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# Communities of Practice in Design Research

**Abstract** Based on observed changes in design focus largely due to the widespread availability of technology, design research and its role in education and practice need to be newly situated. Design itself is taking on new challenges. Former requirements for legitimate teaching of design are called into question along with the vague classification and understanding of research generally, or in relation to design specifically. Research, theory, and practice are interrelated design elements; they are not isolated; together they can form the basis for developing more useful and specific communities of practice. Related research traditions or domains of interest provide scaffolding, critique, and clear communication for such communities. Design research, as an integral part of design education at all levels, requires its own curricular scaffolding. As more collaborative work is undertaken, designers need to understand other disciplinary approaches to research; their internal presumptions, accepted processes, assessments of validity, and limitations.

## Keywords

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Writing from at least twenty-four years of experience working with students in master and Ph.D. programs to develop their thesis and original research in three significantly different higher education environments and serving as editor for a scholarly design journal, *Visible Language*, for twenty-six years, I share with you what I have thought about and learned in this context. This is necessarily my own perspective based on experience and reflection. If what follows causes you to object, reconsider or think more deeply about your own position relative to research, the paper will have succeeded. The context for communities of practice in design research encompasses several tightly interrelated aspects such as changes in design practice, issues in design education, lack of research definition, need to build research into curricular structures, and problems with research communication. Each aspect is taken in turn in this paper leading to the development of communities of practice in design research.

1 Bas van Abel et al., *Open Design Now, Why Design Cannot Remain Exclusive* (Amsterdam, NL: Bis, 2011).

2 van Abel et al., *Open Design Now*, 17.

## Design Changes

Design is changing and much of the change is due to technology that puts at novice's fingertips powerful programs that assist in creation. Authorship, photography, music, image making, media exploration, design in two and three dimensions and more are now possibilities for the novice. Professional value is undercut by these developments, because what designers can contribute is poorly understood. We have seen fundamental changes via technology in communication, prototyping, planning, design process, and other professional activities, to say nothing of more quotidian aspects of life like banking, shopping, healthcare, and information access in general. The vast body of available images and information diminish the special technical skills that designers have mastered, to say nothing of their esthetic sensibility. Now seemingly anyone can be a designer. To explore this change see *Open Design Now*,<sup>1</sup> a book that proposes that everyone is a potential designer. This book comes from the Dutch who are known for pushing on traditions and limitations, and also known for pursuing design for the social good. The book contains articles and case studies that look at the possibilities offered by open access to technology and what this can mean to creation and production. This is not design as usual. It celebrates what technology has put on offer and runs counter to the idea that our technological devices are the ultimate in planned obsolescence, but instead are vehicles supporting creativity for all. "Open design is rooted in information and communication technology, giving us all the instruments to become the one-man factory, the world player operating from a small back room."<sup>2</sup> This puts the book into perspective. This is not some dream; it shows how technology permeates not only everyday life, but also challenges the designer's creative life and future, to say nothing of the economics of design as a livelihood.

Two examples serve to bring the open design idea to the forefront. First, it is now possible to self-publish a book because the technology is available through several sources like Amazon's CreateSpace. This sidesteps the publishing industry and uses existing software for production and the Internet for exposure, promotion, and sales. The author must supply or buy editorial or design services, and yes, some dreadful stuff will be published, but also some good. Second, libraries are changing from repositories of only physical books to purveyors of ebooks. They are reconsidering what it means to be literate, this literacy goes beyond reading, writing, and numeracy to technical literacy and making things – the commons-based peer production mentioned in *Open Design Now*. A three-dimensional printer supports custom designed, one-off productions for those who want to be their own designer or the designer who wants to rapidly

3 Sharon Helmer Poggenpohl, "Time for Change: Building a Design Discipline," in *Design Integrations*, ed. Sharon Poggenpohl and Keiichi Sato (Bristol, UK: Intellect, 2009), 20.

4 Michael Polanyi, *The Tacit Dimension* (Garden City, NY: Doubleday, 1966).

make a prototype of something intended for more expansive production. This is the library as a "maker space" and it is happening. Both examples point to a change in the citizen's role as culture consumer to include that of culture producer for those who are interested. Think of the way postings on the Internet have changed access to nearly everything. Sophisticated production tools are available to anyone with the time and patience to learn to use them. We have seen the transformation of many culture-based industries (music, movies, publishing, etc.). Technology is a dynamic and expansive change agent on the scale of systems.

Another important contextual change in design is the need for collaboration. Work on large, complex projects goes beyond the knowledge of one person to require the knowledge and skills of people from different disciplines. They need to coordinate their activities and synthesize their knowledge. "Increasingly, designers work in collaborative, cross-disciplinary teams and participating in a team is different than performing as a solo practitioner or as a sub-contractor to someone who has delineated the extent of one's work. Cross-disciplinary team participation requires an ability to negotiate team process and participate in decision-making. Such participation calls into question the context behind one's participation – disciplinary research and knowledge, or what is known and how it is known, particular skills and perspectives – all go beyond one's individual experience to depend on the contribution of others in the form of discussion and knowledge in order to form a productive collaboration."<sup>3</sup>

Members of high performance teams in collaborative settings learn from each other and this continuous learning is a competitive advantage – perspectives broaden, new information is accessed, even creativity benefits. But it is difficult for designers to substantiate their knowledge as so little is explicitly documented. Much that the designer contributes is tacit<sup>4</sup> and that is a disadvantage because it is based on trust. Where other disciplines have databases, ongoing research, reliable methods, design has only the beginnings of such foundations related to research that is necessarily explicit in methodology, analytical perspective, and result. This is detrimental when negotiating a cross-disciplinary working process for example. As a human-centered designer who begins a design process by understanding people, I ran into a conflict working with a computer scientist who started by writing code. We could each take off on our own process but would they end up complementing each other or become a stalemate and a waste of time? Working through a process for project development is only one of the challenging steps in interdisciplinary collaborative work. Others are how success is measured, how team ethos develops and is managed. On teams we encounter differences in values, agendas, interaction styles, social sensitivity, humor – all the many aspects that make us human. My purpose here is simply to flag interdisciplinary work as a significant design change that is not as simple as it might appear. Designers do not understand their own epistemology much less that of others in different disciplines. What are the differences in understanding the nature of knowledge or the process of knowing? Moving from tacit design action to explicit exposition about the value of such action is difficult.

### **Design Education**

Historically, design programs have been given special status within many universities; they have been set apart from expectations regarding research. Design teaching was based on design practice. The teacher-practitioner brought practical knowledge into the classroom. The expectation was that the teacher's

experience was at the forefront of design and could be useful as taught to prepare the next generation of designers. This, however, was not always the case. Some teacher-practitioners were really engaged in the most ordinary design and could teach some skills but were unable to engage students in design thinking. Creativity was neatly framed by project constraints and the work proceeded without a context regarding who was to be served, what the economics were, or other more specific factors. In recent years, as performance evaluation has become more rigorous for teachers, what is “exceptional” design practice has been defined with difficulty and is open to debate from professors in other departments, who see design as fluffy and without substance. Maintenance of exceptional practice or even a clear definition as part of a teacher’s tenure or retention demonstration is difficult.

Abandoning the position that design is an exception in the university context brings another problem: a muddy understanding of research. Its definition is stretched beyond recognition to accommodate teacher retention through support for a backward understanding of what design is, rather than how it is changing from its role as an esthetic and technical facilitator to issues of collaboration, its role as a social support, or its need for research to extend design knowledge. As universities seek to bring design into its well established performance values of teaching, research, and service, design faculty have resisted, become fearful, and have been forced to recognize the shallow perspective from which they teach.

Research has not only been misrepresented in definition and consequently action, it is fundamentally misunderstood. In design, it is often seen as a threat to creativity, or as a formula to fill out yielding useless information but completing some requirement. Such ideas stem from a lack of understanding of science, its processes, underlying philosophy, and yes, its creative, life altering results. Science, its procedures and research, are an alien concept for design and this should not be the case.

### Research Defined

With the current emphasis on innovation, the glut of information available, and the recent attention to research, designers, who are oriented to the future and the new, ignore the idea that what is past is prologue; the past provides the grounding for development. Thus they forget that previous thinkers have contributed substantial and useful definition and process regarding research. I draw attention to two such individuals, Ernest Boyer and John Dewey, the former in relation to research definition and the latter in relation to research and development process. Ernest Boyer, a former president of the Carnegie Foundation for the Advancement of Teaching, provides some clear definitions of varieties of research in his book *Scholarship Reconsidered, Priorities of the Professoriate*.<sup>5</sup> In this paper, he discusses confusion around research, what it is and what varieties of

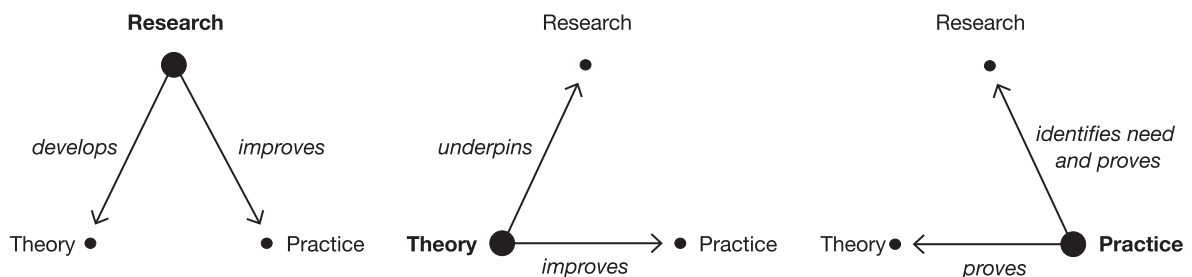


Figure 1 Fundamental relationships between research, theory, and practice. Copyright © 2015 Sharon Poggenpohl.

**Table 1. Research focus and example questions based on Boyer's four types of scholarship with example questions added by the author.**

Research Variety	Research Focus	Research Questions
Discovery	New knowledge	Do these observations lead to theory? Can this be refuted? How? What findings take priority? Can a new method be developed?
Integration	Patterns within and across disciplines	What is known? What is yet to be found? What do the results mean? Can this be interpreted in another way?
Application	Practical project use	How can this knowledge be applied? How can it aid individuals and institutions? Is the technology easy to use? Can a tool be constructed from this knowledge?
Teaching	Observational and experimental activity	Can this be taught differently? How can this learning be demonstrated or measured? What is missing as an information base for teaching this? Are students building on their previous knowledge and experience?

6 Boyer, *Scholarship Reconsidered*, 15.

7 Boyer, *Scholarship Reconsidered*, 16–25.

8 Boyer, *Scholarship Reconsidered*, 19.

focus it provides. He observes that research did not become part of the activity of higher education until the 1870s in England and did not enter American systems until 1906. Boyer defines scholars as “academics who conduct research, publish, and then perhaps convey their knowledge to students or apply what they have learned.”<sup>6</sup> He goes on to acknowledge that theory, research, and practice interrelate. For example, both research and practice can develop theory, theory needs to be proven through practice, practice can flag needs for research, research can overthrow theory, and research can improve the performance of practice. Research, theory, and practice are not isolated activities, but are tightly interrelated (fig. 1).

Boyer defines four varieties of research<sup>7</sup> and the questions they might address (Table 1). Questions are the opening gambit for research. Getting a good unanswered question is critical; it needs to be doable, researchable, and a contribution to knowledge.

### **Discovery**

Discovery is about the advancement of knowledge, also called basic research, it asks fundamental questions that sometimes open entirely new areas of inquiry. It also provides the building block for further exploration. Discovery is the form of research usually associated with science.

### **Integration**

Integration is about interpretation and synthesis, and often occurs across disciplines by understanding patterns of similarity or difference, or putting research into a more illuminating context or presentation. To quote Boyer, this is “...serious, disciplined work that seeks to interpret, draw together, and bring new insight to bear on original research.”<sup>8</sup> Integration is strongly related to discovery as both push the boundaries of what is known.

The next two varieties, application and teaching, can be likened to clinical research as research results are brought to a particular project for their usefulness in tuning up design performance (application). They also provide the research arena in which understanding and improvement are sought (teaching).

### **Application**

Application brings research to practical life and this is important. Application is proof of the usefulness of the research or theory. It is about validation and about pointing out how to extend the research project; identifying what is missing. There is often a gap between research results and their application in a practical project. This requires interpretation of the results and how they play into a specific project. Research cannot find practical validation if it is never accessed, read, and applied. Research cannot be extended and built upon if it goes unpublished and unread.

In addition to formal research coming out of graduate programs or ongoing faculty research, there is project research, particularly of a human-centered nature, that is undertaken to support a specific project need. This more informal research can be quickly applied to advance a project. However, this research seldom is published as it is considered proprietary to a client or the project funding is inadequate to support the additional reflection a research report requires.

### **Teaching**

Teaching is also a variety of research if engaged in experimentally; when pedagogical procedures are reflected upon, examined, improved, and monitored. Boyer states that "...teaching at its best, means not only transmitting knowledge, but transforming and extending it as well."<sup>9</sup> The knowledge the teacher has must undergo expansion through learning from others in formal and informal ways; reading, observing, discussing, experimenting, practicing, and playing. Teaching is a license for endless learning.

These four varieties of research: discovery, integration, application, and teaching, provide a broad arena for investigation. While the four are distinct as presented, they overlap in intention and process. Boyer's model of scholarship overcomes the wishful thinking of endlessly elastic and vague definitions of research. Design's focus is most clear with integration, application, and teaching. Discovery is a less typical focus but could result from interdisciplinary collaboration.

Prominent thinkers provide us with basic ideas about research. In addition to Boyer, John Dewey, a pragmatist and empiricist, has thought through the dependent relationship between research and practice, a relationship that is practically important to design. The first chapter in *Experience and Nature*, "Experience and Philosophic Method"<sup>10</sup> should be required reading for anyone interested in design research. Dewey has a wide-ranging intellect and writes in an accessible way. Pragmatism has had its ups and downs, but is now up again thanks to Larry Hickman, director of the Center for Dewey Studies at the University of Southern Illinois. Hickman's book *Pragmatism as Post-Postmodernism, Lessons from John Dewey*,<sup>11</sup> provides interesting grounding for design researchers. In particular chapter 12, "Beyond the Epistemology Industry, Dewey's Theory of Inquiry" should also be required reading.

Dewey's theory of inquiry stresses the instrumental character of knowledge, emphasizing experimental method, and setting the quest for knowledge in a dynamic, changing context. It approaches knowledge in terms of an organism that adapts and interacts with its environment; uses ideas as instruments or plans of action; and retains ideas that practically work, discarding those that do not. It moves from primary experience through refined reflection to explanation; moving from the tacit to the explicit. This is not unlike the processes of human-centered design, in that experience in the world around us reveals problems and

9 Boyer, *Scholarship Reconsidered*, 24.

10 John Dewey, "Experience and Philosophic Method" in *Experience and Nature* (New York, NY: Dover, 1958), 1a.

11 Larry A. Hickman, *Pragmatism as Post-Postmodernism, Lessons from John Dewey* (New York, NY: Fordham University Press, 2007).

possibilities – if we pay attention. Research and development bring prototypes into existence that can be tested by human use to reveal continuing problems or new possibilities. In human-centered design, various forms of research lead to a prototype of what is being developed, it is introduced to users who are observed in their use resulting in new findings so the prototype can be changed and improved. The human element cannot be ignored as it goes hand-in-hand with much design research.

Dewey proposes a back and forth between research and application, not unlike human-centered design and its alternating prototyping and human use cycle. This oscillation can be within project development as mentioned or at its conclusion with its application as a finished entity. Dewey ties together experience in the world to early research and later research to application that becomes yet another experience in the world. His idea of research is not abstract, but integrated into everyday life – practically. Certainty in a scientific sense is not Dewey's goal. His goal is "warranted assertability." "Warranted" refers to something resolved in the past that is proven or viable. What is warranted is available as an idea that exists in the present context of thinking or work. "Assertability" is taking the warranted idea to application in the future – the usefulness of this is uncertain and subject to trial. For Dewey, truth is evolutionary, derived from warranted assertability; he states the value of this practically: "Does it end in conclusions which, when they are referred back to ordinary life-experience and their predicaments, render them more significant, more luminous to us, and make our dealings with them more fruitful? Or does it terminate in rendering the things of ordinary experience more opaque than they were before..."<sup>12</sup> Dewey is not lost in some ivory tower, he is eminently practical about research, its application and evaluation. His theory of inquiry is self-correcting as it is continuous, focused on experience in the world, and is action-based like design.

While research may be a fairly new design experience, there are thinkers like the two mentioned who can provide some common ground. We do not start from nothing, but must become ourselves readers, thinkers, researchers, especially if we are teaching research skills.

### **Research Scaffolding**

Research skills need to be taught and like design skills, they need to be staged so that students grow into an understanding of what various forms of inquiry can do to provide better design performance or in a larger sense to help build a body of design knowledge. What follows is one idea regarding how research goals can be implemented through curricula.

#### ***Undergraduate***

Undergraduate design programs typically focus on the humanities as adjuncts to the design curricula. I argue that contemporary design students need more balance between humanities and science. At least one science course should be included so that the thinking and processes of science are experienced. For example, a basic course in the social sciences, psychology or sociology, or a basic course in the natural sciences, biology or botany, would add depth to their understanding of other ways of thinking and the role research plays in developing knowledge. Why is this important? I project that designers will work more and more on multi-disciplinary teams if they are addressing significant human problems. Exposure to how scientists think can provide preparation for such work. It will also contrast with how they think as designers; giving a stronger sense of the processes and values from which other disciplines work, as it deepens appreciation of their own position.

Faculty need to extend their own thinking by bringing to a student project factual knowledge, field experience in seeing what people do in different contexts related to a project, and careful consideration of how a project is pedagogically constructed and communicated to go beyond surface considerations or clever use of technology. Such a design project is looked at differently and becomes a first experience with research, largely driven by a teacher-mentor. From my experience, students are often excellent at gathering information, but how to analyze what they have gathered can be elusive and this is a critical step in research process. This is one area in which some practical mentorship is needed. The teacher must embrace research and believe in its efficacy as students easily pick up on what is inconsequential and delivered haltingly. This is not an expository approach involving a survey learning of research methods, but is a discovery-based, modest approach to practical research that can underpin design action. It is riskier than a survey course, but is more in line with the tradition of project-based design learning with its practical actions and outcomes.

Students and faculty need to read research reports related to their project. This exposes them to how various kinds of research are constructed and results that may be useful for their project. Different perspectives can be discussed and evaluated. Judgments are made, some research is thrown out, while other research becomes valuable and actionable in their project. This first project that includes some research needs to be contextualized in a designerly way in order to bridge the understanding between research action and results, and design action and results. Students need to be accountable for the project research component including how it is interpreted and applied.

Jean Lave and Etienne Wenger in *Situated Learning*<sup>13</sup> locate learning as an embedded social practice in which knowledge is gained through increasing levels of participation. They make a distinction between knowledge imparted through instruction and active knowledge as used and owned by individuals. "One way to think of learning is as the historical production, transformation, change of persons."<sup>14</sup> In this sense, learning involves the formation of identity. Because design has not typically engaged in research, this is a new dimension to design identity that needs practical integration into the experience of becoming a designer. It needs demonstration, guidance, and social acceptance into a growing community of practice. Design education has historically embraced learning by doing so developing scaffolding for transformative research participation based on increasing levels of participation is reasonable. What Lave and Wenger propose relates to greater social integration of teacher and student in a research-based project context; more teamwork in which new participants learn from more seasoned ones; and interdisciplinarity creates a dynamic learning environment that is real. Programs that end with a senior project, can be framed to include either existing or original research. In this way, the undergraduate gains some exposure, has some understanding of scientific procedures and thought, has some experience reading research, has seen how research can help in the development of a design project, has experienced the integration of contextualized research that supports an extended final project. Research is no longer an abstraction; they have a practical sense that it can enhance design performance.

### **Master**

Master programs are too often remedial, supplying skills that belong in the undergraduate program but were never learned. Deeper appreciation and skill is possible in this curriculum for collaborative work that crosses disciplines, takes on some local practical problem that might see fruition, uses existing research,

13 Jean Lave and Etienne Wenger, *Situated Learning, Legitimate Peripheral Participation* (Cambridge, UK: Cambridge University Press, 1991).

14 Lave and Wenger, *Situated Learning*, 51.



**Table 2. Example master degree projects with research focus and results.**

Place/ Project Nature	Project	Research	Result
Hong Kong Polytechnic University's School of Design Individual project	Active elderly adults sometimes get lost when they go beyond their usual orbit of activity causing anxiety for their family.	Observation of elderly in transit situations; shadowing elderly individuals.	The Octopus card is the transit card for Hong Kong residents. A GPS chip can be included for elderly card holders with readers at various locations that can show the path home or signal a need for help.
Hong Kong Polytechnic University's School of Design Individual project	Many hospital patients die from receiving the wrong medication.	Medicine delivery system observation in a large hospital; interviews with doctors, nurses, pharmacists.	A medicine delivery system including a cart that eliminates some steps in handling medicine where mistakes happen.
Illinois Institute of Technology's Institute of Design Interdisciplinary team project	PACE, a suburban bus company, covering a six county area, wanted to improve its service.	Ride alongs over various routes; informal conversation with riders; interviews with drivers; access to corporate surveys of patrons, visual documentation.	An improved communication system including smart routes, signage, bus interior and shelter design.
Illinois Institute of Technology's Institute of Design Team project	Pre-school children need to learn to identify upper and lower case alphabet forms and their sounds.	Investigate letter forms that cause confusion, observe literacy activities, interview teachers, observe children using game prototypes.	Off-the-Wall is a physical game designed for letter recognition and early literacy, using young children's inherent need for physical movement.

performs some original research, or works on a social problem needing a new approach. (I offer some abbreviated examples in [Table 2.](#))

All the examples in [Table 2](#) explore practical social improvement that stands to enhance everyday life. All use research in various ways to set the stage for design action, all have a human-centered perspective, and all are contextually located in their culture. Because research is a new procedure for most master students, they need guidance in the early stages of figuring out what kind of research is useful and how it might be done. Getting students into human-centered research situations can prove difficult. For example, getting a student into a hospital or pre-school classroom for observation is essential to these projects, but not easy to arrange. The design teacher as mentor is often present at early observations to give the students confidence about what they are doing and reassure the host in charge of the hospital or school. Later, students can take responsibility for developing and scheduling their research activity. Students are initially surprised by what they observe and how this runs counter to what they expected. Suddenly research becomes interesting and useful.

Running an interdisciplinary team project provides other challenges. Usually the students have some research skills, but working out the protocols for their project development and research can be difficult as the various disciplines have different expectations regarding research. In this situation, students are invited to participate based on the anticipated disciplinary needs of the project. Coordinating sub-teams, getting work done in a timely way, and later in the process making

decisions regarding the design, all provide collaborative challenge. The skills and experiences learned in team situations are useful and transferrable given the ways in which design is changing – as it becomes more interdisciplinary and collaborative.

Faculty need to be enthusiastic about what research can accomplish; to overcome stereotypes about what is possible, understand how people react to something new, or synthesize an interdisciplinary approach. Through project experience, students learn that the best laid plans for research sometimes do not work out; that research is not a cut and tried procedure, but a creative process in itself.

### **Ph.D.**

Ph.D. programs are all about original research, and they present their own set of possibilities. Some are research only, some course taught only, and some are a combination of taught course and research. My experience has been in the last of these. In these programs, the faculty's experience with research and their own research interests are critical. How research is framed is also a determining factor for the student's experience. Some programs work on a modified master/apprentice model in which the student carries out research attached to what their faculty advisor is investigating. In the best case, the student carves out a related research question and performs original research. In the worst case, the student is simply additional labor. Other programs accept students based on a fit with the faculty's research interests, expecting the student to develop a research question and perform original research. In both cases, the student and teacher work closely together. In the former, the student learns by doing under the direction of the faculty and serves to expand the faculty's reach. In the latter, the student also learns by doing but the outcome is more uncertain and the engagement between the student and faculty is more dynamic and reciprocal as learning goes both ways between them. In the both cases, the faculty must be clear about their own research interests and limitations.

The worst possible case is when doctoral students are accepted and no faculty is competent to guide them. Some students apply with a research agenda they wish to pursue. A match to a faculty needs to be made carefully, otherwise the faculty can only take them through the administrative steps, has little or no knowledge to share in the domain under investigation, and has perhaps only knowledge of useless research methods given the goal. Accepting doctoral students willy-nilly to fill out a quota is unethical.

Students graduate with an overview of quantitative and qualitative research methods, some understanding of various philosophical underpinnings for design research, and mastery of a very limited number of research processes. They are beginners in design research with enough knowledge to continue doing research given appropriate opportunities to extend their work in academia or industry. Their original research and the articles that follow may serve to bridge the academic-industry divide.

### **Communicating Research**

It is important that research and its results are shared. The writing of the dissertation contains much detail and has a fairly standard form. Following the dissertation, writing more abbreviated articles about the research results are essential and getting them published in appropriate journals is a next step. Academic writing is often pompous and obtuse preventing others from getting a clear understanding of what the issue was or how it was resolved. This style of writing is inappropriate and has contributed to the difficult reputation of doctoral students and their faculty.

15 Patricia Limerick, "Dancing with Professors, The Trouble with Academic Prose," in *Something in the Soil: Legacies and Reckonings in the New West* (New York, NY: W.W. Norton and Company, 2000). Accessed January 14, 2015. [www.soc.umn.edu/~samaha/cases/limerick\\_dancing\\_with\\_professors.html](http://www.soc.umn.edu/~samaha/cases/limerick_dancing_with_professors.html).

16 Lewis Carroll, "Through the Looking Glass," in *The Complete Illustrated Works of Lewis Carroll*, ed. Edward Guiliano (New York, NY: Avenel Books, 1982).

17 Larry McMurtry, *Horsemen Pass By* (New York, NY: Simon and Schuster, 2004).

18 Larry McMurtry, *In a Narrow Grave* (Austin, TX: Encino Press, 1968).

19 Carroll, *The Complete Illustrated Works of Lewis Carroll*, 122.

20 Carroll, *The Complete Illustrated Works of Lewis Carroll*, 123.

21 Limerick, "Dancing with Professors," 3.

22 Limerick, "Dancing with Professors," 6.

23 Ken Friedman, "Models of Design: Envisioning a Future Design Education," *Visible Language* 46, no. 1/2 (Spring-Summer 2012): 132–153.

Patricia Limerick, a prominent historian of the American West at the University of Colorado and a MacArthur fellow, wrote a witty paper titled "Dancing with Professors, The Trouble with Academic Prose."<sup>15</sup> I have given this paper to doctoral students who develop an over the top academic writing style. She shows just how silly academic prose can be. Limerick does not hide her disdain for academic writing and presents, in this paper, several analogies from Lewis Carroll's *Through the Looking Glass*<sup>16</sup> to the difficulties in making the movie *Hud* from Larry McMurtry's novel *Horsemen Pass By*.<sup>17</sup> (McMurtry's 1968 collection of essays, *In a Narrow Grave*,<sup>18</sup> contains his take on the transition of his book to a movie.) It is worthwhile to learn from Limerick and Carroll directly. From Carroll's story as paraphrased by Limerick: "Tweedledee and Tweedledum have quite a heated argument over a rattle. They become so angry that they decide to fight. But before they fight, they go off to gather various devices of padding and protection: 'bolsters, blankets, hearthrugs, tablecloths, dish covers and coal scuttles.'<sup>19</sup> Then, with Alice's help in tying and fastening, they transform these household items into armor. Alice is not impressed: 'Really, they'll be more like a bundle of old clothes than anything else...'<sup>20</sup>

Now from Limerick: "Here, in the brothers' anxieties and fears, we have an exact analogy for the problems of academic writing. The next time you look at a classically professorial sentence – long, tangled, obscure, jargonized, polysyllabic – think of Tweedledum and Tweedledee dressed for battle, and see if those little thoughts, concealed under layers of clauses and phrases, do not remind you of those agitated but cautious brothers, arrayed in their bolsters, blankets... The motive, too, is similar... [they] were in terror of being hurt... A properly dreary, inert sentence has exactly the same benefit; it protects its writer from sharp disagreement, while it also protects him from movement."<sup>21</sup>

The reader deserves respect, clear descriptive language, inviting diagrams and visual documents, and modesty about what is demonstrated and claimed. We need new approaches to communicating research results so they are not incredibly dull or pretentious, but are accessible and useful to practitioners.

Limerick observes: "The redemption of the university, especially in terms of the public's appraisal of the value of research and publication, requires all the writers who have something they want to publish to ask themselves the question: Does this have to be a closed communication, shutting out all but specialists willing to fight their way through the thickest of jargon? Or can this be an open communication, engaging specialists with new information and new thinking, but also offering an invitation to non-specialists to learn from this study, to grasp its importance, and by extension, to find concrete reasons to see value in the work of the university?"<sup>22</sup>

## Communities of Practice in Design Research

Because design is practiced within so many different contexts as described by Ken Friedman<sup>23</sup> from the viewpoint of six global economies with different problems, possibilities, and goals, it is clear that there is no one way to practice design or to consider research needs. Design is many things depending on its context. We need to realize this and tailor attention and interaction to the design community within which we work. The vehicles we count on for information and networking go against this because the economics of design journals and conferences need to be ecumenical to attract sufficient people and financial support. This serves to muddy recognition of the various contexts, whether economical, philosophical, regional, educational or practical within which we work. This lack of recognition makes design appear to be not only disorderly but also chaotic with an anything goes mindset. This impedes progress and recognition of the leading edge of ideas or practices.

How can we develop partnerships with others interested in similar ideas, bridge the gap between research and practice, if we do not know appropriate practitioners, or build on other's ideas? This is an essential need for building communities of research practice. Attitudes within design education and practice tend to negate communities of practice as undergraduate education is necessarily general and focused communities do not appear until graduate school, if then. Most practitioners are opportunists who move from project to project, often unable to build on accomplishments except in the most general way. Some do stay within a particular domain of design, like signage, safety concerns, digital interaction, etc. But unlike other disciplines, biology for example, there are no agreed upon sub-disciplines that clearly share fundamental ideas like research processes or philosophical positions.

A significant obstacle is the separation of academic and professional (practice) communities. Both have conferences, publications, and websites, but each variety tends to remain isolated from the other. A brief sample of professional communities include AIGA (American Institute of Graphic Arts) from 1914, SEGDA (Society of Environmental Graphic Design) from 1973, ICSID (International Council of Societies of Industrial Design) from 1957, and Cumulus (International Association of Universities and Colleges of Art, Design, and Media) from 1990. The gulf between academia and professional practice needs to be bridged in order to encourage practical use of research results, feedback regarding usefulness, and transfer of ideas regarding research needs.

The human dimension of developing a research community of practice is also essential. Just as students are introduced to design ideas, practices, and form their identity as a designer through situated learning, teachers project their ideas, practices, and identity, and importantly contribute to the research community they support. Teachers, who model behaviors and interests, provide students with an initiation into a community of practice. Those who cross-disciplinary lines, engage with practitioners, share research interests, and find or create design opportunities that bridge research and design action demonstrate for students an advanced design characteristic and prepare them to participate in a community of practice. Design practitioners who work with young designers extending their practical knowledge also provide an initiation and demonstration of design identity.

Lee Shulman, another former president of the Carnegie Foundation for the Advancement of Teaching, has identified six principles<sup>24</sup> that characterize communities of learners. I briefly paraphrase them as follows:

- Learning is generative and essential to the discipline; it supports future development of content, processes, and dispositions.
- Learning is action oriented; the learner is an active agent.
- Learning is reflective; conscious of how and why one is learning in a particular way.
- Learning is collaborative; people work together.
- Learning is passionate; ideas and processes are shared among teachers and students.
- Learning is supported; it is nurtured and legitimated within a community.

Given the ways in which design is changing as mentioned earlier, learning and change are not confined to formal education, but permeate practice as well. This is another reason for bridging the academic-professional divide.

Returning to Shulman, "Finally, I suspect that effective learning communities must be capable of moving from talk to action, and from deliberation to the joint pursuit of tasks that are publicly visible and whose outcomes hold real

25 Shulman, *The Wisdom of Practice*, 516.

26 Clive Dilnot, *A Heskett Reader: Design, History, Economics* (London, UK: Bloomsbury, forthcoming 2015).

27 Elizabeth Sanders and Pieter Jan Stappers, *Convivial Toolbox, Generative Research for the Front of Design* (Amsterdam, NL: Bis, 2012).

28 Lee Shulman, "Teaching as Community Property," *Essays on Higher Education* (San Francisco, CA: Jossey-Bass, 2004), 158.

consequences for all of the group members. This is the feature that has been called a 'community of practice.'<sup>25</sup> From 'talk to action' is like research to application – 'from deliberation to the joint pursuit of tasks' suggests collaboration between educators and practitioners.

There are signs that communities of practice are emerging. Human-centered approaches to design practice and research are increasingly present at educational conferences; the journal *Visible Language* in its new situation is increasingly focused on design research in communication; this journal, *She Ji*, joins design, economics and innovation to identify new territory and provide a forum for an integrated community of practice; the Institute of Design at the Illinois Institute of Technology has a strong focus on innovation and business within their graduate program and within the seminars and workshops they sponsor. This handful of examples shows that design integrates, it cannot escape getting a contextual focus in some way, because without it, it is too amorphous and general. Perhaps these are steps toward a more mature discipline; one in which academics and practitioners of various kinds share research ideas and results based on a shared domain of interest.

Some communities of practice that I welcome are: the economics of design, anchored by a forthcoming book that collects the writings of John Heskett, one of the seminal thinkers in this area;<sup>26</sup> philosophy of design, anchored by the New Zealand journal *Design Philosophy Papers*; human-centered design research anchored by Sanders and Stappers' *Convivial Toolbox*;<sup>27</sup> collaborative work as reported by the British journal *CoDesign*; and design and emotion as developed by the international biennial Conference on Design and Emotion. These are a few communities that have a start. There are others that are needed such as: research in practice, criticizing and humanizing technology, case studies in design or a new approach to history, or integrating research and creativity.

Designers, whether teacher or practitioner or both, need to be interested in not only a focus, but also in a domain, and have a vision of continuous learning with a long view of development. By envisioning themselves as contributors through their actions in learning, research, practice, along with sharing their work through writing and presenting they become valued community members able to shape and extend design's future. Knowledge is socially constructed and communities of research practice can be positioned to dynamically and practically advance design knowledge and shape the future. Shulman aptly states: "As scholars, we take on the obligation to add to the core of understanding, skepticism, method, and critique that defines our fields and their ever-changing borders. We also assume the responsibility for passing on what we learn to discern and act, through teaching, social action, and through exchanging our insights with fellow professionals. Indeed, the core values of professional communities revolve around the expectation that we do not keep secrets, whether of discovery or grounded doubt."<sup>28</sup>

My vision of a community of practice in design research includes academics and practitioners collaborating on socially responsible human projects through collaboration. Design has been too insular; it is time to partner with other disciplines at the university, in practical practice settings, in entrepreneurial ways to demonstrate what we can contribute. Let us not be shy or let others define for us a limited and old-fashioned role as fixer-upper or finisher. Let us show our stuff as collaborator, synthesizer, prototyper, technological critic, visualizer, or researcher.

Communities form around ideas, key people, institutions, programs, books and journals. They provide the context and glue from which we can build without having to begin from scratch. Acknowledging whose ideas we build on is essential as this not only is ethical, it substantiates a history of development. Ideas need to be shared and challenged by knowledgeable community members or partners. The

communities I envision are not dogmatic, looking for followers, but critically supportive of development within a domain of interest. They provide a critical network and a forum with which to engage. They develop worthy questions, research, and information in relation to their interests. The value of these communities is not about their size, but about their clear focus and ongoing contributions to their domain of interest.

In a transitional time, when much is changing, when projects are never finished, but simply become tired, run out of money, or are seen as an edition or iteration, the long view of development and interest via communities of practice help us to focus energy and intention to build a body of design knowledge that takes us into a desired future. A community of practice can help us move from tacit to more explicit design knowledge; making us more valued collaborators.

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