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Design Thinking as a Response to the Crisis of the Liberal Arts College

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Table of Contents

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Introduction

The liberal arts college is under duress and may not survive as an institution into the next decades. President Rebecca Chopp of Swarthmore College writes that we face, "The academic equivalent of global warming on the Arctic permafrost: We are seeing the disappearance of small liberal arts colleges in the United States." A recent article in *Liberal Education* followed up on 212 liberal arts colleges that were the focus of a 1990 study. Twenty years later, only 130 of those colleges still meet the criteria of a liberal arts college; a 39 percent decline." Chopp goes on to note that, "According to the article, only a handful have closed; the rest have adopted a more pre-professional or vocational curriculum while still calling themselves liberal arts colleges. As Victor Ferrell notes in *Liberal Arts at the Brink*, of the 223 self-identified liberal arts colleges in the United States, vocational majors have increased to 29.1 percent. Only 10 residential liberal arts colleges graduate no vocational majors, while 55 percent graduate nearly half of their students with vocational majors."[1] There is, of course, considerable variation in the strengths of these different schools but as these statistics indicate, the underlying trend is clear.

This paper considers how design thinking as an integral part of a college curriculum can help revivify liberal arts institutions. It is divided into seven sections. The first considers the problem of the disappearing liberal arts college and asks if design thinking can reinvigorate such settings. The second provides a brief description of two imagined undergraduate design studios focused on "after-school services" in a community and bicycle safety on campus. The third considers whether and how design thinking has standing as an intellectual discipline. The fourth compares and contrasts design thinking with critical thinking and proposes that design thinking helps address 10 challenges facing liberal arts colleges. The fifth suggests that design thinking can address 10 distinct challenges that liberal arts institutions face. The sixth acknowledges at least nine obstacles to integrating design thinking into a liberal arts curriculum. The seventh and final section is a call to action for interested people to come together to design the "ideal" liberal arts college that can integrate design thinking into its curriculum.

I. The Decline of the Liberal Arts Institution

The proximate reasons for the liberal arts college's decline are well understood. A liberal arts education is expensive and students are anxious about their career prospects. In addition, disciplinary specialization has undermined the idea of a common core of knowledge. Finally, faculty members, who must publish papers and raise children, have less time and patience to attend to the moral and emotional development of their students.

Fundamental challenges reinforce these proximate factors. One way to understand this is to consider two major foundations for the idea of a liberal arts education.

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[1] Rebecca Chopp, President, Swarthmore College Faculty Lecture, October 25, 2012, "Against the Grain: Liberal Arts in the 21st Century."

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The first, which reaches back into antiquity, is the idea that young people need a sensibility and a set of skills—in ancient Greece it was rhetoric and logic—in order to enter into the world of adult citizenship. The focus here is on "citizens" rather than workers or jobholders. We presume that students are preparing to participate in the work of sustaining culture writ large, rather than just working for living. This is why leaders and scholars committed to a liberal arts education feel threatened by the emphasis on vocational education. The second is the idea that there is a common canon that helps prepare students to take up this citizenship role. This canon is based on the most compelling, important, and beautiful work of writers, artists, and scientists who have come before us.

These foundational ideas appear less and less compelling today. It is increasingly difficult for faculty members to agree on a canon. We are long past the time when scholars could nominate some set of "Great Books" as the basis for a general education. Indeed, in one study of general education requirements, three scholars who compared colleges between 1991 and 2004 noted that students were required to take fewer humanities and arts courses over the period. This is also one reason why distribution requirements, e.g., "two in social science, one in language, etc.," seem more appropriate than a common core of courses. Moreover, three colleges in their study—Amherst, Grinnell and Smith—had no required courses whatsoever.[2]

In addition, the term "global citizen," used by many educational leaders, masks uncertainty about what citizenship means today. If we think in global terms, can we really identify the common principles that shape the citizenship role? After all people around the globe come from very different political traditions. In the United States we are accustomed to thinking of education as preparation for democracy, where citizens, it is hoped, ably evaluate their leaders and hold them accountable through rational discourse. Yet millions of educated people the world over are joining the global economy who have little experience in democratic practices. Their aspirations may lie elsewhere, for example, in achieving a good standard of living or in establishing God's Kingdom on earth.

There is a third important development. The liberal arts curriculum developed around the idea of core courses that reflected our culture's achievements and were guides for making decisions about our future. It is clear that educators are no longer confident in describing such a core. The question is why? One hypothesis is that we feel we are living through a rupture in time. The future is a setting of discontinuity. New technologies, humankind's transformation of the natural world, and social networks that stretch across the planet, subvert our institutions. As the terms "post-industrial" and "post-modern," suggest, we have left behind our way of life but are uncertain about what follows. This is one reason we encourage students to study in the global hotspots, or learn the craft of social entrepreneurship. *They can't see the future in books*. They have to experience it or create it.

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[2] Brian Bourke et al, "Approaches to the Core curriculum: An exploratory analysis of top liberal arts and doctoral granting institutes," *The Journal of General Education*, Volume 58, Number 4, 2009, pp. 219-240

Parents and students who are conscious of these disruptions favor vocational programs because they seem offer security. Yet paradoxically, many of the traditional professions such as law, medicine, journalism, and even college teaching itself, are becoming "proletarianized," as new technologies and economic competition change the terms of knowledge work everywhere. The presumption of security may be illusory. This suggests that students and their parents are looking for "any port in a storm" which pre-professional studies appear to offer. But they may be dead-ends.

For those interested in the liberal arts the result is not a happy one. As Elizabeth Coleman, the president of Bennington College writes, "We have professionalized and fragmented what passes for a liberal arts curriculum to the point where it simply cannot provide the breadth of application nor heightened capacity for civic engagement that is the signature of the liberal arts".[3] The result, she suggests is that, "Civic-mindedness is seen as residing outside the realm of what purports to be serious thinking and adult purposes—more a matter of heart than of mind; a choice, often short-term, rather than a lifelong obligation."

II. Design Thinking as a Response

"Design thinking," joined to critical thinking and the traditional disciplines, can help revivify the liberal arts college by directly addressing the anxieties associated with vocationalism. *It does this by providing students with the means for, and experience of, turning research and knowledge into benefits for communities*. Moreover, it is more than simply "applied" learning. Instead, the process of design stimulates and requires discovery as well as application. In this sense, design thinking can help reduce the anxiety that impels students to choose a vocational course of study.

But what is design thinking? Imagine that students in a design studio are called upon to develop a comprehensive program for reducing bicycle accidents on campus. The students could work in teams to undertake the following activities:

1. Videotaping bicyclists, particularly in moments when they are weaving in and out of groups of pedestrians. Learning about and using video analysis tools for example, those used in forensic settings.
2. Interviewing bicyclists and pedestrians about "close-call" experiences when one or the other felt at risk of being injured. Developing a protocol for administering the interviews and coding them.
3. Applying behavioral economics models to the choices bicyclists make about speed, taking short cuts, and waiting.
4. Consulting with landscape designers to learn how road design affords visual cues that help or hinder pedestrians and bicyclists navigate intersections and

[3] Elizabeth Coleman, "The Revolution Starts Now: Why it is time to reclaim education's connection to our democracy," *Independent Social Magazine*, Fall 2011, http://www.nais.org/Magazines-Newsletters/ISMagazine/Pages/The-Revolution-Starts-Now.aspx

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hills.

5. Developing signage and logos that communicate safety tips in emotionally engaging ways.
6. Doing a social network analysis to identify students who can more readily influence their peers' behavior, for example fraternity leaders.
7. Designing an engaging 15-minute workshop to communicate ideas about bicycle safety on campus. Developing a survey to discover under what conditions and when students are likely to "drop in" to such a workshop. (E.g. offer free pretzels, and hold the workshop outdoors in the spring, and at lunchtime.)
8. Evaluating the immediate impact of the workshop on participants' thinking.
9. Working with campus safety officials to develop measures for gaging longer-term trends in bicycle safety.

To accomplish these activities students and others would work in a "studio" environment. They would use sketches, photographs, videos, mind maps, post-it notes, cardboard mockups, data displays and social network diagrams. These tools would help create a picture of a bicycle safety program that becomes increasingly detailed and comprehensive.

The reader may worry that students in such a studio would be tackling too trivial a problem, one unworthy of a liberal arts curriculum. But from a "designerly" point of view, no issue, if it addresses how a setting influences experience, is necessarily trivial. Indeed, treating it as trivial makes for bad design. This is why, for example, students who work on developing low-tech implements for poor farmers in developing countries -- such as a pedal powered pump, or a wheeled container a child can pull for fetching water -- learn a great deal about the social structure and division of labor of a farming community. For example, women in such settings spend large parts of their day fetching water, reducing the time they have to grow vegetables or care for their children. Kurt Lewin, a social scientist who helped establish the field of organization development, famously said, "The best way to understand a system is to try to change it."[4] Design is one method for change.

Similarly, imagine that students participating in a design studio are called upon to help a community group re-imagine after-school services in its neighborhood. The students could undertake the following activities:

1. Researching how these services are delivered currently. They could use several methods; observation, interviews, surveys, and historical data.
2. Participating in "learning journeys" in which they and community participants visit distinctive programs in the city and observe children and their caregivers in action. They could develop a shared protocol for organizing their observations.
3. Developing a survey that gages what parents believe are the characteristics

[4] Morgen Witzel and Malcolm Warner, *The Oxford Handbook of Management Theorists*," Oxford: Oxford University Press, 2013, p. 159

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of a good after-school program.
4. Referencing the child development literature to understand how children of different ages make use of a range of learning environments.
5. Helping to facilitate various design sessions in which community participants begin with a blank slate and design their ideal after-school program.
6. Costing out the dollars required to launch any particular program and to sustain it over time.
7. Creating a storyboard that envisions how the community could implement a feasible and desirable program.

These imagined studios have some of the familiar earmarks of a group capstone project, while the second may be linked to service-learning activities. But both describe learning settings in which disciplinary knowledge, research methods, and design activities are fully integrated. Moreover, should undergraduates participate in six to eight such studios over the course of their tenure as students, we could conclude reasonably that they have experienced "in their bones" how knowledge can re-shape peoples' experiences in everyday settings.

III. What Standing does Design Thinking have as an Intellectual Discipline?

The skeptic might ask if design studios have the same pedagogical standing as for example, a seminar on child development or a class on survey research methods? Part of the answer depends on whether or not we accord designing and design thinking the same standing we accord writing, critical thinking, and hypothesis testing. We are accustomed to thinking of designing as a specialized practice for producing useful objects and settings, for example as in graphic design or building design.

But beginning with the work of Herbert Simon, who published the first edition of his, *The Sciences of the Artificial*[5] in 1969, a burgeoning literature has emerged. It characterizes designing itself as a distinctive intellectual task. Simon, who was awarded a Nobel in economics, argued that the sciences are focused on the natural word, but that much of our life is lived in the "artificial" world. Studying the former, scientists as well as social scientists focus on the laws or regularities that govern the phenomena they observe, whether it is human behavior, the growth of plants, or the interaction of subatomic particles. By contrast, in studying design we are assessing how people with particular purposes and interests build and interact with the artificial world. Simon argued that this distinction between laws/regularities on the one side, and purposes/interests is fundamental.

The challenge then is to find out how people go about making good, or not, on their intentions. What do designers do? How do they evaluate the presenting issues? How do they choose between two competing objectives, each of which is valued? How are different interests represented in design choices? How do designers know when good enough is good? Donald Schon's book, *The Reflective*

[5] Herbert Simon, *The Sciences of the Artificial,* Cambridge: MIT Press, 1969

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Practitioner: How professionals think in action,"[6] published in 1983 advanced this thinking by drawing on American pragmatist philosophy. He described how individual practitioners such as architects, psychotherapists, and town planners designed their interventions.

There are two points of departure for studying these issues. One is studying the designing process itself, e.g. how do architects create patient-centered hospital floors, or how do executives design a high performing organization. This forms the basis for research into what designers actually do. The other is the study of design in context; for example, what forces influenced the shape of the elementary school classroom, the retail bank, an urban playground, the research laboratory, or the office hierarchy.

As these examples suggest, both points of departure can encompass designs that are not embodied physically; for example the design of organizations—how many hierarchical levels it has; the design of business models—what role does self-service play in creating value for customers and profit for business owners; or the design of legislation—what mix of incentives and penalties are embodied in the rules and regulations. All design tasks entail some common features such as;

- Identifying and wrestling with constraints.
- Returning to first principles.
- Trading off between equally valued objectives.
- Surfacing taken-for-granted or hidden assumptions.
- Prototyping to uncover prospects and dilemmas.
- Iterating a design as a method for discovering new ideas.
- Testing design solutions either in part or in whole.

Indeed, in his path-breaking book, Simon proposed that designing was based on a general method for breaking a problem into relatively independent sub-problems, finding solutions for all of them, and then integrating the solutions. This now appears to be too simple a formulation. But the spirit of his hypothesis, that design is itself a methodology, has stimulated a great deal of research as well as practical activity.

For example, Nigel Cross in his study of design[7] provides good examples of some of the common features of designing as an activity. He describes how Gordon Murray, the race-car designer, introduced the planned pit stop, rather than the pit stop reserved for emergencies, by returning to a "first principle," which was to make the car light. "The lighter the car the faster it is in accelerating and decelerating." The car's weight could be reduced if it did not carry all the gas it needed to complete the race, but instead could be refueled midway. This return to a first principle brought in its wake a subsequent series of innovations. For

[6] Donald Schon: The reflective practitioner: how professionals think in action, New York: Basic Books, 1983

[7] Nigel Cross, *Design thinking: understanding how designers think and work*, Oxford, New York: Berg, 2011, chapter two.

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example, tires would lose heat in a planned pit stop and take a couple of laps to heat up to their optimum temperature. This meant that Murray had to introduce a method for putting hot tires on the car while refueling it, which meant in turn creating a pit stop oven for heating tires. This typical "cascade," in which one solution creates new problems that in turn prompt the development of additional solutions, is one measure of a design process's generativity.

IV. Design Thinking and Critical Thinking

The skeptic might doubt the claim that design thinking is a general method. After all, people who have the specialized knowledge to design an organization are unlikely to be able to design a race-car. But consider the idea of "critical thinking" that many believe lies at the heart of a liberal arts education. Thinking critically means scrutinizing arguments for the quality of their logic and evidence. But in the main, few professors outside of philosophy departments teach critical thinking in the abstract. They presume instead that students exposed to scholarly debate within particular disciplines, who then write out their own arguments in response, will absorb the spirit and practice of critical thinking. The focus on disciplines and particular knowledge domains does not make critical thinking any less salient. On the contrary, both faculty members and employers believe it constitutes the "conceptual environment" for liberal arts studies. It is therefore as important as it is a backdrop.[8]

This suggests that design thinking, like critical thinking, is simultaneously a methodology in its own right and at the same time is instantiated within particular disciplines and knowledge domains.

The table below compares and contrasts these two kinds of thinking.

[8] Paradoxically, by treating it as a backdrop, colleges may be shortchanging students. As one scholar notes, "both the colleges and employers believe that the ability to reason well is the kind of skill that is taught not intensively in any one course, but rather across the curriculum, in a way that would ensure that students acquire these skills no matter what major they chose. The research seems to show, however, that this is not the case. On tests of general critical thinking skills, students average a gain of less than one standard deviation during their entire time in college, while most of this gain comes just in the first year." Marralee Harrel, "The improvement of critical thinking skills in *What Philosophy is,* http://www.hss.cmu.edu/philosophy/harrell/Improving_Critical_Thinking_Skills. pdf, p. 15

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Table 1

Critical Thinking: The Analysis and Deconstruction of Arguments and Evidence	Design Thinking: The Construction of a Desired Future
Argument	Scenario
Exposition	Visualization
Objectivity	Empathy
Hypothesis	Prototype
Evidence	Responses
Skepticism	Commitment
Knowledge	Experience
Knowers	Users
Questions	Goals
Contradictions	Trade-offs
Prediction	Enactment
Truth	Appropriateness
Analysis	Simulation
Peers	Clients
Regularities/laws	Purposes/desires
Seminar	Studio
Instructor	Guide

Hopefully, the reader can see the resonances between these different pairs of terms. To review a few;

- With critical thinking we formulate *hypotheses* that stimulate the search for evidence. In designing objects or services we create *prototypes* that help us explore the consequences of our tentative design decisions.

- With critical thinking we test an argument by assessing if it helps us *predict* a result. In designing, we enact a plan to *achieve* a desired result.

- With critical thinking we *analyze* an argument while in design thinking we *simulate* a conception.

- Critical thinking helps us arrive at a *truth,* or at least eliminate falsehoods, while design thinking helps us discover an *appropriate* solution.

The reader may see, on the right hand side of this chart, evocations of John Dewey's progressive philosophy of education. After all, he emphasized practical

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activity, usefulness, interaction, and experience. There are such connections, though Dewey focused more on how children learn than how people design. Nonetheless, the skeptic may worry that designing as a form of learning may reproduce some of the weaknesses of progressive education. It could elevate experience over knowledge, diminish the role of expertise, and neglect theory in favor of practice. But as our example of the studio course suggests, we should revivify a liberal arts education by integrating design thinking with critical thinking, not by displacing the latter with the former.

V. Will Design Thinking Help Address the Crisis of Liberal Arts Institutions?

Vocationalism, we have suggested, is one anxiety-laden response to societal disruption. This disruption makes the future-- its study, and its creation -- a compelling task. But if we look at design in the round, we can also see that design thinking addresses potentially a wider set of challenges facing liberal arts institutions. Consider the following table.

Table 2

What Ails the Liberal Arts	What Design Thinking Offers
1. Students experience the curriculum as irrelevant.	Design thinking helps bring students into touch with emotionally compelling problems that they can address.
2. Vocationalism is displacing the liberal arts.	Design thinking gives students the experience of creating something of value for others without narrowing the student's worldview.
3. Disciplinary requirements push out general education requirements.	Design thinking favors interdisciplinary inquiry.
4. "Scienticism" displaces an education in aesthetic and morals.	Design thinking highlights what is beautiful as well as what is useful. It also links students to the needs and experiences of strangers. In this way it cultivates empathy.
5. Service learning is an extra-curricular rather than a truly co-curricular activity.	Wider community concerns and priorities establish the basis for classroom design studios.
6. The teacher, as the "sage on the stage," is losing ground.	The instructor in a design studio is both an expert, *and* a "guide on the side."
7. Students don't need classes to get access to knowledge. The web is their front door.	The design studio enacts the "flipped classroom," through which students spend class time solving problems rather than ingesting knowledge.
8. MOOCs, (massive open online courses) subvert the traditional role of the classroom and lecture and turn learning into a virtual experience.	Design is a creative activity requiring hands on experience and face-to-face interaction. Online resources can help but cannot displace the hands on experience.
9. The information explosion makes the visual	Design draws on visual thinking as one method

display of concepts, links, and data increasingly important. Text is not enough.	for concept development. Writing and visual thinking are joined at the hip.
10. Students worry that the professions they are entering will be "proletarianized," as automation and low cost producers around the world displace knowledge workers in the U.S. Why then go to college at all?	Design prepares the student to work at the "front-end" of the value chain where value is created through imagination, innovation, and spontaneous group collaboration.

In short, design is a future oriented activity. It is practical without being vocational. It rests on interdisciplinary knowledge and inquiry. It is a method of exposition and communication. It addresses what is beautiful as well as what is good. The reader can consider whether this list proves the case that design is in fact a productive response to some of the commonly felt dilemmas associated with a liberal arts education. It certainly strengthens the hypothesis and can provide a framework for further debate and discussion.

Consider finally, an essay written by an undergraduate on what he called "analytical thinking," when compared to design thinking.

> "At Liberal Arts College we're baked in this great setting of analytical thought. It's a great tool for fully and deeply understanding exactly how and why the world behaves the way it does…From my experience thus far, I've exited classes with a sense of knowing exactly what the problem is, on a very deep level, but without having any understanding of how to go about affecting the change I want to see.
>
> I think what occurs as a result is a level of disaffection of epic proportions. Students feel utterly trapped because they don't believe they can facilitate change while simultaneously understanding exactly what is going wrong. I think this, more than anything else, is one of the primary reasons students end up feeling so frustrated with the liberal arts by the end of their collegiate experience. One might say that the liberal arts education almost becomes a self-defeating process."[9]

The undergraduate is saying that a liberal arts curriculum is depressing. Why? One hypothesis is that this undergraduate has experienced the gap between the promise that "knowledge is power" and the sense of impotence induced by critical thinking. It is as if students experience a sense of efficacy by virtue of their everyday access to world-wide knowledge, but that this sense is quashed in the confines of the classroom committed to analytic thinking. If students can do nothing about this gap, it seems reasonable that some of the more sensitive among them would feel depressed.

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[9] Stuart John Urback , Design thinking and the liberal arts malaise, The Carletonian, Fall Issue 2011, No. 8.
http://apps.carleton.edu/carletonian/?story_id=790254&section_id=490469&issue_id=790248"

VI. Obstacles to Integrating Design Thinking

However, even if design thinking and learning provided a generative response to the problems facing liberal arts colleges, there are many practical obstacles to bringing it to the curriculum. Consider the following:

1. Can instructors who grew up in and thrived in the world of critical thinking become adept in design thinking? Would they even want to? Or would colleges have to hire a new cohort of design oriented faculty members? If so, would that make building a design-oriented curriculum cost prohibitive? What in fact are the economics of sustaining a requisite set of design studios? How many studio courses are sufficient?
2. If there were instructors specializing in design would they have tenure-track positions or would they be more like research track faculty in medical schools? If so, might they feel like "second class citizens?" Would this subvert the potential importance of design studios in the eyes of students and ordinary faculty members?
3. Would design instructors be in their own department or would they belong to a range of other departments in the social sciences, the humanities, and engineering? If they join other departments might this reduce the ability of traditional departments to meet all their teaching obligations?
4. How can faculty members get access to real world clients or communities who are willing to participate to some degree in design activities?
5. Time is limited. Design studio work reduces the time available for further study within particular disciplines. But design work without access to disciplinary knowledge is likely to be superficial.
6. Many research traditions, particularly in the social sciences, are linked to the core ideas of hypothesis testing and the discovery of regularities or laws that govern social and individual behavior. How can these traditions be comfortably integrated with design thinking that focuses on desires and purposes rather than laws and regularities?
7. Scholars rely on good writing to hone their thoughts and communicate their findings. Why would they be willing to develop the skills associated with visualization and visual thinking?
8. Design is a group activity, while classroom centric learning highlights the individual student's progress, achievements, and grades. How can traditional practices such as grading each student's work, be coordinated with design as a group activity?
9. Design might lead students to devalue the work of full throttle investigations. Designers can develop what appear to be appropriate solutions without fully understanding the scope and nature of a particular problem. That is why some design solutions, such as the large housing projects that isolated poor families, failed. By contrast, when a scholar researches a problem in the field, for example, how patients in a minority community relate to healthcare

practitioners, they will explore its many facets; its history, the cultural context, the economic constraints, and the conflicting beliefs of caregivers and patients.[10]

VII. What are some Next Steps: A Call to Action

The interplay of problems, their potential solutions, and obstacles to their implementation, creates an ideal setting for a design exercise. We can "design design." To explore the ideas in this paper and their implications, people can set before themselves the following problem:

> "What is a good and practical design for a liberal arts curriculum that fully integrates design thinking into the educational experience of students and faculty members?

In the spirit of a good design work itself, work on this problem could be foreshadowed with field research in engineering courses, law schools with legal clinics, centers for urban studies (for example Bennington College), problem-based learning courses and the study of the thriving "D-school" at Stanford University, There are, in other words, many "found pilots" that participants can learn from. In addition, in the spirit of good design, participants could include faculty members, students, designers, service learning professionals, and community activists.

Ideally, a foundation would sponsor such an undertaking, which could take roughly an elapsed time of six to 12 months. College presidents and/or provosts could sponsor their faculty members' participation. The president/provosts could be the "customers" for the results of this design effort and meet with participants at the end of the design cycle in a working conference. The resulting design could also be presented at various conferences and to professional associations associated with the teaching of liberal arts.

Of course, every college would be free to implement, or not, these "design of design" ideas. As our list of obstacles in the previous section suggests, bringing design thinking into the liberal arts curriculum will stimulate a political process. Stakeholders will have to wrestle with how to allocate scarce resources and time. But should there be a subset of institutions ready to take up the challenge, the foundation could then support them as collective by facilitating peer learning as well as resource sharing.

So dear reader, will you join us?

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[10] Consider the enormity of the field research effort that underlies such now classic texts as "*The Spirit Catches You and You Fall Down: An Hmong Child, Her American Doctors, and the Collision of Two Cultures,*" or *Behind the Beautiful Forevers: Life, Death, and Hope in a Mumbai Undercity.*" It is hard to imagine that studio work could ever depend on the scope and depth of these kinds of studies. The time available won't allow it. But they are exemplary representatives of what is vital about long-term research endeavors