Setting the Course: Instilling, Comprehension, Curation, and Implementation of Research in Four-year, College Graphic Design Programs

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Abstract

Graphic design students require a foundation in understanding, utilizing and conducting research. The discipline would benefit from standards for quantitative, qualitative, mixed-methods and practical approaches to graphic design-specific research. This paper examines the role of graphic design research in college-level graphic design pedagogy.
This study is motivated by two research questions: [1] what theoretical analysis and practical approaches to graphic design research are graphic design educators currently implementing? [2] How can college-level graphic design educators build a culture of research literacy in graphic design baccalaureate programs?

Literature describing the theoretical and practical instruction of graphic design research in college-level graphic design education is limited. The intention of this study is to advance the understanding of how graphic design educators define and implement graphic design research, first through qualitative analysis of a survey of four-year, graphic design degree program professors across the U.S. followed by in-depth interviews with published educators practicing research.

The study's interviews elaborate on the specifics of graphic design research through the lenses of professors developing and implementing graphic design research in four-year undergraduate programs, in their own practices, and in the discipline-wide conversation and study of graphic design research itself. In the study's conclusion, potential future research is discussed.
Keywords: Design education, design research, design science, graphic design, graphic design research, interdisciplinary design

The theoretical and practical instruction of the discipline of graphic design, the manner in which it is defined and taught in its educational programs, and the determination of the need for disciplined inquiry in these programs and the profession, indicate the evolution of the profession and provide insight into trends developing in the practice. The intent of this paper is to create a framework for the discussion about disciplined inquiry within the education and practice of graphic design.

Literature Review

Central issues in the field of graphic design research range from the definition of graphic design itself to the definition and nature of graphic design research. A lack of consensus is

compounded by nomenclature frequently being used interchangeably or differently. Discussions revolve around the questions of how graphic design research is conducted, reported, applied, and taught. Therefore standardization in both methodology and nomenclature will help to clearly define and communicate concepts.

Defining graphic design research is complex, as it takes many forms. Roth (1999) has noted the difference between design research and design studies, explaining that design research is methodological and project-oriented while design studies is an approach- based, scholarly process of systems and solutions. Poggenpohl (2009) states that research "…Gives rhetorical strength to interdisciplinary arguments and decisions," (p. 13), while Krippendorff (2007) argues that the use of the term "design research" borrows a word associated with science and therefore has adopted science's reputation without adopting science's methodology (p. 67).

After compiling a litany of contradictions of which designers are culpable when reviewed against scientists, Krippendorff concludes with a rejection of the term "design research" because the terms reflecting the two disciplines are contradictory. He explains that research investigates the past (that which already exists), but design creates for the future (innovation that does not yet exist) (p. 79). Krippendorff argues that research is counter- intuitive to what design and innovation should be and therefore is not the appropriate nomenclature for this practice (p. 79).

Background on Graphic Design Research

While the focus of this paper is on graphic design research, much of the available literature is on design research in general, particularly in architecture and engineering, through which graphic design research has evolved. In order to give a foundation to a contemporary perspective, it is necessary to briefly review the study of the topic up to this point. Bayazit (2004) has reviewed design methodologies and design science perspectives that have evolved since the 1920s: it was during that period that the scientization of design may be noted in the De Stijl and then Bauhaus movements (p. 16). Building and engineering disciplines pioneered design research studies because of requirements developed in those disciplines in the period of rebuilding after World War II (p. 28). These developments were supported by the technological developments made during the second World War that were applied during the period after the war when design flourished as a "problem-solving and decision-making activity," (p. 22). Bayazit notes that future exploration in specific design disciplines may build from the progress made in the design-research establishing disciplines (p. 28).

The construction of Bayazit's essay provides an overview of the topic before exploring the role of design methods in design research, after which she isolates the first and second generations of design methods, giving a timeline of the key points of reference and key players in this history (pp. 17–22). It then covers the topic of scientific research in design. The essay concludes that the topic is vast and comprehensive and needs further research (p. 28).

Design Research as a Science

The scientization of design has been a trend since the 1920s, specifically in the De Stijl movement, and then later in the Bauhaus movement (Bayazit, 2004, pp. 16–7). This discussion was notably built upon in 1981 by Cross, Naughton, and Walker who stressed the difference between the scientific and design methods, particularly because the two disciplines have such different needs and goals (1981, p. 195). They conclude that design requires tacit knowledge that is purveyed through practice and inherent in craft (p. 200)— what Cross (2006) would later come to refer to as *design epistemology* (p. 125).

Cross supports intellectual awareness for the design discipline through the analysis and understanding of the approaches of the likes of design innovator Kees Dorst, who compared the paradigms of cross-discipline researcher and Nobel Laureate Herbert Simon with that of philosopher and urban planner Donald Schön in order to build a unique paradigm for design research (p. 127).

Similarly, Downton (2003) describes the Dorst and Dijkhuis comparison of the paradigms of Simon and Schön (pp. 38–9). Downton imparts the need for a different understanding of the prevalent paradigm of research. He notes that a scientific worldview holds that scientific inquiry results in knowledge while other types of activities that produce findings are merely beliefs or skills (p. 56). Downton asserts that the science- dominated paradigm does not result in a complete portrayal of design and that design is not represented by science (p. 56). Design, he opines, requires additional input from non- scientific fields and from the practice of design itself (p. 56). Downton goes as far as dissecting the word "knowledge" as it applies to research, stating that research tests existing knowledge, while design produces new knowledge (p. 57).

Friedman (2008) argues that there is a misconception and misapplication of the term "tacit." He explains that there is general confusion of categories and understanding of terminology that has been published and continually re-asserted (p. 154). Friedman observes that the term "tacit knowledge," for example, which was defined by Polanyi in 1966, has been misused in the description of design research (p. 154). Friedman opines that tacit knowledge is used synonymously with design knowledge, and both are incorrectly considered a source of theory development (p. 154). He explains that this concept is a commonly held misperception based on the assumption that practice is a research method. He concludes that this misunderstanding is based on unverified references to the works of Polanyi and Schön (p. 154).

The 1960s was an era focused on "design science." Cross (2001) notes that the 1960s initiated the "design methods movement." He recalls that in an attempt to hasten solutions to global issues, Buckminster Fuller demanded a 'design science revolution' during the 1960s, which Fuller coined the 'design science decade' (p. 49). Cross relays the fluctuation of the popularity of design science over the subsequent decades and the continued link between design and science (49). Cross, Naughton, and Walker (1981) note that terms such as 'paradigm' and 'scientific revolution' are used with entirely new meanings by many disciplines (p. 197).

The sciences have different requirements and processes than design, as noted by Bonsiepe (2007) who suggests that as college-level design programs assimilated into the liberal arts and sciences programs, they were required to adapt to their models, which advanced the design research agenda (p. 27). Bonsiepe suggests that research—he notes that he is referring to design and not market research—is a requisite of complex design solutions (p. 27). He poses teaching research in a manner that is more applicable to design than science, using the terms *endogenous* and *exogenous* design research to describe these forms (p. 32). He describes endogenous design research as that which emerges from and is integrated into the design process, an inquiry in which Bonsiepe believes designers should be involved because they are informing their own practices (p. 32). Bonsiepe describes exogenous design research as an external process that observes the process of design as an object, which Bonsiepe cautions designers in pursuing (p. 32). He opines that external review of the design process by evaluators who are not designers, and who apply scientific evaluation to the design process, restrict the creativity and potential outcome of the design process (p. 32).

Some of the key themes in the conversation surrounding graphic design research include the categorization of design research, as described by Frayling (1993), Davis, and Cross; the scientization of design, which is rejected by Friedman and Krippendorff; and the categorization of design as research, which was initially introduced by Frayling and soundly rejected by Friedman. Authors Poggenpohl and Friedman have opined on tacit and explicit knowledge and how it applies to design research. Poggenpohl and Davis have explored interdisciplinary collaboration at length, an idea that is more prevalent as visual communication evolves and includes multimedia outside the traditional discipline of graphic design.

The most common theme throughout the literature is the need for further exploration and consensus on the purpose, nomenclature, and application of design research. This conversation appears to be evolving parallel to the conversation on the requisite developments in graphic design education.

Research Methods

This study focused on the implementation of graphic design research in four-year college programs. The intent of this inquiry was to get a consensus of the practical implementation of research in undergraduate graphic design curricula, how the topic was interpreted, and the perceived value by those who teach it.

The study was conducted in two parts. The first portion of the study was an online survey that was conducted over a period of two weeks at the beginning of May 2016. The second part of the study was a series of in-depth interviews with six key participants who are published researchers who focus on graphic design research and teach in four-year undergraduate graphic design programs. This portion was conducted over a period of two months from May to July 2016.

The study was guided by two research questions, “What theoretical analysis and practical approaches to graphic design research are graphic design educators currently

implementing?" and "How can college-level graphic design educators build a culture of robust research methodology for graphic design education?" The purpose of the survey was to get an overview of the current culture of graphic design research within the community of the profession's educators, while the interviews delved into the topic with published, practicing graphic design educators conducting their own research and teaching research methods to their undergraduate students.

Survey

The instrument used for the first part of the case study was a survey of thirty-eight questions, two sample verification questions, and eleven demographic questions. Of the instrument's thirty-eight questions, five questions were inquiry into the respondents' interpretation of graphic design research. One question inquired into the respondents' professional, practical use of graphic design research. Fourteen questions evaluated the types of research utilized by the respondents for their professional, practical use, which could then be compared to the responses already given on the interpretation of graphic design research. Four questions inquired into the respondents' implementation of graphic design research in their undergraduate graphic design instruction. Finally, fourteen questions, which mirrored the questions that evaluated the types of research utilized personally by the respondents, inquired into the types of graphic design research that the respondents found important to their undergraduate graphic design instruction. The instrument was tested in a pilot before being disseminated to a focused group of graphic designer-educators.

The participants for the study were located and selected through online data accumulation that was identified through two professional design organizations, the website for AIGA, the professional association for design and the website for National Association of Schools of Art and Design (NASAD).

The primary approach taken to the survey data was inductive analysis, with codes created to analyze the data and begin to categorize and find commonalities between the responses. The analysis continued with descriptive and exploratory analyses to make connections between the established codes, which were created and applied in MAXQDA 12.

The survey data was coded, and the metadata was then compared between individual participants to compare answers between types of institutions, geographical location, age of participants, levels of education, and other factors, which can be used to measure variables and test hypotheses developed during the study's literature review.

Survey Findings

Themes that emerged during analysis of the survey data supported the themes found in the discussion in the study's literature review, particularly that of Davis's (2015) three approaches to design research, which are [1] as an act of discovery of knowledge that the discipline then develops into principles and theories, [2] as knowledge developed through practice, and [3] as context-specific knowledge (pp. 132–3). As expected, there was a breadth of interpretations of graphic design research. Over fifty percent of respondents

believe that graphic design research should be developed as its own practice. The next largest percentage for this question is twenty-nine percent of respondents who believe that graphic design research should be developed from other design disciplines. This shows an inclination of the respondents to create the discipline's own methodology, rather than take methodologies from social sciences.

Seventy-six percent of respondents said they used interdisciplinary collaboration in their own practice, with seventy-four percent saying that they teach the technique to their students, and forty-eight percent of respondents saying that they require interdisciplinary collaboration of their students.

Eighty-six percent of respondents say that they currently teach research as preparatory work assigned for design projects. Likewise, responses to the question "How do you think that graphic design research ideally should be taught to undergraduate graphic design students?" were largely in favor of integrating research into curricula.

One-on-one Interviews

Interviews used a Semistructured Interviewing format based on the study's research question (Figure 1). The sample for the interviews was a purposive sampling of a target population who were chosen because they are teaching, practicing graphic designers who conduct research and author articles, books, and presentations on graphic design. The participants Audrey Bennett, Juliette Cezzar, Behnoush McKay, Kelly Murdoch-Kitt, Paul Nini, and Mike Zender were interviewed by phone or skype and recorded on two devices with written observational notes. The interviews were transcribed and then coded using the following code system:

1) Definition of research
2) Implementing student research
3) Interdisciplinary
4) Personal, professional research
    i) Implementation
5) Qualitative
6) Quantitative
7) Social responsibility
8) Teaching research
    i) Applied research learning
    ii) How research is taught
    iii) Ideal teaching of research
    iv) Research courses
9) Validating work/tenure

Once coded using these key concepts, the interviews' themes were accumulated and compared to elucidate relevant findings.

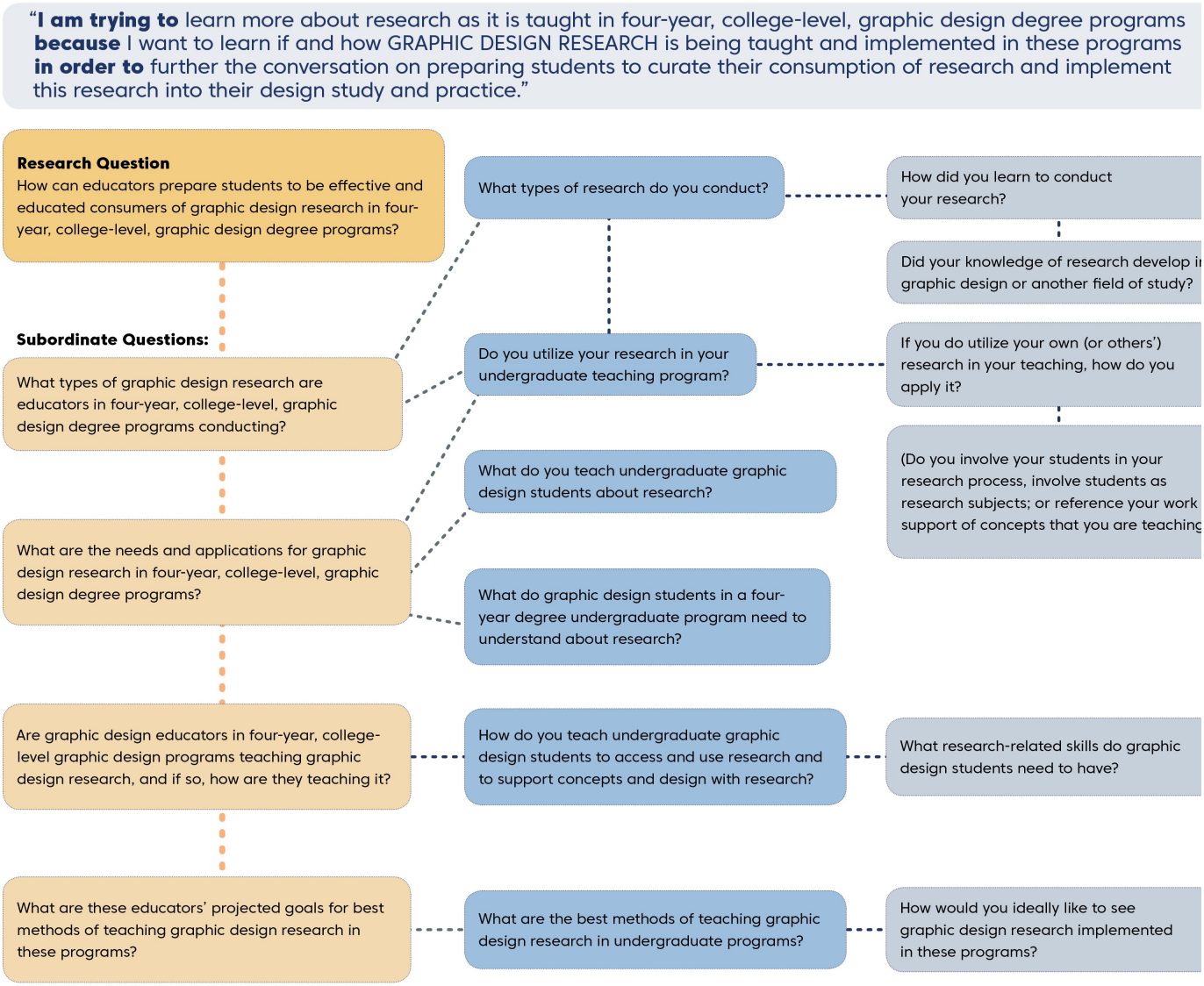

Figure 1: Development of interview questions based on research question

Discussion

The study suggests that the challenges that currently affect graphic design research include a consensus in nomenclature, standards for graphic design, an unclear understanding of the role of graphic designers, the changing role of graphic designers, changing media, and the development of terminology and methodology from other disciplines. However, the evidence suggests that the discipline has numerous areas of strength that are already being applied. Collaboration, both with other graphic designers and students in other disciplines, as well as intercultural design, stresses

collaborative approaches and aids in graphic design research. Other strengths include the building of research into curricula, adaptation from other disciplines, and the focus on socially conscious and ethical concerns for graphic designers.

The study had factors creating limitations that, if addressed in further studies, could enhance further exploration of the study's subject. The study's sample for the survey portion was small compared to the scope of graphic design educators in the United States. Around 1,200 email invitations were sent, with a return of 131 responses, a 10.9% response rate. The time frame for the study was limited by academic requirements and scheduling. Additional time for data collection for the survey would give a longer period for responding and improve response rate. Collaboration with organizations with regular communications and specific communications to design educators would also broaden the study's sample.

Additional interviews with a broader range of institutions and programs would deepen the conversation and bring to light more techniques and programs being utilized in graphic design education. A panel created of the existing interviewees would galvanize the ideas and methodologies brought up individually within the interviews. Focus groups or interviews with students of these educators would round out the discussion with another viewpoint of the system.

Conclusion

The state of undergraduate graphic design programs is at a turning point, and graphic design research is at its crux. The discipline has opportunities to refine and confirm the terminology and objectives for the specification of research methodologies, description of theories, and establishment of nomenclature to support the transformation in the education and practice of graphic design

Recommendations developed through this study include the validation of nomenclature used in graphic design research; the sharing of knowledge between design educators through graphic design research-specific organizations and conferences, increased publications in scholarly journals and the development of an American design research organization like those found outside of the United States; increased dialogue collaboration, both within the discipline and interdisciplinary; and embedding research into curricula.

Future research is required to track and develop graphic design research, particularly in undergraduate education. The nomenclature and taxonomy of graphic design research that is described in this study is a working foundation for future study. Further interviews would broaden the knowledge base of graphic design research as it is being employed in educational programs, as would focus groups and panels made up of those active in graphic design research and education, as would a qualitative study using data collected from the *Proficiencies: Languages and/or Other Extra-Visual Knowledge and Skills* of NASAD assessments for accreditation.

Studies of international educational programs would inform the development of the American system. Surveys, focus groups, and interviews with prominent leaders in graphic design

research would expand the discussion cross-culturally. Most importantly, the open discussion and the study of the development of standards for the discipline is an ongoing process that will need to be followed and recorded.

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Madonna Dersch is a graphic designer whose concentration in graphic design research was driven by her time spent teaching the capstone portfolio course at Virginia State University for students graduating with their BFA degrees in graphic design or visual arts. She aims to further the conversation on preparing students to curate their consumption of research and implement this research into their study and practice.

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