



USE OF FRAME REFLECTION AND METADESIGN TO GUIDE CURRICULUM DEVELOPMENT ACROSS DESIGN DISCIPLINES

Abstract

Curriculum development is an ongoing activity in higher education. Methods of evaluation and development may vary, but the overarching goal is to provide students with quality academic experiences. However, as in any professional endeavour, discussion of program features and content, and what constitutes quality, will involve controversy and differences. One approach to acknowledging differences and using them in curriculum development is frame reflection (Schön, 1983), in which professionals are made aware of problem-setting issues and contexts for those issues. Awareness of problem identification methods and framing provides explicit boundaries to the problem. Another tool for curriculum development is the use of a metadesign system, which is a framework providing an interdisciplinary approach to the design process. Focus groups of design professionals were used to develop categories for a metadesign. While difficult to achieve a consensus, even a draft metadesign system of categories can raise awareness of curriculum issues, reveal concerns that may otherwise go unidentified, and signal ways that faculty members from design programs can work together. This paper explores the use of frame reflection, in concert with metadesign categories, as tools to raise awareness of issues and facilitate curriculum development and cooperation in academic design programs. Frame reflection and a design metaview, used to acknowledge differences across these programs, provides a starting point for productive collaboration.

Curriculum Development in Theory and Practice

Academic design programs are increasingly being asked to design curricula that share resources. This requirement is rooted in both maximization of limited resources and professional expectations of students upon graduation. Additionally, shared resources enable programs to increase the number of students without significantly increasing faculty positions or financial output. This paper discusses a way to help faculty in different design programs work together by using two tools that acknowledge differences across these programs.

Curriculum development, the decisions behind what is to be taught and learned, is an ongoing activity in higher education. A formal curriculum development process typically includes phases of planning, development, implementation, and evaluation. To inform planning, a needs assessment determines gaps in degree or certificate programs needed and wanted by potential students. Based on what is learned from a needs assessment, planners determine specific knowledge, competencies, and dispositions for graduates, as well as specific goals. Next content, instruction (both how and by whom), and delivery methods are determined. A formal, written assessment plan specifies a means to determine if these student learning outcomes were met by students and the success of the program. A formal curriculum review process is usually mandated by an academic institution, while at the departmental level curriculum planning is more ad hoc in nature and typically responds to institutional requirements, such as a formal review of new programs, and a periodic review of current programs using an approved assessment plan.

Faculty members engage in periodic discussions on curriculum changes, specifying what is taught and determining how this teaching is assessed. As in any professional endeavor, discussion of program goals and features will frequently involve controversy and differences.

One lightning rod for discussion, for example, is determining what constitutes competence. However, agreeing on what competence means in any professional field of action is not easy, and as Argyris and Schön (1974) said “whatever competence means today, we can be sure its meaning will have changed for tomorrow” (p. 157). The larger question is agreeing upon what it means for a program to be successful and what constitutes a quality program. In both levels of thinking, learning outcomes, increasingly viewed as competencies, as well as program success metrics will be based on data. In the “age of big data,” the numbers will be used to plan the programs and tell the story. According to Gary King, director of Harvard’s Institute for Quantitative Social Sciences, “...the march of quantification, made possible by enormous new sources of data, will sweep through academia, business and government. There is no area that is going to be untouched” (Lohr, 2012, p. 7). The analysis of that data will have consequences on the programs we offer, the students who decide to enroll in programs, and the faculty that teach in them. Consequently, the stakes are high for students who come to count on these programs as doorways to jobs and careers, and for the faculty members who deliver these programs. Ideally, questions of learning outcomes, quality programs, and success will require an ongoing process of dialogue that re-examines program goals and the means to achieve those goals. Cross-curricular initiatives will likely increase owing to pressures to increase student numbers within academic programs that operate as efficiently as possible.

Curriculum discussions in academic design programs remain largely based on the different views of design and the differences in views of curriculum, design tasks and learning, and assessment. Within academic governance there exists a broader but no less significant debate on which administrative units should house these design programs and how might they work together with shared resources. Discussions between design educators from different design

disciplines appears warranted to discover for themselves new ways of leveraging their human and physical resources before changes are made for them. Suggested below are two tools, frame reflection and design metaview categories, which acknowledge differences across programs and provide a productive starting point for collaboration.

Frame Reflection

One approach to facilitate ongoing curriculum development discussions between academic design programs is through the use of frame reflection (Schön, 1994). According to Gray (1996), “frames are sense-making devices that establish the parameters of a problem” (p. 576). Frame reflection provides a tool to help groups mediate the evidence behind an argument and the scope of problems. Each person possesses a frame that views arguments and problems with different meanings. To address the conflicts that arise from people with different frames, dialogue is needed to understand these differences. As opposed to other fields where minor differences exist in how curriculum is viewed, reflection as a professional activity finds a receptive audience in design programs. A major instructional structure is the design studio, where students implement and practice the design knowledge, skills, and sensibilities of their respective design discipline. Reflectivity becomes a natural feature of the design studio as students think about how they think and actions taken within the context of actual design activity for others. Consequently, frame reflection becomes a complementary activity in the resolution of curriculum policy issues.

Individuals “frame” problems in different ways, because they see the problems differently. Schön (1983) maintains that individuals “bound the phenomena to which they will pay attention” (p. 309). These frames dictate strategies for solutions, and the consequent policies and actions will be based on the values inherent in the frame. With frame reflection professionals

first come to understand that individuals in a group will have different frames and bring to the table different options based on these frames. Furthermore, frame reflection helps people to see that policy arguments are based on value judgements, not objective measures of outcomes (Majone, 1989).

Frame reflection creates awareness that options exist for action, that dilemmas will arise from any option, and that these dilemmas must be addressed. With this awareness frame reflection can be used to further facilitate the process of confronting these dilemmas and taking responsibility for decisions. Individuals are first made aware of problem setting issues, but also are reminded of the contexts for those issues. Having an awareness of problem identification methods and framing of issues with contextual details provides the players with explicit boundaries to the problem. The value of frame reflection is to move people beyond their ideological platforms to consider alternative frames, values, and options.

Metadesign

Augmenting frame reflection in curriculum discussions is the use of metadesign, which encompasses the scope of content or process/products that different design disciplines address. Metadesign organizes curriculum discussions by using categories that address what design is about, how it might be taught, as well as learning outcomes. Metadesign as a thinking tool provides an interdisciplinary framework to the design curriculum discussion. What was learned from focus groups in the development of these categories is that although consensus on what the categories are is problematic, they can still be used within and across academic design programs.

The face of design is changing in today's society. With the advent of digital information accessibility, sharing through social media, and availability of resources at a level never before seen, individuals are able to successfully address many issues historically left to esteemed

professionals. As a result, individuals are taking control of design contexts within their own lives and companies such as interior, fashion, product, and graphic design at exponential rates (Berger, 2009). Lawson (2005) more fully situates design within the reach of all by identifying design as “a form of thinking, and thinking is a skill. Skills can be acquired and developed.” (p. 303).

Beyond their own personal circles, design thinking provides individuals with tools to be more successful in applying a new way of looking at and addressing major complex problems, leading to what some are calling the “democratization of design” (Farson, 2008). Making design and design thinking more accessible, while of concern to some of the traditional design professionals, is seen by many as a necessary shift in light of current realities which require increased participation from everyone to improve the world we live in. A design culture provides a fundamental shift in the way we view and make change happen (Brunner & Emery, 2006).

Design as a discipline is often undervalued, possibly as a result of its strong association with a product or context. Nigel Cross (2007) provides a foundation for situating design within the educational system as an equal to science and humanities. Each discipline addresses specific questions: science looks at “what is?”; humanities looks at “what does it mean to me?”, and design addresses “how do we make it better?”. While often separated academically with varying levels of value attached to each discipline, the integration of the three really creates a system that enables people to formulate a complete view of the problems that humans face. Each discipline seeks to improve quality of life, but it is only in the use of all three that quality of life will truly see significant improvement.

Metadesign Development

Metadesign, a term coined by Richard Farson (2008) refers to a broader, more holistic view of design. Metadesign may be considered a metaview of design as it transcends the

traditional design disciplines and approaches design as a way of thinking and a methodology.

This differs from the current, more widely accepted interpretation of design that is often associated more closely with the context of the design such as interior design, instructional design, or graphic design. Metadesign also intimates the requirement for interdisciplinary collaboration on a scale typically not seen in traditional “silo” design disciplines. The expanded need for multifaceted collaboration fuels the necessity of the development of a shared language and process that can provide tools to guide design dialogues between multiple groups.

Use of Focus Groups to Determine Design Categories

To facilitate a dialogue on metaviews of design, the authors conducted focus groups at two scholarly conferences in 2010 and 2011. The purpose of the focus groups was to obtain input from individuals involved in disciplines engaging in design thinking including interior design, instructional design, architecture, and landscape architecture. The facilitators solicited the participants’ approaches to teaching design thinking as well as defining the term. The group members agreed that design thinking was a challenging topic to define, and that the definitions were typically specified as discipline-specific activities. Products resulting from design thinking were often used as a reference point in discussions of the design thinking process. Terminology was sometimes similar among the design disciplines, but had interpretations based on specific disciplines’ expected outcomes in student performance. To create an approach that went beyond the disciplines, the groups discussed the possibility of a metaview of design thinking that could cross all fields of design. The metaview could provide a better understanding of the similarities and differences in the process across fields, and identify commonalities upon which to build.

Focus Group Data Collection

Data collected from the focus group participants, which included written responses and transcriptions of the discussions, reinforced the conclusions reached from a literature review that design thinking was defined differently by each design field. Discussion in the literature about design thinking was discipline-specific and was typically related to the outcomes or products of the discipline. No common definition was available among design disciplines, or within the non-traditional disciplines currently using and writing about the process. From the input of the initial focus groups, specific disciplines incorporating and/or discussing design thinking were identified, and key concepts explored. As shared ideas evolved, key terms began to reveal themselves, and were cataloged for analysis. It was through these concepts and terms that commonalities, differences, and “what’s missing” among the disciplines incorporating design thinking could be identified. Some of the categories and terms suggested included roles of the design thinker, tools used by design thinkers, cultural issues and situations of design thinkers, and phases or processes used.

The groups also identified a foundational concept that designers within traditional disciplines tend to have a tacit and subjective view of design and design thinking, a view situated in their own disciplinary practices. Participants concurred that there is a high level of need for design disciplines to work together and talk to each other about issues common to all disciplines. Given the current competitive nature of businesses, participants felt that instilling the model of interdisciplinary dialogue was a role best suited for academic institutions, preparing the future design professionals for success in these competitive fields. Students participating in interdisciplinary projects, discussions, and dialogue would be better prepared to embrace a holistic approach to design problems as professionals but also aware of the need to be pragmatic with clients, deliverables, and deadlines. This holistic approach would include not only

traditional designers, but a broader range of individuals capable of contributing valid viewpoints to the solution of complex problems. The groups also agreed that as a result of the biased view held by many professionals and educators, the development of a metaview of design and design thinking through the use of categories would be helpful in facilitating dialogue about broad, holistic design issues.

Metadesign Categories

A review of the focus group content revealed six categories that could inform dialogue on metadesign. These categories include roles, tools, cultures, phases, orientation, and process-product. Each category contributes to the development of a more explicit representation of metadesign that could inform and support democratization in all design fields.

Roles address what participants in the metadesign process do. They define who designers are, and what characteristics each may bring to a discussion on improvement of life, situations, or artifacts. Roles may also expand beyond the definition of a traditional designer and include lay people who have vested interests or valuable information to contribute to a design solution. The role of a traditional designer may transform into one of leadership, facilitation, or translation given the multifaceted teams that will result from metadesign. **Tools** provide equipment, implements, or organizing systems to support the design. Tools may be standardized to provide common understanding between current disciplines, or may be developed as part of the metadesign process to fulfil needs specific to a particular problem or project. **Cultures** provide historical and social contexts for societal and working units. The influence of culture widely influences metadesign. The culture of the design group, the culture within which the design problem is situated, and the historical culture of both will influence discussions and outcomes of the metadesign process.

Phases address the organized process of moving through design and metadesign discussions. Phases look at the working processes used and relate those to roles, tools, and cultures. Traditional phases of design may play an important part in metadesign phases, but may not address all of the needs surfaced by the new definition of multifaceted design teams.

Orientation discusses the starting point and approach to iterations. Some design groups will work from known goals, others necessarily from an orientation of emergent goals. In many cases, a dual orientation (both goal-directed and emergent) may be necessary to fully explore and address alternatives, and designers must be able to easily move between the two orientations. Finally, the designer must identify a primary focus of either a **process** approach or a **product** approach. The issue to be addressed will influence the choice in this category, but metadesign often requires a significant process input even if a product is required as a final outcome.

These categories provide a starting point for dialogue and discussion around metadesign issues. They could also provide an organizing structure for surfacing issues within academic units as design curriculum is created, evaluated, and revised. Sometimes, faculty use a coherent process to design instruction and coursework (Shambaugh & Magliaro, 1997), but frequently an ad hoc approach is used to designing the curriculum. Even in accredited design programs, concerted effort is necessary to conduct “design reviews” to assure a fully integrated curriculum, but these take time and administrative leadership and “buy-in” from faculty members. These design reviews generally do not include other design disciplines, but are focused solely on the discipline addressed, frequently as a part of an accreditation review process. Based on the focus group dialogue, participants suggested that programs must go beyond the “silo” of disciplines to help and encourage interdisciplinary sharing and communications. Only with this focus,

according to the focus group participants, will programs be able to fully support and develop graduates as design leaders.

Taking Action: Facilitating Curriculum Discussion Across Design Disciplines

Four phases of activity serve to guide curriculum discussion and include first establishing context to the meeting, then identifying relevant issues, determining action steps, and revisiting an existing curriculum plan. The use of frame reflection is included in these phases.

Establishing Context

Establishing context requires that the group members understand that people frame problems in different ways and that each frame includes different realities. A useful frame awareness exercise for any group, but particularly for members representing different design disciplines, is to present a current curricular need and see the different ways that faculty members view this need. Within each response, people usually identify a high priority topic, one that may be suggested with strong emotions. Their response may also advocate a specific solution. The issues and proposals should be recorded and visualized. In this way, the group sees what each group member views as priorities. At this stage the facilitator of the meeting can prompt group members for ways to characterize the different framing approaches. The group may even be able to identify several ideological or mental models that are at the basis of the framing.

Establishing an awareness that people bring to the table different approaches to framing an issue or problem or policy, faculty can then be prompted to talk about the contextual realities. It is useful to address context at this stage to help the group members determine priorities for action. Issues may be driven by policy decisions or initiatives from an administrative unit, such as a university or college strategic plan or directive. Other issues may be an internal unit call to

address faculty, student, or administrative concerns. Group members can then see how their accounts of reality cross or differ from others. Talking about realities frequently reveals dilemmas and boundaries to a specific problem. An underlying benefit of frame reflection is the need for people to take responsibility for the decisions, which will attempt to address the dilemmas.

Identifying Issues

Frame reflection identifies the different ways that individuals view programs and the curriculum development process. Once these perceived differences are visible, metadesign categories can help to facilitate more detailed and productive interdisciplinary discussions and resolution of issues through action steps.

Roles. Roles of team members must be established to facilitate an understanding of each context represented. Roles within the team should be discussed, but roles within academic programs and disciplinary professions are also helpful to establish team members' knowledge base and credentials. Additionally, roles of students in coursework and role expectations of graduates should be established in curriculum discussions. These roles help to define credentials and curricular expectations of different disciplines, both of which must be negotiated in broader discussions. An issue might be conflicting roles of participants such as administrative roles guided by expectations such as retention, faculty roles guided by semester structures and knowledge of learning objectives, and student roles guided by course loads, personal expectations, and need for relevant and applicable coursework.

Tools. Identifying the tools of each design discipline as an initial part of the curriculum discussion may help to show commonalities between areas of study. While each design discipline clearly engages in different activities, many commonalities do exist and helping team

members be aware of shared tools (e.g. common organizational systems for design projects) provides a foundation for more productive interdisciplinary decisions moving forward. Issues may arise around disciplinary tools such as conflicting expectations of faculty regarding what and how much a program should provide to students in the way of tools, limited resources (i.e. money) and how that should be spent to provide faculty and student tools, and ownership and maintenance of tools provided for interdisciplinary work.

Culture. Each program within an interdisciplinary curriculum discussion will come from a different culture. This is true in both a professional and academic sense, and should be acknowledged to assure that all parties are represented fairly in planning. Establishing a common culture for moving forward may be a goal of the group; one that acknowledges past cultures but also supports forward movement of new group dynamics without past hindrances. Creating a new shared culture provides all participants an opportunity to contribute to discussions and outcomes equally. Different disciplines that come from different cultures are valued differently. For example, bringing together a culture of architecture and interior design to create an interdisciplinary program could uncover issues rooted in historical conflict over the value of each profession, expectations and contexts for work, and professional qualifications. Moving beyond cultures established in historical contexts will enable participants to create new cultures to be reflected in interdisciplinary and cross-disciplinary curriculum decisions.

Phases. Establishing roles, identifying tools, and creating shared cultures provide a strong foundation for curriculum discussions, however a clear and active process must guide the team. Phases can provide an organizing structure, and since most design disciplines share a similar design process, phases that reflect the shared process may initially be used. Including phases such as information gathering, developing, iterating and prototyping curriculum design

elements, evaluating decisions and revising/adjusting ideas based on feedback should be a familiar process for most team members. On a “meta” level, these phases are similar in the majority of design disciplines. Issues can arise if phases of curriculum development and discussions of interdisciplinary programs differ based on preferences of the team, but common ground may be established by using the design process phases as a starting point.

Orientation. Orientation is often guided by accreditation requirements, however curriculum discussions must explore opportunities beyond standard accreditation expectations. Goal-directed orientations based on known goals, as with standards-based accreditation expectations, will only surface issues defined by the accrediting body. Participants must also include some opportunities for emergent goals beyond accreditation standards to surface in relation to the new interdisciplinary culture being created. Using honest and open discussions related to other categories and issues surfaced by frame reflection, groups will uncover multiple opportunities to define and address emergent goals that support student learning and faculty participation. Issues may arise when participants choose to remain focused only on known goals, eliminating the potential of emergent goals from being considered as a part of the curriculum development discussions. As with culture issues, moving between a known goal and an emergent goal orientation provides the greatest opportunities for the creation of unique, student-oriented curriculum.

Process/Product. Curriculum planning teams will necessarily move between a process and a product orientation, but may lean more heavily on one orientation depending upon the makeup of the group. Both approaches are valuable, but the group must ultimately keep in mind that a coherent product is needed to fulfil academic programmatic requirements. An understanding of both the professional products that must emerge from design education and the

critical process knowledge that each graduate must possess for successful professional practice is necessary. Many concrete thinkers tend to focus on a product orientation in curriculum discussions. Abstract thinkers may primarily concentrate on process. Issues can arise in curriculum development if participants do not both understand and embrace both approaches since the process yields a coherent method of identifying and evaluating topics for consideration, and the product or outcome is the academic embodiment of the team's efforts.

Using frame reflection in curriculum meetings is likely to trigger in faculty members the realization that frame reflection can be used in their teaching. Schön (1987) said that in any reflective practicum the student and instructor participate in a state of "frame conflict" (p. 218). Differences in process and product certainly exist between student and teacher, just as differences exist in curriculum development meetings. However, Schön acknowledges that not all frame conflicts are the same. In the instructional setting, a resolution of the frame conflict is implied, but such resolution is not always acknowledged in faculty settings.

Taking Action

To facilitate new views of interdisciplinary curriculum programs, it is necessary to first form cross-disciplinary teams where all design disciplines involved are fully represented. These teams may include faculty, administrators, support staff, and students. By engaging in the frame reflection and metadesign activities described above, the team works collaboratively to determine appropriate action steps for their specific, unique situation. Acting in a holistic context, the team creates a plan for curriculum.

As a part of curriculum design, the team will also address assessment both at a programmatic level and a metadesign level, evaluating the learning and success of students beyond disciplinary learning. This new level of assessment provides feedback on the success of

interdisciplinary activities and student perceptions of the importance of cross-disciplinary collaboration on an academic and professional level. Building in a data-gathering component to the design of the curriculum will facilitate effective evaluation and iterative improvement of curriculum decisions, as well as facilitating data-driven decision-making that is currently prevalent. Data-gathering should be done at both a course level and a program level to assure a comprehensive view of student and faculty experiences.

Individual programs will typically be tasked to implement the plan, however the potential for common shared core design courses to be created and offered will also exist. These common core courses serve to reinforce the interdisciplinary nature of the design curriculum in addition to more efficiently using resources available to each program.

Re-examining and Revising the Curriculum Plan

The curriculum plan documents features to be taught, as well as how it is to be taught and delivered, and likely interface with other features of a unit's strategic plan. Any action plans benefit from referring to the current plan and note where changes may be in the offing, particularly in how the design curriculum of the various groups may be impacted. Cross-curriculum design decisions could be incorporated into what had been previously isolated plans, and may become a common feature in academic units housing design programs.

Conclusions

Our conclusions address (1) developing a metaview of design categories, and (2) using the design categories and frame reflection for curriculum development.

Obtaining a consensus of a metaview that crosses all design fields is challenging, as the context of the design field tends to drive the use of unique vocabularies and views of design practice. However, as we discovered in our original attempts to develop a metaview of design

categories, the various labels for design thinking/practice served to galvanize discussion in the focus groups. An unexpected outcome was seeing how individuals from different design disciplines openly expressed the need to work together, partly to achieve program efficiencies but also to find new ways to work together.

To facilitate cross-disciplinary discussions of curriculum, using frame reflection raises awareness of our ideological as well as pragmatic differences. Its use within curriculum meetings, for example, creates an awareness that each person's view carries with it realities, dilemmas, and responsibilities. Design fields may see design differently, but through frame reflection members of a cross-curriculum team can proceed acknowledging the commonality of these realities, dilemmas, and responsibilities. Members can then use the metadesign categories to see how different definitions and characteristics of each category might still yield opportunities to work together in terms of teaching, research, and even service opportunities. Both frame reflection and metadesign provide tools to acknowledge differences and similarities as a foundation from which to work together and resolve sometimes difficult curricular issues.

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