

# Developing A Cross-Disciplinary Framework for Design Thinking

[cindy.beacham@mail.wvu.edu](mailto:cindy.beacham@mail.wvu.edu) | Program Coordinator, Interior Design and Design Studies, West Virginia University  
[neal.shambaugh@mail.wvu.edu](mailto:neal.shambaugh@mail.wvu.edu) | Program Coordinator, Instructional Design and Technology, West Virginia University

## Introduction

Historically, design has been situated within a specific context and was viewed as an activity reserved for trained professionals. Twenty-first century realities call for more holistic and creative approaches to the way we view problems, seeing them as opportunities for identification, generation, as well as solving, and *requiring increased participation from everyone* to improve their world. The process of design supports these creative approaches, and is a human activity that all humans can participate in. A design culture provides a *fundamental shift in the way we view and make change happen* (Brunner & Emery, 2009). An initial literature review was organized into four categories.

Society	Discipline	Individual
<b>Design and Society</b>		
Respond to human needs (Pink, 2006)	Big picture	Right-brain use
Revisioning human systems (Farson, 2008)	Metadesign and systems thinking	Leadership tool
<b>Design and Organizations</b>		
Customer experience (Brunner & Emery, 2006)	Top-down and bottom-up	Design awareness; customer focus
Innovation (Kelley & Littman, 2005)	Forward movement of organization	Learning, organizing, and building personas
<b>Design and Education</b>		
Design educational outcomes (Cross 2007)	Design curriculum or integration in other courses	How to teach and assess?
Reflective practice (Schön, 1987)	Practicum design	Reflective processes
<b>Design Thinking</b>		
Design thinking is a skill (Lawson, 2005)	Problem solving in architecture	Developing design thinking
Design thinking is a cognitive, rational process (Rowe, 1987)	Problem solving in architecture	Creativity and systematic thinking

## Conference focus group

A focus group at the International Visual Literacy Association annual conference (IVLA) composed of professionals from landscape design, architecture, multimedia design, graphic design, interior design, instructional design, and child development discussed design thinking as a term and what it meant in each design field, as well as how or if the term was taught in design education

## Design thinking metaview categories

The group agreed that design thinking is too vague a concept without a disciplinary context. The group suggested developing a metaview of the term through the use of different categories (see table below) (Shambaugh & Beacham, 2009).

Category	Definition
<b>Roles</b>	What do designers do?
<b>Tools</b>	What tools do designers use and need to know?
<b>Cultures</b>	What are the historical and social features of societal and working units? Views toward clients?
<b>Phases</b>	What are the working processes used?
<b>Orientation</b>	Do designers work from known goals or emergent goals?
<b>Process-Product</b>	What is the principal focus of the designer?

Designers tend to have a tacit and subjective view of design thinking, a view situated in their own disciplinary practices. Designers need to understand what design thinking is and what it means for people, and be able to clearly share this understanding both verbally and visually. *Developing a more explicit representation of design thinking through a metaview could inform and democratize all design fields.* Understanding and use of design thinking will help all citizens make the connection between their needs in the 21<sup>st</sup> century and their abilities.

## Cited References

- Shambaugh, N., & Beacham, C. V. (2010). Starting a dialogue on design thinking. In M. D. Avgerinou, R. E. Griffin & P. Search (Eds.). *Critically engaging the digital learner in visual worlds and virtual environments: Selected readings of the International Visual Literacy Association* (pp. 199-204). Chicago, IL.
- Brunner, R., & Emery, S. (2006). *Do you matter? How great design will make people love your company*. Upper Saddle River, NJ: Pearson Education.
- Cross, N. (2007). *Designerly ways of knowing*. Boston, MA: Birkhäuser.

Farson, R. (2008). *The power of design: A force for transforming everything*. Atlanta, GA: Greenway Communications.

Kelley, T. & Littman, J. (2005). *The ten faces of innovation: IDEO's strategies for defeating the devil's advocate and driving creativity throughout your organization*. New York: Broadway Business Press.

Lawson, B. (2005). *How designers think: The design process demystified* (4<sup>th</sup> ed). Philadelphia, PA: Architectural Press.

Pink, D. (2006). *A whole new mind: why right-brainers will rule the future*. New York: Riverhead Trade. Penguin.

Rowe, P. G. (1987). *Design thinking*. Cambridge, MA: MIT Press.

Schön, D. A. (1987). *Educating the reflective practitioner*. San Francisco, CA: Jossey-Bass.

**Other Useful References**

Ambrose, G. & Harris, P. (2009). *Basics design: Design thinking*. Lausanne, SW: Ava Academia.

Best, K. (2010). *The fundamentals of design management*. Lausanne, Switzerland. AVA Publishing SA.

Brown, T. (2009). *Change by design: How design thinking transforms organizations and inspires innovation*. New York: HarperCollins.

Heller, S., & Vienne, V. (2003). *Citizen designer: Perspectives on design responsibility*. New York: Allworth Press.

Lawson, B. (2004). *What designers know*. Boston, MA: Architectural Press.

Lockwood, T. (2010). *Design thinking: Integrating innovation, customer experience, and brand value*. New York: Allworth Press.

Martin, R. (2009). *The design of business: Why design thinking is the next competitive advantage*. Boston, MA: Harvard Business Press.

**Session summary statement**

In an attempt to better understand the meaning of Design Thinking, the participants in the hour-long discussion raised their awareness of the professional and educational tensions, limitations, and issues common across design disciplines.

One participant labeled the meaning of design thinking as an example of a “wicked problem,” a class of problems not easily solved. Another participant commented that the rationale for cross-disciplinary activities is that they provide a platform for “accomplishing something together that cannot be accomplished by oneself.” While the hour-long session was too short to systematically review and revise our

initial categories characterizing design thinking, the twelve participants did shed light on some of the issues that design thinking raises as a construct.

**Design thinking metaview categories - revised**

Feedback from a post-conference email to the group suggested adding Education as a category and adding techniques and theories to the Tools category. A revised design thinking metaview is below

Category	Definition
<b>Roles</b>	What do designers do?
<b>Theories, Techniques, Tools</b>	What tools do designers use and need to know?
<b>Cultures</b>	What are the historical and social features of societal and working units? Views toward clients?
<b>Phases</b>	What are the working processes used?
<b>Orientation</b>	Do designers work from known goals or emergent goals?
<b>Process-Product</b>	What is the principal focus of the designer?
<b>Education</b>	How do we teach the above to newcomers?

**Issues raised from a consideration of design thinking as a construct.**

- Social sensibilities that may not be addressed by “thinking,” which as a cognitive dimension, limits design thinking as a useful idea characterizing what designers do.
- The roles involved in design activities include more agents than the designer and the client.
- The category of culture is not merely historical, but an immediate set of features characterizing a group of people, as people in any rural setting, for example.
- Design thinking is broader or richer than the instrumental thinking, which characterizes the term as a limiting process. For example, analysis is typically prescribed as a front-end process when analysis could be taught as an ongoing process. [You might find the following title interesting and challenging reading from Richard Coyne, Professor of Architectural Computing and Head of the Department of Architecture at the University of Edinburgh: *Designing Information Technology in the Postmodern Age: From Method to Metaphor* (1995). MIT Press.

- Thus, the term design thinking as a term is problematic and is actually not broad enough to be useful. Perhaps one term cannot fully characterize design activities.
- Design thinking presents curricular problems for academic programs and faculty members who have to attend to accreditation requirements. If design thinking is valuable for students to learn, how can it be assessed in a program?

### Emergent results from the session

#### (1) Differences

The tensions inherent in trying to define design thinking or to categorize its features are inherent in any discussion of design thinking. As a result, the facilitators of this session had to be flexible in providing structure but not so restrictive as to limit the discussion. However, as mentioned in the summary statement, the session raised many issues inherent in design thinking and that the term illuminated the differences in how the term is characterized by members of each discipline.

#### (2) Collaboration

There appeared to be a general agreement on the need for disciplines to work together or talk with each other on issues common to each discipline. Specifically raised was the desire for different design programs to collaborate more than they have in the past. Even though design thinking has not been successfully defined, the use of the term raises professional and educational issues for further discussion.

#### (3) Teaching and program development tool

Thus, we believe that the term design thinking provides a dialogic teaching and program development tool, in that this problematic term attracts attention and brings people to the table, but that it needs to be used where participants suspend judgment. Again, as was mentioned by one of the participants, this cross-disciplinarian session helped us to reveal desires to work with each other, while we may disagree with how we view our roles, tools, and processes.

### References mentioned in the session

- For a current discussion of wicked problems see Jeff Conklin (2007) at: <http://issuu.com/nextd/docs/conv28>
- Elizabeth Sanders (instrumental thinking) see: [http://www.knowledgepresentation.org/BuildingTheFuture/Summaries/Sanders\\_summary/SandersSummary.html](http://www.knowledgepresentation.org/BuildingTheFuture/Summaries/Sanders_summary/SandersSummary.html)
- Weimer, M. (1996). *Enhancing scholarly work on teaching and learning: Professional literature that makes a difference.* Jossey-Bass. <http://www.josseybass.com/WileyCDA/WileyTitle/productCd-0787973815.html>

### Next steps

Design thinking. We will be ultimately trying to submit a metaview set of categories that characterize design thinking and focus on how to use the term in educational settings both in courses and program development. A post-conference email suggested a survey to query how design tutors/instructors view the term.

EDRA43: Intensive Session: "How academic design programs can work together." We can see a future EDRA session on how to have academic design programs work together. If you are interested in a half-day or full-day Intensive Session on this topic, let us know and we draft up a proposal for such a session. Your interest in the topic does not obligate you to become directly involved in the session, although we would like to share this session with others, as well as hear from you on (a) outcomes for the session and (b) structure for the session to meet these outcomes. The success of this session suggests that a range of design professionals would be needed to discuss these collaborative issues from their point of view.

EDRA43: Workshop (90 minute): "Researching Your Teaching." During our observations of several sessions, teaching was a central focus. We have discussed submitting a proposal on "Researching Your Teaching." The session would walk participants through a design and development sequence that demonstrates research questions and specifies data types, data collection, and data analysis options.

Elizabeth Tofte suggested using Maryellen Weimar's (1996) framework for assessing the scholarship of pedagogic literature, which have been authored by practitioners.