Report for the 2010 AIGA Research Grant

Deborah Littlejohn with Meredith Davis

Abstract

This report outlines the problem area, research design and discusses the early findings for a study of design pedagogy. The proposal was submitted for supporting the data collection phase of the research, which took place from January–May, 2010. The research grant was crucial for completing this work: AIGA funding supported the costs of transcribing interviews, photocopying documents and travel accommodations to four design programs in diverse geographic areas of the U.S. The final research report of the findings, including the review of literature and in-depth discussion of the substantive theory generated from this study, will be published and available to the AIGA design community May 2011.

The research is a qualitative study that draws on shifts in social and professional conditions of design practice to explore the culture of design education. It focuses on teaching strategies in programs that emphasize nontraditional design competencies (AIGA, 2006) to gain a theoretical understanding of the relationships between academic design culture, professional identity and the environment where instruction takes place. Qualitative grounded theory (Charmaz, 2006) enabled a conceptual rendering of the teaching environment as a network of social and spatial processes. Data from interviews, existing documents and site observations were coded through a systematic sorting of common themes to build a theory in the language of the participants that accounts for the process of detecting and acting on change. The study is intended to focus and energize further study into an area of great importance to the design profession.

1.0   Context of the research problem

Evoking Erikson, the education scholar Lee Shulman (2005, p. 52) once commented that if you want to understand a culture, study its nurseries, and, "If you wish to understand why professions develop as they do, study *their* nurseries." Design is a profoundly changing field of practice and discipline of study.[1] Professional associations promote design to business, government and other design stakeholders, making the case that design can play a greater role in social innovation and solving the problems of society. Outcomes of their advocacy include increased awareness of design and more complex roles for designers. Design has also become more relevant to other disciplines, as commissions do not fall into neat divisions of specialty (Dykes et al., 2009).[2] The complexity of design shifts the focus from single artifacts to the systems in which design operates.

Societal changes like economic forces of globalization and the digital revolution, with its proliferation of information and communications technologies, contribute to shifts seen in the field: the computer is more than a production tool, it is a communications platform that has transformed, and will continue to transform, design (Redström, 2005). While the "creative act" is a prominent characteristic of design's professional identity (Wang and Ilhan, 2009, p. 6), collaborative technologies allow the public to participate in activities that have traditionally been the province of design. Their influence effects, "what is designed, how it is designed and who designs it," requiring designers to "move closer to the people for whom they design" (Sanders and Stappers, 2008, p. 6–7).

Professional and social movements have done more than present new opportunities and challenge traditional assumptions about established roles (Keinonen, 2009). They have sparked debates over the ability of design education to meet the demands of preparing students for the changing conditions of practice. Design schools are where students not only learn the requisite skills and knowledge to do design work: it is where they tacitly learn how to *be* designers, gaining formative notions of "professional

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[1] The term *design* has different meanings. In this study, it is used to represent the broader creative design fields, which comprise various design specialties such as product design, advertising design, graphic design and interactive media design (as opposed to engineering design, for example). This study is about design schools teaching visual communication (or graphic design) and interaction design. The two majors are closely related from a disciplinary and professional standpoint as they are taught in art and design schools.

A *field* is a specialist domain of practice (Bourdieu and Wacquant, 1992). *Practice* is used in two different ways: *design practice*, *professional practice* or *field of practice* refers to the "design industry" and the activities associated with professional services (advising clients, creating concepts and producing prototypes). In the second sense, *practice* is a "coordinated effort formed around a particular activity," as in "the carrying out of some action"—i.e., "teaching practices" (Reckwitz, 2002). A *discipline* is defined as a set of shared commitments to patterns of thinking and behaviors common to an academic community in a given field (Kuhn, 1970). A *profession* is the "knowledge-based category of an occupation" that typically requires study at the higher (college) level, and a period of specialist training (Evetts, 2003).

[2] Information systems (Robinson et al., 2005), business management (Dunne and Martin, 2006) and engineering (Dohn et al., 2005), for example, have established design's relevance in their practices. See also Broadbent and Cross (2003).

identity" (Larson, 1979).[3] Design stakeholders, including associations like the AIGA (2007), among others,[4] have presented the field with a new set of competencies that are noticeably different than the usual conceptual and aesthetic skills that are the instructional concern of most design schools. This study draws on the: 1) *research competency*—design professionals are being asked to ground design decisions in evidence gathered from empirical, analytic research; 2) *interdisciplinary competency*—the ability to interpret research means that designers require a more sophisticated understanding of the processes of other fields, including disciplines outside of design; and 3) *collaborative competency*—user participation and complex, multidisciplinary design projects requires the ability of designers to work effectively in teams, and develop empathic skills to communicate and collaborate with different groups of project stakeholders, professionals and audiences.

Preparing students to use research findings, communicate effectively with professionals in other fields, collaborate in multidisciplinary teams and develop empathy for the needs of a wide range of project stakeholders, have broad implications for design education. The new competencies raise fundamental questions about the singular mission of design schools to prepare students for creative industries and cause concern over the curriculum and the pedagogy through which it is delivered. If, as Ken Friedman (2004, p. 48) denounced, "Nearly every form of design that has a purpose in today's world is far too complex for the older forms of design education," how can design programs plan responses to the challenges discussed in this report and elsewhere (e.g., Hunt, et al., 2002; Research Society, 2009)? While a list of new competencies provides a foundation for programs to develop different educational goals and learning objectives, there remains a need for practical guidelines for creating new kinds of learning experiences that address knowledge and skill sets that are, perhaps, unfamiliar to most design educators.

Significance of the Study. The outcomes of this study will be of interest to different audiences on several levels. An understanding of the relationships between academic culture and the teaching environment will be useful to faculty and administrators making decisions in their respective programs, while organizations that work with design communities, including accreditation bodies, and the general profession, could benefit from a formal study of design education. This study will be particularly relevant to design schools that offer graduate degrees. Underlying "signature pedagogies" are cultures that bring much to bear on the future of professions (Shulman, 2005). A picture of the profession's identity as seen from the perspective of graduate faculty can reveal much about how the field is seen as a whole, while the choices

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[3] Professional identity is a generally-held understanding of what a designers does: the "objects of their activity, the competencies necessary to act efficiently" and the "perspectives, concerns and approaches" related to their activities (Bonsiepe, 1994, p. 49). Professional identity is revealed by what designers call themselves, how they describe their role in their activities and how they organize themselves and their work (Thomson, 1997).

[4] It is notable that other disciplines have issued similar competencies for their professionals: engineering (Dohn et al. 2005), law (McElroy, 2009) and information systems (Martinsons and Cheung, 2001), to name a few. This study draws from criteria outlined a 2007 report, *The Designer of 2015*, by the National Association of Schools of Art and Design (NASAD), the national accreditation body for U.S. design schools, and the American Institute of Graphic Arts (AIGA), the largest professional association for graphic design in the U.S. See also *Six Challenges for Design Education* (Research Society, 2009), PDF available at <www.thersa.org/about-us/media/press-releases/six-challenges-for-design-education>

faculty make about the curriculum will influence generations of students and shape the future of the design profession.

Graduate education has an important role to play in this future, although the need for a graduate degree in design is not a commonly held assumption—one reason for the field's underdeveloped research literature and limited publishing venues (Poggenpohl and Sato, 2009). This study helps to fill that gap.

2.0   *Theoretical perspective*

Empirical research needs to be understood in the context of its paradigmatic orientation. This qualitative study is situated in a naturalistic paradigm. Qualitative research is appropriate when the goal is to make sense of complex situations, gain an in-depth understanding of a phenomenon or construct theory (Groat & Wang, 2002). Unlike logical positivism, value-free objectivity is not a goal of qualitative research, which instead, examines phenomena, people, situations or processes in their natural setting to gain an understanding of the research topic (Denzin and Lincoln, 2005). In taking a naturalistic approach informed by a social constructivist theoretical perspective, this research is ontologically based in relativism. Social reality is constructed—participants, including researchers as "data gathering instruments," (Hammersley and Atkinson, 1995) collaboratively construct the realities in which they participate.

Research Questions. The central question guiding this study is: *How do leading graduate design programs express their approach to anticipating, defining and meeting the demands of preparing students for changing professional and social conditions of practice through the design of the teaching environment?* This question is exploratory and investigates how faculty find out about, and make meaning of, change in design practice regarding nontraditional competencies. *Anticipating* is being aware of something before it happens in the context of teaching; *defining* is to state or describe the nature, scope or meaning of new design competencies; and *preparing* is to make students ready to do or deal with design's changing competencies. Teaching is influenced by the teaching environment—a social setting that reflects culture through the ideas, practices and interactions that transpire within it. Following Shulman (2005), the teaching environment is physical, including its different material properties—e.g., technologies, spatial arrangements, furniture and other visible surroundings. It also has a conceptual dimension that includes policies, organizational structures, curricula, calendars and coursework.

3.0   *Research methodology*

The choice of research strategy in a study should align with its purpose and research questions, and it should not conflict with the ontological and epistemological stances of the investigators (Cresswell et al., 2007), all of which are discussed above. With these criteria in mind, the strategy used in this project is constructivist grounded theory (Charmaz, 2006). Grounded theory was initially developed in the 1960s as a way for analysts to systematically generate concepts from data collected in social science research with the goal of building new theory (Corbin and Strauss, 2008). As a common method in various fields, including

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education, it is, "particularly effective at understanding the processes by which actors construct meaning out of intersubjective experiences" (Suddaby, 2006, p. 4), and appropriate in contexts where no theoretical framework exists (Sarker et al. 2001).

3.1 Participant and program selection

Initial sampling is where the criteria for selecting the people, cases, situations and settings are established before data is collected. An initial list of programs was gathered from a voluntary survey of 352 degree-offering design schools,[5] most of which are in the U.S. (AIGA, 2006), and from a public database of 254 programs accredited by the National Association of Schools of Art and Design (NASAD).[6] Through non-probabilistic, purposeful sampling, specifically, criterion sampling (Patton, 2002), the list was narrowed to 18 programs. The criteria, discussed below, were identified by analyzing 254 mission statements and program descriptions available on college websites. 18 programs with clear structures for teaching the nontraditional design competencies pertinent to this study—all of which were graduate programs—met the following criteria: (a) mission statements that stress the importance of nontraditional design competencies; (b) specialization in graphic and interactive media design in the terminal MFA degree (as opposed to a MA or MS); (c) demonstration of interdisciplinary content outside of design subjects in the curriculum through minors or required coursework; (d) coursework that address nontraditional design competencies; and (e) programs that are accessible and available to the researcher.

From the 18 schools identified in the preliminary analysis, four programs were recruited. Drawing on categories from an AIGA design school survey (2006), four programs were identified that represent a range of contexts: (a) different orientations, e.g., professional practice model, social design model, designer as author model and academic research model; (b) various organizational structures—private and public colleges and universities; (c) diverse geographic locations; and (d) a range of years in operation (less than 5 to more than 15 years).

After finishing the selection, department heads were contacted to solicit their interest in taking part in the study. Through intensity sampling, in consultation with department heads, individual faculty were similarly recruited based on their ability to offer an in-depth understanding of the program, or, due to their experience in the profession, could provide a rich, detailed perspective on design practice (Creswell, 2003). 29 participants representing a range of faculty ranks were ultimately recruited. It is important to emphasize that the selected programs and individuals were not chosen to be statistically representative of U.S. design schools and faculty. While it is fairly certain they are not alone in thinking strategically about the changes taking place in design, it is notable that the initial analysis of programs, discussed above,

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[5] Degrees offered by U.S. design programs include the two-year Associate of Arts (AA) degree, the Bachelor of Arts (BA) degree, the Bachelor of Fine Arts (BFA) degree, the Bachelor of Science (BS) degree and the Master of Fine Arts (MFA) degree. There are other similar titles specific to particular fields such as the Bachelor of Graphic Design (BGD) or Master of Graphic Design (MGD) degrees.

[6] There are a bewildering number of design programs in the U.S., and data on existing undergraduate and graduate design programs is remarkably difficult to obtain. NASAD publishes one of the few publicly available databases of U.S. design schools, however it includes only NASAD-accredited institutions (around 250 undergraduate and 85 graduate programs). Some writers have suggested there are well over 2,000 U.S. design programs teaching graphic and interactive media design (McCoy, 1997; Heller, 2005).

revealed few programs that were clearly taking detectible action in addressing the new competencies relevant to this research.

3.2   Data collection & analysis

More than 440 pages of data were analyzed during this research. Data were gathered from individual interviews, documents and site observations. Interviews are the primary data source; documents and site visits are supplementary. The variety of source material provide an adequate amount of substantial data for obtaining multiple views of pedagogic practices, as well as account for triangulation (Guba and Lincoln, 1985). In-depth, semi-structured interviews took place from January–May, 2010, except for three held by telephone, and all were digitally recorded as MP3 files and transcribed verbatim. As a precaution, notes were taken during interviews, and when possible, reflective thoughts were written following interviews and observations. The identities of participants and programs are protected by using pseudonyms.

Data collection. Flexible protocols are better suited to the goals of qualitative research (Hammersley and Atkinson, 1995). The decision to take a flexible approach, as opposed to more structured protocols, was informed by Charmaz (2006), who expressed concern that the process of developing grounded theory could be compromised by strict procedures that control the pace and delivery of responses —e.g., asking identical questions without deviation and remaining neutral without comment or interjection. A loose protocol allowed responses to guide the direction of inquiry (Corbin and Strauss, 2008), and provided the latitude for participants to bring up their own issues concerning the design field, design education and the cultures of their respective institutions. If participants brought up issues that were not initially included in the protocol, these issues were added to subsequent interviews. In a controlled study designed to test hypotheses, constant modification to the interview protocol would be a serious methodological concern. Because this study is qualitative, and uses a constructivist grounded theory approach, the ability to refine ideas gained from changes made to the interview protocol supported the research goal of developing theory (Charmaz, 2006).

Questions covered topics related to the research questions, written to address the issues within 90 minutes, though extra time was afforded as needed. Thematic areas focused on the participants' backgrounds as design educators and professionals, as well as teaching practices, to understand how participants make sense of current changes in the field. Discussion topics included sources of their information, thoughts about the purpose of graduate design degrees and the types of designers that programs seeks to produce. Teaching topics covered educational philosophies, curriculum development plans, learning objectives for nontraditional competencies, assignments that accomplish these objectives and administrative policies that support or hinder teaching them.

Documents were downloaded as existing data from websites or sent directly from the participants. Documents supplemented the interviews and created an aggregate of data from different, but related sources. In this sense, they helped draw a more comprehensive picture to increase the validity of the findings (Guba and Lincoln, 1981). Curricula, course descriptions, reading lists and assignments provided

substantial background data about program values and objectives, as well as faculty interest areas. Curricula and course syllabi were helpful in identifying appropriate classes to visit and customizing interview questions. Mission statements, recruitment literature, student handbooks, SWOT analyses and accreditation documents were consulted for insight into the program's history, culture and plans for future direction.

Site visits took place from February–May 2010 and were crucial for gaining a thorough sense of the teaching environment. The time spent in each school yielded an enriched understanding of the program that interviews and documents alone might not have provided. While onsite, the researcher was immersed in the culture of the program for 5–8 hours a day, over 10–14 days, attending classes and spending time in the setting to get a sense of the school's "everyday life" (Hammersely and Atkinson, 2005). Observations focused on interactions and activities in the teaching spaces: how spaces are used, the furniture layout and the use of technology.

Data analysis. All interviews, documents and field notes were systematically analyzed using grounded theory coding and analytic memos. Coding is the process of fracturing data into concepts for integrating into more abstract categories that create a conceptual framework from which theory can be built (Charmaz, 2006). Initial coding is done in two steps—open coding and focused coding. Working with very slightly edited transcripts, topical sections of the interviews were labeled with "in-vivo" codes in the participants' words, or with inductively generated codes using sensitizing concepts and concepts from the literature, in answer to the research questions (Charmaz, 2006, p. 55). Focused coding groups concepts into more abstract categories that are recorded in gerund form, where possible, to preserve action (Charmaz, 2006, p. 49). Selective, or "axial," coding involves the integration and refinement of categories by "asking when, where, why, who, how, and with what consequences" questions of the data to identify conditions and interactions associated with categories, and relationships between categories and concepts (Charmaz, 2006, p. 60). During this process, conceptual diagrams are drawn to help visualize patterns in the data and integrate categories (Clarke, 2005; Charmaz, 2006).

At the time of this report, the analysis is in the phase of elaborating the "primary category," or the central phenomenon that the theory describes, and integrating main categories with the primary category (Corbin and Strauss, 2008).

3.3   *Quality standards & study limitations*

As "the correctness or credibility of a description, conclusion, explanation, interpretation, or other sort of account" (Maxwell, 2005, p. 106), validity in qualitative research concerns establishing trustworthiness and credibility. Two validation techniques were employed in this study, including triangulation and member checking (Lincoln and Guba, 1985). Triangulation addresses the problem of relying too much on any one data source. By using a sufficient amount of data from multiple sources, as described earlier, and from multiple sites (Clarke, 2005), this study developed along different lines of inquiry through triangulation.

Member checking is the process whereby data and analyses are tested with participants to ascertain the meaningfulness, credibility and validity of findings: it is, "the single most important action inquirers can take, for it goes to the heart of the credibility criterion" (Guba, 1981, p. 85). Member checking took place in this study after categories and concepts had emerged. Participant comments were also used to refine the analysis.

Grounded theory should, "fit the area from which it was derived and in which it will be used," and be broad enough to be "applicable to diverse situations" (Corbin and Strauss, 2008, p. 300). The latter of these criteria assures the modifiability of a theory by establishing grounds for future research findings to be incorporated into it (Charmaz, 2006). To allow for the possibility of transferability, data have been recorded and archived so that researchers can determine if the findings of this study are applicable to their own situations.

Limitations of the study. The limitations of context, the role of the researcher and the sampling procedures are discussed below so that readers can decide if the research findings are applicable to their own situations (Guba, 1981). First, the findings of this study are not intended to be generalized to a wider population. Participants and programs are confined to U.S. graduate programs teaching interactive and visual communication design. The teaching environments of college design schools, and of graduate programs—as well as the experience of teaching and being a member of these fields—are, perhaps, culturally specific. While design faculty have much in common, the specific meanings of interactive design and visual communication faculty cannot automatically be transferred to other design fields or levels of study, such as undergraduate or doctorate.

It is also important to note that qualitative researchers actively participate in the findings of their studies. Readers should be aware that the researcher's professional and academic background influenced the results of this study. The final limitation is the sampling procedure, which is purposeful sampling. Participants were not randomly selected and do not form a representative sample of U.S. design programs or faculty. The goal of the study is to understand the culture of design programs actively responding to the changing conditions of design practice. A conscious effort was made to select programs that are viewed as exemplars and that fit the criteria relevant to this study.

4.0   *Main categories in the data*

What follows is a brief discussion of the prominent ideas that emerged in the data. A full report of the concepts, categories, their relationships, and how they were analyzed to produce theory and address the research questions, is forthcoming.

4.1   *External engagement*

External engagement, as understood from the viewpoint of participants, is a process of communication and collaboration through interacting with ideas and individuals outside the program and design field. Schools and faculty are not islands that operate independently—they are constantly engaged with other systems.

The data indicate that the ability to cultivate dense, ongoing networks of connections beyond the immediate department and disciplinary context plays a crucial role in the way programs anticipate, define and meet the demands of preparing students for new conditions of practice.

External engagement took place in a number of contexts—the college where programs are located, the broader academic organization, to different professional and disciplinary communities. There were numerous examples of ongoing program commitments to provide human, material and financial resources in support of external engagement. These include: dual teaching appointments between other colleges; full time appointment of design faculty with training in fields outside of design; co-teaching with faculty from other fields as well as other design specialisms; degrees built in partnership with other disciplines; interdisciplinary research collaborations with researchers from other disciplines; the recruitment and acceptance of master's students with non-design degrees—and letting non-design majors into upper level design studios and seminars; requirements for design majors to take advanced coursework in non-design disciplines; the development of standalone, online design courses specifically offered for credit to students in other majors; advisory relationships with experts from other fields and industries; experts from other areas serving on design thesis committees, and design faculty serving on committees of other majors.

The subcategory, "looking outside design" emerged in the data of each participant, through discussions of teaching philosophy. As a physical and metaphorical goal of coursework, students "leave the field" in assignments that require them to "spend time with real people," "find ways to involve people in projects," "get outside the studio," and "read outside design." Rather than limit student work, participants encourage the "connection of design to broader perspectives," in projects that are not prescribed or defined by format or design specialty. "Looking outside design" became a crucial concept in that it revealed the dense web of relationships and multidirectional effects of external engagement.

4.2   *Mediation*

"Mediation" is a prominent category in the data of each program.[7] Concepts in the "mediation" category emerged in topics surrounding design expertise and the designer's roles and values—all issues that concern professional identity. Meanings about design are mediated by participants seeking to change limited perceptions and habitual mindsets about design practice.

Distancing. Participants distance design from artistic views of the profession that see a "creative genius" at the center of design activity—a model of the profession that is, arguably, prevalent in design schools. Distancing was evinced by numerous references to problems with current practices in the profession and the academy. Properties of "distancing" ranged from frustrations with current design discourse and the limited voices and venues of its circulation, to tensions about location in schools of fine

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[7] The understanding of "mediation" used in this study is based on the ideas of Wertsch (1999) and activity theory (Engeström, 1999). "Mediated action" is a developmental process that arises from the creation and use of artifacts—e.g., definitions, policies or curricula, for example—as people work together. As people create artifacts, and negotiate their meaning, meanings are changed and new meanings arise (Engeström, 1999; Riesch, 2010).

art, to desires for moving closer to other perspectives to enrich design. Participants often brought up the "distancing" category along with ideas of establishing rigor and changing preconceptions.

Expanding. In each program, "expanding" the domain of design was a reoccurring theme. Mediation in the context of external engagement—or as participants put it, "having a foot in different worlds"—is about elevating design practice and advocating design's value with the purpose of developing new dispositions or expanding design beyond traditional notions of practice. Individual participants carry out these activities in different communities (student, academic, professional) at various levels (local, national, international), including: presenting regularly at conferences; holding workshops and lectures for other colleagues and classes; participating in professional associations; doing collaborative research with faculty in other fields; writing in academic and professional publications or serving on their editorial boards. Public venues are seen as opportunities to provide leadership by directing where the field should be moving. Participants also prepare students to make a case for being involved in projects at conceptual levels and invent their own career paths into the field.

Providing frameworks. Participants mediate design meaning for students by providing frameworks that facilitate their understanding of nontraditional design competencies, establish rigor in their concepts and develop new behaviors and dispositions. "Providing frameworks" is the means by which nontraditional design competencies are operationalized in student work. It is important to note that participants do not simply import theories and methods from other disciplines into design coursework—understanding the work of other fields does not mean teaching designers to be researchers. Two concepts help make this point: "maintaining the uniqueness of design" and "making appropriate for design." "Making appropriate for design" is the process of reframing the knowledge producing processes, methods and ideas from other fields—e.g., participant observation, survey methods, explaining what it means to "do research"—for design contexts. It is surprising that several participants mentioned avoiding the word "research" in discussions with design students. At the same time, faculty provide frameworks for students to adapt, invent and rename the ideas and practices of other fields to make them appropriate for the needs of their design work.

"External engagement" is the main context where multidirectional patterns of mediation were demonstrated: participants find community with other voices, make connections between design and the practices of other fields, externalize expertise, reframe design in generalist terms and provide frameworks for understanding other disciplines. Simultaneously, these ideas are made appropriate for design. Design is distanced from the individual "creative genius" model, but the relevance of traditional creative design skills like craft and aesthetics, are maintained. Form-making competencies are as important as nontraditional competencies to participants: the ability of designers to communicate ideas in visual forms differentiates design fields from other disciplines. Making is a way of understanding, questioning and testing. "Maintaining the uniqueness of design," then, is about manipulating what form-making means—not uncoupling it from professional identity.

4.3   *Ecological & generative viewpoints*

The data suggest that teaching environments are designed to create change and mediate meaning on multiple levels. "Ecological and generative viewpoints" are ways of operating, and metaphorical positions, from which to "see" provisionality. Positions are generative in that they create conditions for transforming practices rather than reproducing them. Seeing possibility goes hand in hand with questioning existing ideas and ways of doing—a theme that appears regularly in the data. In this regard, several participants described how, at times, they "shoot from the hip," "go against the grain," and "operate without a compass."

Participants describe their understandings of design, their teaching practices and the philosophies of their programs using ecological and spatially expansive metaphors: seeing the "big picture," looking "holistically," thinking in "long time horizons," encouraging "diversity," being "focused on the future," operating on the "fringe" and the "periphery," working at the "boundary" or on "fuzzy frontiers." Such metaphors are another way of seeing, as in seeking "possible worlds" (Cole, 1999, p. 91). This category is about perception: ecological visions and generative geographies are ways of understanding environments and their *affordances (*Gibson, 1979). Affordances consider the apparent and plausible properties of something that would lead to its use. People perceive their environment scaled relative to their position. It makes sense that expansive, generalist viewpoints may be the most productive for seeing provisionality and possibility, as well as detect change.

"Generalist" practice. For the participants, design is not defined by what is made, the media and format in which it is made, or by design specialty. Externalizing design—especially to people not familiar with the field—requires broader explanations of what design can do and what it contributes to the project at hand. By taking the focus off specialization, generalist narratives explain design expertise in familiar terms to different groups of people. Understanding the broader context of design is a necessity for designers engaged in new modes of practice. Framing design in generalist terms means that programs accordingly shift their educational focal points to learning outcomes that are applicable in, and transferrable to, various situations. For example, the designer is a professional who can sort out and prioritize the conflicting needs of different project stakeholders; designers are competent in a range of activities, such as ideation, visualization and implementation, that facilitate moving a project forward; design is a space that unites different worlds; design is communication. Participants conveyed objectives such as: comfort with ambiguity; adaptability; communicate expertise; and learn how to learn. Framing design in generalist terms changes the language participants use to talk about design's roles, values and activities—i.e., professional identity. According to Rochon (1998), change in language alters how people think and allows people to change their practices more readily.

Constant tinkering. "Constant change" and "dealing with change" were repeatedly brought up by participants. The subcategory "constant tinkering" arose from a program's need to build diverse, flexible infrastructures that can respond to change. "Constant tinkering" is evolving, incremental change (to curricula, coursework, projects, reading lists, etc.), created through regular assessment, learning from colleagues in co-teaching partnerships and setting aside time for group reflection. Adaptive structures

allow, and encourage, "changing on a dime," "teaching in new ways" and "responding to what's current." Open visions of the curriculum require finding provisionality—and knowing there is always a better way—in the teaching environment, including in the general academic structure of the institution. This was demonstrated, for example, through the ability to circumvent policy, break out of semester-course academic calendar systems and align course and credit structures to achieve desired goals, like more opportunities for co-teaching. Concerning "policy" and the ability to adapt, it is significant that each program and institution is described as having "low walls" and "no barriers."

4.4   Transparency

Ongoing dialogue and open discussion keeps the discipline and the profession honest. In this study, "transparency" is about deliberate instruction: demystifying learning objectives by "naming" what is learned and laying a foundation for common understanding. It also relates to ethics, demonstrating habits of mind and holding design accountable to others. "Externalizing expertise" is an educational priority and professional responsibility. At first, "externalizing expertise" was understood in the traditional sense of a studio discussion about student work. As the analysis progressed, however, "externalizing expertise" was shown to be a much more nuanced and multidimensional activity. Design projects in these programs often cross into the knowledge of other disciplines, and participants hold students accountable to that expertise by making them aware of the limits of design expertise. Participants encourage the alteration and invention of research methods from the practices of other fields, but they concurrently stress that students externalize their methods and the ways in which they are (and are not) used. "Developing dispositions" means that participants create situations for students to engage in the behaviors of researchers, ethical professionals and accountable citizens; "changing student mindsets" is about getting students to take responsibility for their learning—and see themselves as professional equals rather than students.

Generational thinking. The subcategory "generational thinking" was found in ethical concerns and responsibilities that programs have to students and the profession. Student career trajectories are long term; students are committed professionals and social citizens. Programs demonstrate commitments to advanced study that are ongoing and include human, material, financial and conceptual resources. At a basic level, graduate work is clearly distinguished from other levels—the graduate curriculum does not operate on the undergraduate course structure, for example. There is purposeful consideration of the cohort admitted into the program each year: having the right number and a diverse disciplinary mix of students and the faculty numbers that support these requirements. Programs support attending conferences, educational funding through teaching assistantships, and dedicated work space. Libraries reflect a program's mission by maintaining diverse holdings and subscriptions—design related and otherwise—to academic journals as well as professional trade journals, and providing access to multiple online databases. The teaching environment itself supports the diverse behaviors expected of the type of designer the program seeks to produce.

5.0   Conclusion

The vocational path of design transitioned from apprenticeship to a culture of professionalism, transferring the responsibility for preparing future designers from individual practitioners to schools of design. Design learning has become characterized by formats (Typography, Web Design, Packaging Design, Motion Graphics, etc.) that segregate practice into "artifactual chunks" that bely the complex contexts and situatedness of skills in which design is produced. It is no longer sufficient for designers to acquire expertise within the boundaries of their discipline—nor can they know everything there is to know about the field. Knowing is a living process in which understanding arises from acting, thinking and talking with others (Wenger, 1998).

The dynamic interplay between individual faculty and the wider contexts of program, institution, field and society emerging in this study illustrate multidirectional relationships among academic culture, professional identity and the teaching environment. These contexts operate as interconnected systems and webs of relationships that mutually affect and engage each other in different directions. The future of design education is an issue that requires more than simply reacting to change. If design programs want to cultivate conditions in the teaching environment that sustain proactive responses, then "the system in which the garden is embedded is as important as the properties of the garden itself" (Cole, 1999, p. 93).

6.0   References

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