions have rules and regulations for bringing-in outside experts into advisory roles. There are also other cases where funding bodies beyond academia have research agendas, which determine the content of funded projects and therefore constrain the topic for the candidates working in them.

3. General discussion and Q&A

The audience had a question about the quality of the PhD. Is there a broadly acknowledged international minimum level of what is a good enough manuscript to be granted a PhD degree? The experience of the panel was that the difference between an accepted, good quality, and a top PhD varies. It is therefore hard to establish a broadly applicable scale for the quality of PhDs. Each school has a comparative metric, what their range is, and what to expect when reviewing theses as a committee member. In the early days, when the master-apprentice model was dominant, the reputation of the master among his/her peers served as an implicit quality criterion. Today, as the PhD is moving toward an institutional program, more explicit criteria are taking shape, usually connected to the local conditions. When relating to the quality of a PhD, nobody wants to standardize and create a one-size-fits-all kind of metric for quality. However, how we elevate the rigor and quality while keeping the rich diversity within our programs is the key.

The DoCS4Design group selected an excellent dissertation and a mediocre one and compared them. This explorative comparison made clear that it is not straightforward to judge the quality of theses without studying them in-depth, and taking the local constraints into account. It is worth differentiating what is good or excellent research, what is a unique contribution to knowledge in the field of design, and what is a professional research document. These are very different research outputs and are produced in very different ways.

Another discussed issue was the conditions of drop-outs and the statistics of 'everlasting' PhDs. A PhD journey is constituted by the number of years doing the PhD, and if that number is exceeded, it can jeopardize the reputation and opportunity for the candidate to finish their degree. At the national policy level in the Netherlands, for example, there is pressure on universities not to have PhD projects that last much longer than four years. In Italy, the

PhD scholarship covers three years, even if the total duration of the journey can reach six years.

Another question by the audience was that, as universities, we are increasingly held accountable for whether PhD students get jobs, so do programs train students to be fit for industry requirements or only for academia? What happens to the element of design practice of practice-based PhD? Increasingly, PhDs in Design find jobs in government, within NGOs, and become entrepreneurs. Nevertheless, in Delft, over the past decade, almost half of the PhD graduates continued in an academic career, as opposed to 5-10% in the engineering sciences. This may reflect the rapid growth of design programs in universities, but that growth may saturate soon. This highlights the importance of improving awareness of doctoral-level contributions beyond academia which may be aided with a global perspective and comparison where some countries have established such a perspective more quickly.

That diversity of jobs puts a question mark to what the PhD in Design should bring by way of preparing for the candidate's future career, and even whether that label "in Design" is always helpful. In the past, the PhD used to be seen as the place where you become 'the world's in-depth expert on a specific narrow topic' but most graduates move on to other topics. In the future, the balance may shift from "the outcomes of the research" to the (research) competencies that the candidate has gathered as is the case in some other areas that feed into non-academic tracks. One curious detail in the comparison of the DoCS4Design programs was that most programs hand out a PhD diploma which is labeled 'PhD in Design', except Aalto which hand out 'Doctor of Art' and TU Delft. There, the PhD diploma is handed out at the university level, and the diploma does not mention a discipline. This might be felt as a loss when one is proud of one's discipline, on the other hand, it might be a sign of strength in the sense that 'original research' increasingly happens on the borders between disciplines.

On the note of preparing industry (and society at large) for the value of PhDs in Design, there are some industries already hiring PhDs from other disciplines and that have a feel for what a PhD might be able to contribute; these can be seen as the early adopters of a PhD in Design, and serve as an example for other industries in their and other countries. Also, some of the PhD topics that were really lucrative, applicable, and intellectually stimulating can be the base for a startup or for further development (and a job) in industry. To support this, it is important that we introduce our PhD students to expertise networks and try to expand their competencies in relevant directions. PhDs are not going to just be another employee in a company; they are likely to take a leadership role. Our role as program directors is to better prepare them to be leaders in research and research teams more than being researchers (the generally accepted definition of the PhD). Do they know how to raise funds? Do they know how to open a research center in another university, rather than just being academics? So it is evident that there are a lot of questions about what we embed into the program that allows them to carve new paths.

Other questions emerged from the audience about the next steps and the road map for this effort moving forward: How do we build on what we have put together and move forward to foster the kind of configuration and change we hope to see? How do we understand the different outcomes of a PhD in Design? The panel response to these questions was that there are multiple competing agendas when students come into the schools. The actors who are engaged with the research and entangled with it, the partners involved, and possibly an enhanced capability or understanding in R&D and innovation or in the specific topic of the research, and the teaching competencies that the candidate might acquire. The output is a trained researcher with particular competencies, a contribution to a body of knowledge or possibly more than one, a new design, or a new method. At IIT the Institute of Design, for example, in the early days, most of the candidates were international students coming through scholarships from their governments. Therefore, the national research agenda in these countries was the driving force.

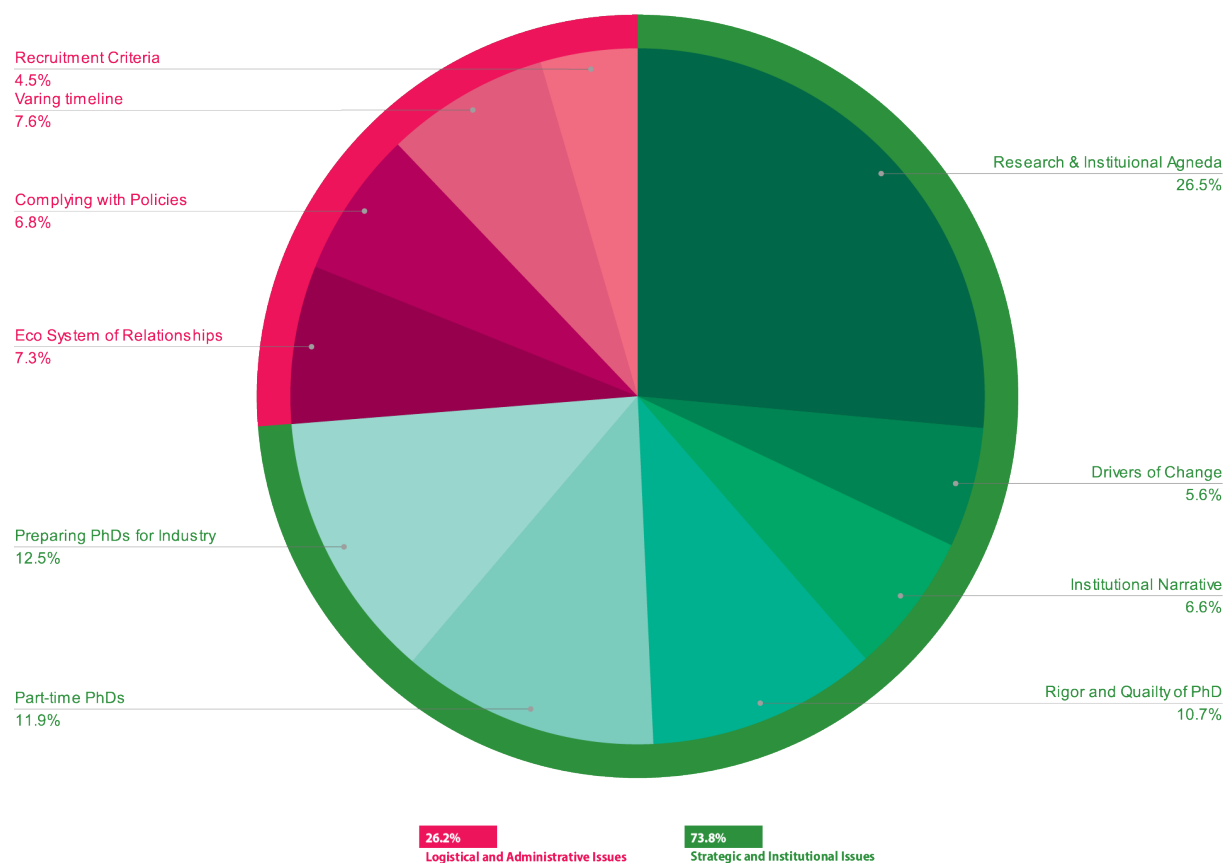


Figure 3. Highlighted topics during the discussion.

Another “taboo” we have discussed is the notion of failure; when an individual is accepted and enrolled into a PhD program, they are expected to finish, so failure is a painful option, both for the candidates as well as the advisors and institution. These social and personal impacts press home the importance of the recruitment and selection process as well as a clear guidance and early recognition if a student might not be able to get to the finish line, rather than stretching and lingering the project ad infinitum. But also, a discontinuation may not

necessarily be a bad thing: the candidate may have found a more fruitful direction for his or her career, or even for the research. In Aalto University it has been estimated that about fifth of the students who do not complete their phd end up not finishing because of positive opportunities encountered during the phd time such as landing one's long-time dream job in the industry.

4. The fundamental question: What is a PhD in Design?

Overall, the conversation had two main themes covering a PhD in Design. On the one hand, the discussion covered the strategic and institutional aspects of programs such as “research and institutional agenda,” “drivers of change,” “institutional narrative,” “rigor and quality of PhD,” “part-time PhD,” and “preparing PhDs for the industry.” On the other hand, the discussion covered the logistical and administrative aspects of PhD programs. This discussion revolved around “ecosystems of relationships,” “complying with policies,” “varying time-lines,” and “recruitment criteria.” The emphasis of the conversation was on discussing the strategic and institutional aspects, given that most of the logistical and administrative aspects were outlined in detail in the “Map & Glossary” document. See the chart below for a detailed breakdown of the distribution of time allocated to each of the discussion topics.

The panelists acknowledged that a rigorous and original PhD in Design is more difficult than most advisors and advisees would think because it requires putting together a package with expertise, funding, motivation, and skills that can lead to success. This interpretation is a shift from the traditional lonely journey of self-sufficient PhD students, which requires a rethinking of the support structures provided by PhD programs. Although the advise–advisor collaboration is the cornerstone of PhD research, the conversation between the panelists and the audience brought to the surface the opportunity and need for expanding these collaborations into a larger ecosystem of relationships. The panelists were asked about setting quality standards in PhD projects and responded that quality and rigor are set within each program and institution by its faculty, opposing the need for a one-size-fits-all approach on how to measure quality in a PhD in Design.

Regarding a discussion on who shapes the narratives about a PhD in Design, the panelists responded that the directors of the programs are in the unique position of constantly and continuously sensing and responding to changes, establishing the visions of those programs. The directors of the PhD in Design programs shared the common belief that the structures supporting PhD programs need to be reflective of internal and external forces while having the ability to foresee the future and set up the institutional arrangements for successful research for a PhD in Design. During the conversation, it was brought up that PhD in Design programs face the challenge of fitting within long-standing university structures and regulations. The debate highlighted the key role that PhD programs play in shaping the success of each PhD student and the quality of their research. The panel emphasized the importance of the programs accommodating and supporting multiple and different configurations. PhD Programs in Design present significant diversity in the way they are structured. Celebrating

diversity remains the cornerstone of each program, and it is important to cherish these diverse approaches and build on them.

At the very bottom of the concerns lies a fundamental question on which programs should achieve clarity: “What do you mean by ‘PhD in Design’”. We saw four ingredients of this, only the first of which was always present for all candidates (see Map & Glossary, page 16):

1. a PhD pursued at an institution where Design is taught and researched
2. a PhD aiming for increased Design Competencies
3. a PhD research project that is about Design
4. a PhD research that leverages a design Background

In many programs, all of these occur with individual candidates, but not all or with all candidates. Some candidates may have a non-design background, the research may be about an applied area, not design, etc. Many of the discussions for all of the other ingredients lead back to which choices a program makes on this. When we entered the proposal for the conversation, we were kindly warned that if we raised this question at the beginning, the entire discussion might get filled with positions, views, and questions about what this essence is. Therefore we only treated it at the end, so that we could cover the landscape of what happened. Much of the academic literature about the PhD in Design take positions on some of these aspects, but usually does not discuss those, probably because the local practice seemed ‘obvious’. It is in this area of definition that conferences such as DRS could contribute in bringing clarity in the field.

At conferences like DRS2022, attention for PhD mentoring is already present, and topics like the one in this conversation merit further attention. Even sharing descriptive findings and insights into how programs work is valuable for the PhD community. In our project, we are developing a ‘Wunderlibrary’, part of which is a collection of PhD theses coming out of our institutions over the past 10 years. The focus of the Wunderlibrary is not to find back completed PhD hero stories, but to let candidates engage with a variety of materials, and with each other. Although conferences are one way of building a network, people only come when they have something accepted, so there should be more options to unite the design (research) community. Also, changing the focus on how to incorporate PhDs within events and conferences like the DRS is a good way to think about collaboration. In this regard, another role that DRS could play would be to organize events that would cater to the PhD candidates, e.g., in growing their expertise network. The mentoring meetings are already a benefit, but these are 1:1. It may be valuable to find ways to allow candidates to find others for their network, be it along lines of research topic, or of competencies for future jobs. The challenge here is to identify these connections early enough. At several places there are repositories of completed PhD theses, which can show “stories of the heroes who survived”, but that is only after the fact, and (as noted above) by people who may now be working on wholly different topics. What can we do for the heroes while they make their journey?

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