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Teaching and Supporting an Authentic Three-Dimensional Design Curriculum

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Grounding in the fundamentals of design, or composition, enables students to build proficiency that is necessary for—and transferable to—later explorations into artmaking. Such a grounding is usually provided, in large part, by a 3-D design course. A review of American college and university catalogues from institutions offering undergraduate art degrees shows that 3-D design is a part of most programs' introductory-level sequence (along with 2-D design, drawing, and life drawing).[1] Their course descriptions suggest that 3-D design courses nationwide tend to be conceived similarly: namely, to introduce to beginning students various fundamentals of composition in form. This sequencing of stated course requirements implies agreement across the profession that future artists and designers should learn how things work visually in the round early in their college art education. In other words, students need first to investigate ways of organizing and composing (design) before they delve into exploration of the array of expressive and conceptual opportunities afforded by various media (making art).

But for all the good intentions evidenced by the majority of programs, which still concern themselves with fundamentals, too many 3-D design courses today lack clarity of compositional focus. As one experienced instructor teaching both a 3-D design and a sculpture course recently explained to a colleague, "I know they're supposed to be different, but I just teach 3-D design the same as my sculpture class." This is a statement I have heard frequently during two decades of teaching 3-D design (as well as sculpture, 2-D design, drawing, painting, and life drawing) at a number of collegiate institutions. All too often, 3-D design instructors bypass the actual fundamentals of composition, and move students directly into exploration of the more alluring expressive and conceptual issues of sculpture. This trend may arise out of a temptation to align the 3-D design course with various traditions of artmaking, developments in contemporary art, or critical theory. But it is an ominous trend, given the crucial prerequisite status of 3-D design, and the grounding in fundamentals that it is supposed to provide. To supplant the intended focus on fundamentals in this course with the more specialized concerns of sculpture is to thwart students' primary opportunity to learn composition in form.

How have we lost sight of what the 3-D design course can and should be? Three factors play key roles: the legacies we have inherited as art teachers, the impact on our students of the "pictorialization" that pervades contemporary life, and our temptation, as artists ourselves, to "make artists" out of first-year students.

Legacies of Art Education

Research shows that college teachers usually replicate the methods by which they were taught, and are reluctant to change methodologies.[2] Additionally, how college instructors themselves were taught—and how they now teach—extend from how art has traditionally been (and still is) addressed at the pre-college levels. Legacies of some enduring traditions from art education also influence art in higher education, and have fed into the gradual decline of 3-D design in most college art programs. These traditions can be identified by an educational aim intended to surpass art's inherent value in early education: Study Skills, Jobs, Spirit, and Understanding Ourselves and Others.[3]

The Study-Skills tradition geared the study of art toward its perceived value for the learning of other subjects; its legacy influences college art instructors today to steer the 3-D design course toward the widest conceivable "purpose," as though purposes beyond the teaching of composition in form are the actual aims of the course. The Jobs tradition taught art for job

skill acquisition; its legacy has been pressure on 3-D design instruction to justify itself as a direct pathway to art careers. This influences instructors (usually professional sculptors) to assume sculpture will be the career focus of all beginning students. The Spirit tradition motivated educators because of how art could elevate the imaginative lives of students; a flawed legacy of this tradition is the belief that accessing students' inner, emotive levels requires the avoidance of design fundamentals which are commonly viewed as secondary, if not superfluous, to seemingly loftier and more expressive aims. The Understanding Ourselves and Others tradition grew out of a modern focus on the individual, and more recently, on a concern for cultural diversity in education; its legacy has inspired various approaches to fostering the expression of self, and is closely allied with the meaning-construction imperatives of contemporary critical theory. The problem here is that expression supersedes principles of visual organization, or composition, in form.

The importance of compositional fundamentals in 3-D design has been greatly undermined by the legacies described above. But there is also another legacy compromising 3-D design instruction: an ingrained bias against it. Diana Korzenik explains that "the ranking of prestige and priority of certain school subjects [renders] art ... contaminated by [a traditional] disdain for work with the hands. The prejudice against art derives from an association of handwork, working with materials, with the lower, less-educated classes."[4] The bias Korzenik identifies is, arguably, most pronounced when it comes to the areas under the purview of 3-D design, because what they inherently stress—working with the hands—tends to be regarded as "intellectually inferior." Such a bias marginalizes 3-D design training in much the same way that Eurocentric traditions of art history have long marginalized the aesthetic values of artmaking defined by gender (women's handicraft) and non-Western peoples. Korzenik is right in pointing out that "our society today is reaping the ignorance and incompetence in handling materials" that we ourselves have created through such long-standing biases.

Artmaking and Making Artists

When we teach 3-D design, what is it that we want students to learn? One way to answer this question is to ask it another way: if the course were eliminated from the program, what learning would be lost? The 3-D design course descriptions referred to earlier, reviewed in the survey of college catalogues, clearly imply that understanding and mastery of fundamentals of *composition in form* are the intended learning goals of these courses. By contrast, course

descriptions for beginning sculpture classes reflect *explorational, conceptual,* and/or *expressive* learning goals that generally embrace issues of contemporary art and aspects of critical theory.

A compositional emphasis (3-D design) focuses on aesthetic questions of interaction; how elements of form such as line, plane, or volume can be organized into visually unified form in space. This involves clear demonstration and application of organizing principles of design.

Additionally, in teaching 3-D design, our goal should be compositional aesthetics—not professional, field-specific, or socio-historically oriented training slanted toward any area of specialization. There is nothing sinister about well-contextualized composition: it is not about "design fields," nor is it to be equated with Eurocentric imperialism. A balanced foundation in design is broad, inclusive, and transferable to all studio concentrations. As artists, we need to convert our involvement in the rapidly changing world of contemporary art, theory, and visual culture into a useful tool instead of an obstructive bias in the education of our students. This entails converting our own understanding of compositional fundamentals into clear, context-based, accessible learning "prompts" for the 3-D design course.

Prompting Compositional and Explorational Thinking

As project-oriented instructors in studio art, we often set up prompts (or projects) to facilitate learning, and to incite discovery of and engagement in a (set of) learning objective(s). Our prompts focus attention on intended organizing principles, lead to an intended working method, or initiate a line of research that helps students entertain possibilities. In creating learning prompts for 3-D design, we can use compositional language, or we can *combine* that with language of exploration. But omitting compositional language is not supportive of student success because it denies the myriad of compositional decisions students make in creating form.

Isolating the two kinds of emphasis allows students to recognize each as distinct. For example, if one goal is for students to demonstrate the use of line or linear elements to generate form, unique prompts can be created to suit either a *compositional* or an *explorational* focus. A compositionally-focused, or 3-D design, prompt might say: "Design a linear form in ½-inch square pine molding, using the principle of radial organization." This prompt specifies a medium, along with an organizing principle. (It should go without saying that no task should be assigned to foundation students without level-appropriate instruction and demonstration and demonstration also being provided).

The instructor can expand this prompt, without detracting from its compositional emphasis, to include more student-defined, and thus more inclusive, variations. Expanded, the prompt could be re-stated as: "Design a linear form in ½-inch square pine molding, using *either* radial, linear, collisional, or clustering organization." Now the students can choose between different ways of using line in space (organizing principles), while remaining focused on the composition of form. The prompt invites students to compose with line using the organizing principles at hand, not to explore line in the general (or sculptural) sense. (While we may suspect students are able to explore sculpturally, it is not appropriate at this stage for them to do so in lieu of focused compositional study).

The learning prompt can be further enhanced, while retaining its compositional focus, by adding a basis for design. The basis for design is any aesthetic component or thematic idea that might underlie and motivate the composition in combination with the organizing principles. An example of an aesthetic design basis might be metamorphosis, or gradual change. Another might be serial interactions, or sequential progression. Another might be modular, or unit-form, construction. Or a basis for design could be more general, such as the "aesthetic" of bridges, towers, and trusses. The basis for design engages students in looking at a broad range of visual sources, and extrapolating information for use in the design process.

A key benefit of teaching the basis for design is its inclusiveness: students from all cultures and all walks of life will bring different visual influences to their compositions. Basing their compositions on source information in this way encourages students not merely to illustrate the basis, as in the above example, bridges, towers, or trusses per se, but rather to *base* their designs on aesthetic attributes of those structures. The aesthetic attributes of bridges, towers, and trusses could be described as horizontal spanning, vertical gesture, and diagonal repetition—general and visually rich attributes for use in original composition.

We can now re-state the learning prompt again, with a basis for design added, as follows: "Design a linear form in ½-inch square pine molding, *based on* the aesthetic of bridges, towers, and trusses, using radial, linear, collisional, or clustering organization." This prompt guides students into: 1) researching an aesthetic range of possibilities (basis), 2) utilizing an instructed medium, and 3) demonstrating an organizing principle within their compositions.

This example employs a *visual* basis for design; one can also employ a *thematic* basis, drawn from any subject. For example, aspects of interpersonal

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relationships—intimacy, isolation, tenderness—can be a thematic basis for design, just as the aesthetic of bridges, towers, and trusses can be a visual basis. Either mode can engage students in "design," and the emphasis remains on composition in each case. The primary difference between the two modes is that when students choose their own thematic basis for design, they define certain problems for themselves in addition to merely solving problems defined by instructors.[5] The thematic basis for design, then, allows students to move from a problem-solving process toward a process of defining, through consideration of their chosen theme, much of what they will do compositionally. This progression takes the student to important new levels of creative originality. In fact, the thematic basis for design offers great opportunities for students in the realms of inventiveness, expression, and meaning, while staying focused on composition within a design-based curriculum.

The compositional focus proposed here ideally leads to a gradation of design-basis emphasis, implemented over time, and extending from the visual to the thematic. Using both kinds of design-basis prompts, along with problem-solving and problem-defining processes, has the added benefit of releasing students from purely western, formalistic aesthetic models. And the approach ensures that students are exposed to a wide range of thinking processes, as they receive the clear, formal training they need at the introductory level. But more conceptual, expressive, and/or purely explorational (sculptural) possibilities are not prompted at this stage, impressive as the results might be. That is because the goal in the 3-D design course is not actually to produce "art," but rather to produce work that reflects sequenced, incremental learning of compositional aesthetics, or principles of design.

Understanding Prompts as "Constraints"

The prompts, or projects, that we assign also function as helpful constraints, serving to isolate, or limit, students' attention and focus. The very idea of constraint seems to many to be contradictory to the aims of art instruction. But if we understand that all prompts are, in fact, constraining, we can better enable students to benefit from compositionally-focused learning sequences. Moving incrementally through a series of learning prompts/constraints fosters clarity and security. As Ellen Langer reminds us, "One of the 'basic skills' of teachers ...is the ability to take a large quantity of information and present it in bite-size pieces."[6] But in separating our learning objectives into a sequence of prompts/constraints we must be sensitive to how prompts need to be constructed so as to enable students

to move successfully into the intended area of focus.

By the same token, it is common for the prompts given in our 3-D design courses inadvertently to disable students' attempts to focus on intended learning objectives. Arnheim addresses this when he writes, "Techniques inviting visual confusion or creating excessive difficulty or complexity are destructive; so is the practice of changing tasks so often that the student cannot explore the visual characteristics of a particular medium thoroughly."[7]

The distinction between enabling and disabling constraints is critical to understanding how students perform in response to assigned prompts. An enabling constraint is stated in terms that can be repeated later by students, and it grows out of instruction that clarifies, incrementalizes, and facilitates learning objectives. An example of such a prompt is: "Design a composition in line, plane and volume using architectural scale as a basis for design, and the organizing principle of modular construction." By contrast, the disabling constraint leaves students hard-pressed to state what is expected of them, due either to how the prompt/constraint is stated or to a disconnect between the tasks assigned and the instruction provided.

When constraints are articulated as enabling constraints, and are built around supportive instruction, students will focus better and produce distinguished learning outcomes. In 3-D design, prompts and constraints can be made enabling by specifying: 1) a basis for design, 2) a media range or material, 3) available organizing principles, and 4) relevant explorational options.

Enabling constraints can be exploited to even greater advantage when used in a planned series, or cumulatively. This means that as enabling constraints are engaged, successive constraints are added to propel students' work further. Using cumulative constraints involves defining a prompt for a given learning objective, instructing for work on that objective to a point of fruition, then re-working the composition and assessing it. Once that is accomplished (over the course of several weeks), another learning objective is introduced, prompting students to continue working with the same outcome they had developed, but now adding new elements, with new constraints, to those already used. Students work their responses to one set of constraints further in response to a new set. When that stage is completed, re-worked, and assessed, still more (cumulative) constraints can be introduced to guide further work, steering the learning outcome toward realization of still a third learning objective. As Albert Levi and Ralph Smith explain, "when the cultivation of a sense of art [compositional aesthetics] proceeds from the assumption that learning progresses through phases, learning experiences

will range from the simple to the more complex and will be both sequential and cumulative."[8]

This kind of cumulative learning process, in my experience, dovetails with what Langer calls "sideways learning," an approach she describes as avoiding "mindless, or rote, experience," and as "more like play than work." In contrast to two standard learning approaches — top-down (lecturing) and bottom-up (directly experienced) — sideways learning revolves around "1) openness to novelty, 2) alertness to distinction, 3) sensitivity to context, 4) awareness of multiple perspectives, and 5) orientation in the present."[9] Cumulative enabling constraints foster sideways learning by introducing novelty, illuminating distinctions, offering multiple perspectives (more than one "right" one is possible), and shifting contexts (as work "grows" along the way). Student-learning outcomes developed through this process often demonstrate such complexity that they defy "project" description.

An example of a cumulative, enabling prompt/constraint series is: 1) a simple linear exercise involving two rectilinear forms in $1/2$-inch square pine using collisional organization, leading to 2) a linear composition in that material using bridges, towers and trusses as a basis for design, leading to 3) a composite of line, plane, and volume involving the resolved linear composition (previous step) as support for integrated elements of plane and volume. In this progression, the learning objectives of collisional organization, line as a generator of form, the design basis, and composite interactions are addressed within an extended, cumulative enabling prompt/constraint sequence.

Finding Balance

In attempting to counter the tendency to veer into sculpture when teaching 3-D design, certain problems can arise. For example, 3-D design instruction might focus entirely on technical facility for its own sake (methods and materials). To be sure, a methods-and-materials component is part of 3-D design. But projects involving methods-and-materials lessons still can, and should, be oriented to compositional ends.

As we strive genuinely to teach design instead of confining students to materials and methods, pseudo-engineering, or literal scale-ups, we must balance the defining goals of: 1) high material quality (craftsmanship), 2) level-appropriate expansive possibilities (basis-source research), and 3) design integrity (composition). To achieve this balance, students must be afforded guided opportunities to assess their compositional decisions — to judge the visual quality of their work.

Issues of Visual Quality

Perhaps the most important learning of all for understanding composition is that which helps define visual quality. If students can utilize qualitative issues in composition, they will make aesthetic decisions accordingly. With that advantage, they can then assess their own, and each other's, work using those same qualitative issues. But the word "quality" is loaded with culturally-constructed meaning ranging from the benign to the downright oppressive. For some instructors, the very idea of making qualitative judgments at all is objectionable, given the ways in which Western traditions have been shown to systematically exclude non-white and women artists. Thomas McEvilley sheds light on this issue, as well, when he writes, "Basically what we need to do is complexify the judgment of quality" by "[incorporating] awareness of alternatives and counter-judgments." Notably, he goes on to say that we should "attempt to see through any and all value systems by appreciating their hidden motives — yet without *trashing* and *disregarding* them" (emphasis mine).[10]

Quality as it might apply to the general realm of form should simply be taken to mean that which relates to integrity of form. This is entirely distinct from the modern (and political) movement of formalism in art, which held that art in itself can be simply defined as form. Qualitative judgment in form-making is healthy, and it provokes critical thinking in our students, whether derived from western progress in art, or from non-western cultural influences. Since almost all cultures make judgments about attributes of form such as craft, choice of material, proportion, attitude, or scale, the process of arriving at qualitative judgments need never imply a ranking or prioritizing of varying cultures.

Whatever aesthetic tradition serves as a base for teaching art and design, the attendant culturally-defined aesthetic values need to be made apparent to students in a contemporary, inclusive way that enables them to make compositional decisions.

It is difficult to encapsulate issues of visual quality, but by trying to isolate such issues for identification, investigation, and manipulation, we can successfully guide students to a level of visual "literacy." We certainly cannot "make artists" with such pedagogy — but that is not our purpose in teaching 3-D design. What we can do is to prepare students for the study of many types of artmaking, and help them to arrive at compellingly inventive learning outcomes. Students can emerge from 3-D design courses with fundamental visual skills to complement thinking skills, with the ability to organize visual information in complex, inventive, meaningful, and even "pleasing" ways. To these ends, what kinds of visual quality issues should we be addressing?

Some distinct issues of visual quality that can be readily identified, observed, demonstrated, and understood by 3-D design students include: **proportion** (relative scale), **material quality** (craftsmanship, choice of material), **surface** (texture), **visual weight** (appearance of mass), choice of **placement** (relative position), **balance** (static and dynamic), **gesture** (stance or attitude), **presentation** (enhancement), **frontality** (not wholly 3-D), **transition** (how things connect), **neither-nor** (arbitrariness or ambiguity), **conceptual quality** (idea).

It is not necessary to get caught up in semantics — individual instructors will vary their definitions of qualitative issues to suit individual and/or cultural needs. It is the consistent application of such issues, however, that provides the advantage in teaching with compositional focus. Needless to say, if faculty members within a curricular area or program can agree on a common vocabulary, the power of the qualitative issues is magnified immensely. When issues of visual quality are appearent to students, they can make clear and specific compositional decisions. For example, if the proportions evident in the linear composition described earlier are clear and specific, visual quality is enhanced. The relative clarity and specificity of its transitions, as well, will either strengthen or weaken the overall visual quality of the form. Many such issues operate simultaneously in this way, and yet can be understood as distinct for purposes of decision and manipulation.

Each of the issues mentioned above can, of course, be examined from various culturally-defined perspectives. Since all qualitative distinctions are by definition culturally defined, we must be vigilant in contextualizing "judgments," and must undertake a parallel examination of the assumptions and motivations that underlie our own aesthetic traditions. But this requirement should not make us afraid of qualitative analysis itself. The proportion present in an African mask, for example, will likely be quite different from that found in a Bernini portrait. In fact, proportion may not have been "used" at all in the making of the mask, whereas Bernini was likely obsessed with it. In any case, there is no "good" proportion per se.

Learning to isolate issues of visual quality in their working process predisposes students to productive and gratifying processes of self-assessment, since the decisions they make on these issues while they work are the same as those they will observe in each others' work in critique. This type of critical

method, that includes issues of visual quality at both the design *and the* assessment stages, is empowering to students.

Conclusion

Early design training opportunities for young artists are limited today by a number of factors that seem to oppose composition-based learning of design fundamentals. While it is vital that we embrace the world of contemporary art, and critical and cultural theory as we develop curricula for foundation art and design courses, it is also crucial that we emphasize *compositional fundamentals*. Seeking a balance for the 3-D design course between the compositional and the explorational is by no means antithetical to the parallel purpose of teaching beginning students to entertain possibilities, to be inventive. The 3-D design curriculum can, and should, gratify instructors and students alike by its capacity to exploit both the necessary compositional lessons and the more personal and expressive opportunities usually associated with "artmaking."

My questions and suggestions grow out of recognition that we must recontextualize our teaching of 3-D design so as to reconcile and incorporate new values from contemporary art, cultural inclusion, and theoretical inquiry. But as we devise new understandings of multiple traditions and approaches, we must not abandon compositional study. The path to a more authentic and contemporary 3-D design curriculum lies in simultaneous recognition of how certain teaching traditions have themselves been marginalized, and how our times invite new and culturally inclusive approaches to generating meaningful, and inspiring, introductory design courses.

Notes

1 Fifty catalogues were reviewed, including those of well-known independent colleges of art/design and colleges and/or universities with highly-reputed art programs: 3-D design is listed as prerequisite to more specialized studio offerings in 84% of the catalogues surveyed.

2 See Wilbert McKeachie *Teaching Tips: A Guide for the Beginning College Teacher* (USA & Canada: D.C. Heath and Company), 1986 and Menges Svinicki, and Marilla D. Svinicki, editors *New Directions for Teaching and Learning: College Teaching from Theory to Practice* (San Francisco: Jossey-Bass, Inc.), 1991.

3 Described by Maurice Brown and Diana Korzenik, *Art Making and Education* (Champaign: University of Illinois Press, 1993), pp. 129-172.

4 Ibid., p. 126.

5 Ibid., p. 108.

6 Rudolf Arnheim, *Art and Visual Perception: A Psychology of the Creative Eye* (Berkeley: University of California Press, 1974), p. 205.

7 See Jed Jackson, for an excellent discussion of "problem-finding," in "Conceptual Skills and Studio Practice in the First-Year Course," *FATE in Review*, Vol. 20, (1997-1998), pp. 34-39.

8 Ellen Langer, *The Power of Mindful Learning* (Massachusetts: Addison-Wesley Reading, 1997), p. 12.

9 Arnheim, *Art and Visual Perception*, p. 205.

10 Albert W. Levi and Ralph A. Smith, *Art Education* (Champaign: University of Illinois Press, 1991), p. 187.

11 Langer, *The Power of Mindful Learning*, p. 22.

12 Thomas McEvilley, *Capacity: History, the World, and the Self in Contemporary Art and Criticism* (Netherlands: G & B Arts International, 1996), pp. 128-130.