

# Children of the Moving Present: The Ecology of Culture and the Search for Causes in Design

Richard Buchanan

However we may define the word science in some philosophical or epistemological system, it is clear that it begins with the use of previous observations for the prediction of the future. In this sense the spirit as well as the performance of science must have existed in the reasonable behavior of man, even as he was embarking on his career of creating, constructing, and developing culture.<sup>1</sup>

*Bronislaw Malinowski*

When what is coming, whatever is coming, at length arrives, we surely will describe it (what else, unless we are to self-deconstruct and retreat into attitudes, can we do?) as further chapters in continuing narratives—extensions, connections, clarifications, and reconsiderations of half-told tales, still half-told.<sup>2</sup>

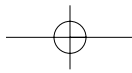
*Clifford Geertz*

## Introduction

I enjoy speculating about the future as much as anyone does. In the early drafts of this essay I succumbed to the temptation of rethinking design for the future and worked with enthusiasm to sketch a future of design that expressed my personal thoughts on the direction in which the field is moving. The central theme was human interaction. I tried to explain how we might use this concept in the future for a new perspective on the creation of products that support human experience—products that are analog and physical as well as digital and virtual. I like to think that the sketch was reasonable and contained some credible ideas about how design could unfold in the future. However, the more I reflected on the problem of speculating about the future, the less satisfied I became. So, I decided to put those pages away for another occasion and write a different kind of essay. What led me to this was a growing recognition that the real subject of such discussion is not the future at all, but the present. No matter how carefully and honestly crafted, our visions of the future are veiled statements about what we believe is important today. Discussion about the future is really discussion about current policy, and our stories about the future are intended to shape current attitudes and influence actions that we want to see taken now. They are part of the drama of the moving present.

1 Bronislaw Malinowski, *A Scientific Theory of Culture and Other Essays* (Chapel Hill: University of North Carolina Press, 1965), 8.

2 Clifford Geertz, *After the Fact: Two Countries, Four Decades, One Anthropologist* (Cambridge: Harvard University Press, 1996), 166.



### Rethinking Design for the Present

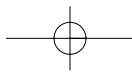
Stories about the future are useful for developing the field of design, since so much of design thinking is directed toward what is new and possible in products that serve human beings. However, such stories easily become a seductive exercise in propaganda or apologetics when they promote a new personal vision that we hope will be shared by others or defend an old vision that we do not want to see abandoned. The storyteller always has a subtle political or intellectual perspective, and the emotional trappings of the story, manifested around the vague but fascinating spectacle of the future, usually leave both the writer and the reader with too little room for detached reflection and true deliberation. They leave us, if anything, less able to think about the future—let alone the past or present—with an open mind.

Fascination with the future is one reason that the field of design often appears to lurch from one fad to another, with too little cumulative memory and knowledge to show for it. This explains why design education, caught in the middle between the need to stay abreast of trends and fashions and the responsibility to contribute to a developing body of design knowledge that informs design practice yet is detached from immediate political and economic interests, struggles to find a proper balance between professional preparation and research. It is no wonder that the Greek philosophers regarded futurology as divination and augury, suitable for soothsayers, fortunetellers, and prophets. Speculating about the future is at once too easy and too difficult for an ordinary, sensible person.<sup>3</sup> It is too easy because anyone may claim authority regarding the shape of things to come and ride off on a hobbyhorse of conjecture, presenting claims about the future as if they were facts waiting to hatch. It is too difficult because no one can honestly claim to understand all of the factors that shape the present, let alone anticipate the problems that will emerge in a month, a year, or ten years to refocus human energy and action.

Instead of adding another story to fill the sails of design, I would like to take this opportunity to consider the boat and particularly its keel and rudder. I would like to rethink design for the present, with special attention on what I have come to call the ecology of culture.<sup>4</sup> By this term I mean more than either “ecology” or “culture” considered separately. We are familiar with the concept of ecology: the relationships between living organisms and their natural environment. We are equally familiar with the commonplace understanding of the concept of culture: the ideas, beliefs, customs, skills, arts, and sciences of a given people in a given historical period. But we are less inclined or intellectually prepared to take seriously the diversity and interrelationships of the beliefs with which we live in the objective present. We tend to dismiss the way human beings have formed their beliefs in response to the natural and human environment. One sign of this is the tendency to rele-

3 Faith Popcorn and Lys Marigold, *Clicking: 16 Trends to Future Fit Your Life, Your Work, and Your Business* (New York: HarperCollins, 1996).

4 Richard Buchanan, “The Ecology of Culture: Pluralism and Circumstantial Metaphysics,” in *Pluralism in Theory and Practice: Richard McKeon and American Philosophy*, ed. by E. Garver and R. Buchanan (Nashville: Vanderbilt University Press, 2000), 135–62.



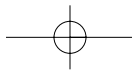
gate the study of such matters to a branch of science such as psychology or anthropology, where the formation of diverse beliefs is reduced to subconscious mechanisms and explained away from its philosophical significance. Instead of regarding the ecology of culture as the essential reality of our social lives—the place where collective life processes allow our individual thoughts, actions, and passions to mingle with those of others—we often see differences of belief as a sign of error in others.

It is true that human beings are prone to error—sometimes massive and tragic error—but the differences of belief that we observe around us cannot be explained entirely as errors. There is substance in the differences among reasonable men and women, and this is a problem for inquiry that requires serious attention if we aspire to something more than a partisan vision of design. Remark- ing on Dewey’s willingness to consider new and different ideas, Whitehead expresses an attitude that may serve the design commu- nity particularly well at a moment of intellectual expansion and educational consolidation.

Dewey has never been appalled by the novelty of an idea. But it is characteristic of all established schools of thought to throw themselves into self-defensive attitudes. Refutation has its legitimate place in philosophic discus- sions: it should never form the final chapter. Human beliefs constitute the evidence as to human experience of the nature of things. Every belief is to be approached with respectful inquiry. The final chapter of philosophy consists in the search for the unexpressed presuppositions which underlie the beliefs of every finite human intellect. In this way philosophy makes its slow advance by the introduc- tion of new ideas, widening vision and adjusting clashes.<sup>5</sup>

Whitehead’s observation has many implications for the future of a field such as design. Culture is a pluralistic environment of commu- nication and experience. It is an environment of surpassing com- plexity and potential conflict, where people express alternative beliefs about the world at large, seeking to order the world in verbal and non-verbal language, in things studied and made, in ideas considered and expressed, and in actions taken or avoided. These expressions result in all of the human-made products of science, politics, and art that surround and influence our lives, significantly shaping and reshaping relationships among human beings. To understand this environment requires more from us than mere tolerance, which in its simple form is little more than benign neglect of the views of others. It requires sophisticated reflection and a desire to learn from the explorations and discoveries of others. Despite the various meanings and criteria of “objectivity” which are asserted and defended by human beings in order to defend them-

5 Alfred North Whitehead, “John Dewey and His Influence,” *The Philosophy of John Dewey*, ed. P.A. Schilpp *The Library of Living Philosophers*, Vol. I (Evanston, Northwestern University, 1939), 487.



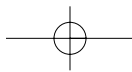
selves and criticize the views of their opponents, diversity itself is one of the most persistent, objective facts of cultural life.

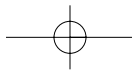
While an individual's personal beliefs often make it difficult to accept the ecology of culture as a significant fact, the difficulty is magnified in the collective enterprise of a discipline. This is particularly true in a young discipline that is based on professional practice and subject to the limitations of what is practically attainable in the day-to-day struggle for existence amid complex problems and competing colleagues. In such a discipline, philosophic assumptions operate powerfully but are seldom articulated clearly or in productive relationship with alternative assumptions—in effect, ignoring the ecology of culture of which they are only a part. When philosophy is consciously discovered in a young discipline it is often merely another weapon in a battle for the dominance of a partisan view rather than a productive tool for collective inquiry. The idea that philosophy is or can be detached from political struggle is both a naive view held by a beginner and a very sophisticated view held by someone who is well experienced in the history of intellectual disputes in many fields and disciplines. Philosophy is both involved in and detached from politics, as we gradually learn through painful experience.

Nevertheless, philosophic assumptions, held consciously or unconsciously, shape design practice in ways that professional designers rarely have time to consider. Furthermore, such assumptions shape our understanding of the nature of history, criticism, and theory in design studies and determine our understanding of the relationships among them. For this reason, it is important to reflect upon our individual and collective assumptions about design before moving on to speculate about the future. We are likely to find that whatever is coming, when it finally arrives, will continue the pluralism of half-told tales with which we live today, moderated only partly by the tempering influence that comes from new scientific understanding.

### **Strategic Planning and Scenario Building**

To talk about design for the future is to talk about strategic planning for a field that is now only partly formed and in need of long-term vision. However, the enterprise is complicated by two sharply contrasting approaches that have shaped the practices of strategic planning in the twentieth century. These approaches compete in our efforts to consider the future of design. One is represented in the scientific perspective of Bronislaw Malinowski. It involves using previous observations of social, economic, scientific, and technological trends to predict the new circumstances that we will face in the future. The other is represented in the narrative perspective of Clifford Geertz. It involves telling stories that continue the pluralism of half-told tales with which we live today, playing out the





dramatic conflict of beliefs among designers, manufacturers, and the human beings that design seeks to serve.

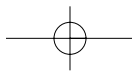
Both approaches are grounded in the reality of human culture and represent important ways that human beings think about the world. Their shared humanism explains why they have converged in the work of scenario building, which seeks to give dramatic life to strategic plans by extending previous observations into predictions about the future. We should remember, however, that scenario building is not a new genre of storytelling that was recently invented by clever contemporaries. It is an ancient rhetorical form, employed for its vivid simplicity in bringing ideas, desires, and fears into the discussion of human affairs in order to clarify and support possible courses of action. The first masters of scenario building in Western culture—if we leave aside the prophetic tradition of the Old Testament—were the rhetoricians of Greece and Rome. They identified three species of scenario building and provided the forms and models that continue to guide contemporary practice in subtle ways. First, we talk about *what has happened*, using the literary form of history to describe and explain actual events. Second, we talk about *what could have happened*, using the literary form of drama to portray conflict, express character, and demonstrate the probabilities and necessities that shape human action. Third, we talk about *what could never happen*, using the literary form of fantasy to probe ideas and ideals as well as loves, desires, fears, hatreds, and perversions in impossible settings that nonetheless give insight into human reality.

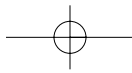
All of these forms are present in the contemporary industry of futurology that floods popular culture and political discourse. They are the stock-in-trade of the enterprise of strategic planning that seeks to influence the course of public and private organizations. Indeed, contemporary strategic planning tends to incorporate all three forms in a single whole. The planner begins with a history of his or her subject, moves to the identification of a dramatic issue of conflict and uncertainty, and concludes with alternative pathways of action, tracing out the possible consequences in fantasies of the future.<sup>6</sup> However, what is often missing in strategic planning—and what often brings strategic planning and futurology to no useful result—is a clear understanding of the complexity of beliefs in the present and the role of the present in shaping future courses of action. What is missing is a significant vision of the present and how that vision extends into the future.<sup>7</sup>

Ironically, the concept of history gives insight into the role of the present as it may bear on our speculations about the future. This is evident in the ambiguity of the word “history,” which in English and many other languages refers both to *what happened* in the past and to our *accounts* of what happened. Whatever is known and understood about the past comes from our accounts of what happened. A serious historical account—something more than a

6 Peter Schwartz, *The Art of the Long View: Planning for the Future in an Uncertain World* (New York: Doubleday, 1991). “Suspension of disbelief” is as close as Schwartz comes to calling his scenarios of the future fantasies.

7 See Henry Mintzberg, *The Rise and Fall of Strategic Planning: Reconceiving Roles for Planning, Plans, and Planners* (New York: The Free Press, 1994), 209–10. Mintzberg regards “vision” as a kind of strategy formation, but he shrewdly distinguishes “vision” and “learning”—as elements or approaches to strategy formation—from formal planning. “[A]n overemphasis on planning—in fact, a belief that strategies can be created through formal procedures—tends to drive out the other two [vision and learning]. And with the disappearance of the visionary approach goes vision itself, as broad, integrated strategic perspectives get reduced to narrow, decomposed strategic positions.”





bare chronicle of events—requires four elements. It requires the discovery and selection of data, the interpretation of facts in accord with some hypothesis, the fashioning of a narrative sequence with methodological integrity, and a principle of organization that relates the facts in a pattern of significance. In short, a serious historical account requires both data and a conceptual framework. The conceptual framework is anchored in the moving present, formed in the changing circumstances of a cultural environment that is filled with conflicting visions and assumptions.

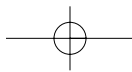
Writing about the place of history in education, John Dewey observes the powerful influence of the present on our efforts to understand the past.

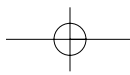
But an individual can live only in the present. The present is not just something which comes after the past; much less something produced by it. It is what life is in leaving the past behind it. The study of past *products* will not help us understand the present, because the present is not due to the products, but to the life of which they were the products. A knowledge of the past and its heritage is of great significance when it enters into the present, but not otherwise. And the mistake of making the records and remains of the past the main material of education is that it cuts the vital connection of present and past, and tends to make the past a rival of the present and the present a more or less futile imitation of the past.<sup>8</sup>

Dewey's view of history provoked a strong response and criticism from some historians at the time it was published, and the debate over subjective and objective histories continues to the present.<sup>9</sup> On one side, many historians argue that their accounts are objective and influenced only in minor ways by present concerns. On the other side, many historians argue that their histories are simply narratives that properly support a particular intellectual or political agenda. However, Dewey's view does not support either side of this debate, and it would be a mistake to suggest that he would be entirely satisfied with either the old objective or the new subjective histories. Dewey reminds us of the subtler meaning of "present concerns," and this is the value of his position for contemporary approaches to history. While it is true that many historians seek a knowledge of the past that is valuable for its own sake—detached from immediate political or intellectual prejudices—it is also true that our knowledge of the past is shaped by the same philosophical issues and assumptions as claims of knowledge in any other field. All histories have a philosophical foundation in the beliefs of the historian, including the historian who denies the relevance of philosophy to his or her work, for this denial itself represents a recognizable philosophical position. To be either objective or subjective in historical accounts does not eliminate the need for careful examination of the

8 John Dewey, *Democracy and Education* (New York: The Free Press, 1966), 75. For the most complete discussion of his views on the nature of history, see John Dewey, *Logic: The Theory of Inquiry* (New York: Holt, 1938), 230–244.

9 For the immediate response to Dewey, see Hans Meyerhoff, *The Philosophy of History in Our Time* (New York: Anchor, 1959), 161ff. This book includes a sharp response from Arthur O. Lovejoy, "Present Standpoints and Past History," as well as other essays. Most recently, Simon Schama, apparently missing the point of Dewey's argument, seems to regard Dewey as the source of catastrophe in the public school curriculum of the United States, where a "social studies curriculum" has—in Schama's view—eliminated instruction in history. See Simon Schama, "Visualizing History," *Harper's Magazine*, February 2000, 34–38. In a superficial style, Schama writes, "Although we instinctively flinch at the indignity inflicted on the old girl, Clio needs a kick-start to get her up and running again in the noisy, unseemly world of digital knowledge." (*Harper's*, 38.)



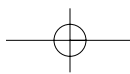


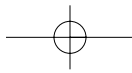
historian's assumptions. This should make us cautious and thoughtful in assessing the present as an environment for interpreting the past—and even more cautious in speculating about the future. The conceptual frameworks that influence historical accounts also influence speculation about the future. In this respect, history and futurology share a subtle affinity. They are both children of the moving present.

Speculation about the future is firmly rooted in the present, shaped by the problems, values, and beliefs that have current favor in the mind of an individual or in the fashions of society. And, like history, speculation about the future can create rivals to the present that distract and weaken our understanding and appreciation of the dynamics of the culture in which we live. It can homogenize the present, turning it into a pale anticipation of an imagined future, whether utopian, apocalyptic, or something in the middle. The present becomes a mere cipher or token in the game of contemporary politics, where competing values and principles too often struggle for dominance rather than collective insight. To suggest otherwise is to work in ignorance or to work surreptitiously toward an ideological agenda that serves partisan intellectual or political purposes. Yet, speculation about the future can also strengthen the moving present if, following Dewey's suggestion about history, it enters the present and sustains a vital connection between the present and the future. That connection lies in meaning and in the search for meaningful direction in our lives.

The search for meaningful direction in the moving present is an important factor in the rise of history, criticism, and theory in all fields of inquiry, including design. We search in the past, present, or future for suggestions about the *direction* in which we are moving. The temporal focus is important for distinguishing the three modes of inquiry that constitute design studies: history is the investigation and interpretation of what has been; criticism is the assessment and appreciation of what is; and theory is research into and speculation about the assumptions and possibilities that bear on what might be. Of course, the relationship among these three modes of inquiry is ambiguous and problematic. This is evident in the tension that we sometimes find among design history, design theory, and empirical research as well as in the tension we sometimes find between all three of these kinds of inquiry and professional design practice. But ongoing dispute about their relationship does nothing to refute our understanding that history, criticism, and theory are intimately connected in seeking the direction of the field. They draw on and support each other in the accomplishment of their separate tasks.

However, merely seeking direction in the moving present is not enough to sustain inquiry. We seek *meaningful* direction, and meaning comes from a different source than history, criticism, and theory. It comes from what we might call the omnipresent, which is where we stand as we contemplate the changes that take place



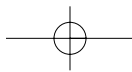


around us. Meaning depends on what we are, what we hold to be true and valuable, and what we face as challenges. Of course, there are many ways to characterize what is meaningful in our lives—whether meaning comes from within, from without, or from interactions with our surroundings. But whatever its origin, meaning is found in its most refined, articulate, and intelligible form in the philosophical assumptions that stand behind and ground our beliefs. It is found in our assumptions about the nature of the world, whether those assumptions are held by professional philosophers or by that much larger group of thoughtful individuals who seek to relate their personal experiences to contexts larger than the immediate consequences of their actions. If we want to understand design in the past, present, or future, it is valuable to begin with a study of the ecology of culture. Indeed, our ability to reconstruct design in the future may depend for its creativity on an understanding of the fertile matrix of contrasting ideas and experiences that constitute the ecology of culture in the moving present.

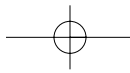
#### **Laboratories of the Mind**

Despite the diversity of design in the twentieth century, there is an intelligible pattern in our different ways of thinking about design. The pattern is based on generative principles that recur in the design community and do not disappear over time, despite changes of language and focus that are sometimes gradual and continuous, sometimes revolutionary and discontinuous. In other circumstances we may study the concrete expression of these generative principles in the specific work of designers and scholars of design. But our goal is a philosophical investigation of design, so we will focus on the recurring principles themselves, to the extent that they may be disentangled from particular expression. The value of this should become evident. By investigating the generative principles of design thinking and design discourse, we may hope to reach a better understanding of the fundamental causes that have shaped design in the past and present and that will continue to shape it in the future.

The problem of cause is important in design studies. It looms as the unspoken touchstone of research and speculation about the nature of design. Some designers and scholars of design believe that design must be explained by a single cause that operates directly or through multiple pathways of indirect influence. This is evident in the diversity of descriptive definitions of design that tend to identify a single cause of design and, each in its own way, set the direction for inquiry. The idea that there is a single cause of design is intriguing, and it deserves careful consideration. However, the ecology of design culture, with its diversity of assumptions, suggests either that the single cause has yet to be clearly and convincingly identified or that there are several causes operating independently or existing in subtle concert. This is one issue that our present inquiry may help to illuminate.







There is a second issue that is equally significant for a philosophical understanding of design. The ongoing exploration of design in theory and practice reveals changing conceptions of the subject matter, methods, and principles of design. We may ignore these changing conceptions only at the peril of misunderstanding design as a cultural phenomenon and as a part of the ongoing process of cultural life as it adapts to new circumstances. Perhaps different conceptions of the *what*, *how* and *why* of design do not trouble some people. The practicing designer, for example, seldom has enough time to reflect on such a problem and the ambiguities and difficulties that follow for design practice. But in design theory and research, as well as in design history and criticism, such differences are not so easily neglected, since they identify points of controversy and dispute that have significant consequences in theory and practice. By identifying the generative principles that recur in design discourse—and in design thinking and design practice in general—we may begin to explain how different conceptions of subject matter, method, and principle arise. We may even find a way for collective inquiry to make productive use of such differences to advance the understanding of design. This is the recurring hope of anyone who recognizes the radical (i.e. principled) pluralism that is inherent in the ecology of culture.

The generative principles of design thinking are not doctrines in themselves. They are not categories in a systematic logic of design. Rather, they are master topics or placements—places of reflection where immediate impressions and the elements of nascent experience may be temporarily located for exploration, speculation, and innovative insight.<sup>10</sup> They are the laboratories of the mind where the work of forming conceptions and doctrines takes place. The nature of such “places” is fascinating and difficult to understand, yet they are intellectual tools with a long formal tradition in Western culture and a long informal tradition in Eastern cultures. Philosophers who have explored such places say that they are, in a sense, empty vessels—as they must be if they are to be the source of new ideas rather than simply a repetition of old ideas. Yet, these philosophers also say that the places have persistent contours of suggestive meaning—as they must if they are to guide creative thought.<sup>11</sup> This is a paradox, and the mere paradox signals how important “places” are for innovation in design or any other field. What the paradox further suggests is that we are always reduced to description when we attempt to characterize the generative principles. Their real power lies in use. The power lies in what we can do with them in inquiry. Nonetheless, it is important to characterize the generative principles—“places” or *topics*—as tools of inquiry in design, for out of the topics that we employ in the laboratories of the mind come the specific *hypotheses*, *themes*, and *theses* that form the backbone of design thinking.

10 Richard Buchanan, “Wicked Problems in Design Thinking,” in *The Idea of Design*, ed. by Victor Margolin and Richard Buchanan (Cambridge: MIT Press, 1995), 3–20.

11 E. g., Chaim Perelman and L. Olbrechts-Tyteca, *The New Rhetoric: A Treatise on Argumentation* (Notre Dame: University of Notre Dame Press, 1969), 83–5. Richard McKeon, “Creativity and the Commonplace,” *Philosophy and Rhetoric*, 6:199–210. Kenneth Burke, *A Grammar of Motives* (New York: Meridian, 1962), xxi. Ernesto Grassi, *Rhetoric as Philosophy: The Humanist Tradition* (University Park: Pennsylvania State University Press, 1980), 43–6.

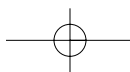
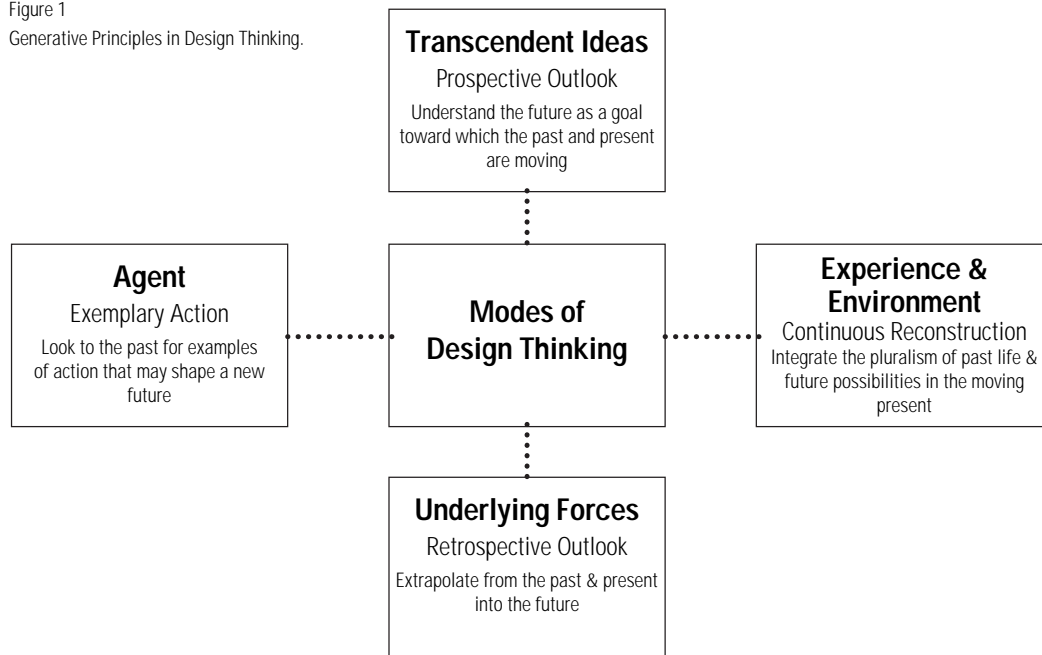


Figure 1  
Generative Principles in Design Thinking.

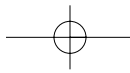


### Generative Principles in the Ecology of Design Culture

The generative principles of design thinking for a hundred years have emphasized *experience and expression* as the fundamental concern. There is no reason to believe that this deep concern will change in the near future, though it is wise to remember that such concerns do change over time. For example, the generative principles of the nineteenth century emphasized faculties of the mind such as *reason and imagination*, and those of the seventeenth and eighteenth centuries emphasized metaphysical distinctions between *art and nature*. Earlier concerns have left subtle vestiges in our language for talking about design, but design as we know it today has developed around issues of experience and expression, and the generative principles we employ reflect this. They focus attention either on the *processes* or the *conditions* of designing as an expressive and experienced human activity. The generative principles or places of design thinking may be summarized in a diagram that indicates how each principle orients the relationship of past, present, and future.

#### A. Phenomenal Processes

The phenomenal processes of design are, as the name suggests, the “perceived and experienced” activities that have consequences for the environment in which human beings live in the present. The fundamental assumption shared by those who emphasize the phenomenal processes of designing is that design is best understood by our experience of it, not by recourse to conditions that we do not



directly experience. However, such understanding may be sought in two opposing directions that account for two significant bodies of work in the design community. It may be sought either in the *experience and environment* of action or in the *agent* who performs an action.

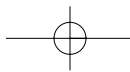
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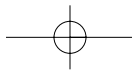
The first generative principle comes from the experience and environment of action. It offers a way of thinking about design that focuses on the problems that human beings encounter in their environment. We interact unconsciously with our surroundings until we encounter a difficulty that cannot be easily removed. The difficulty forces us to think, and in the process of thinking we form hypotheses about our circumstances. A hypothesis is nothing more than a conception of the circumstances and environment within which we live and work. The hypothesis provides a basis for action, and in the process of action we begin to form conscious experience of where we have been, where we are, and where we are going.

Of course, it is easy to distort the balance of experience and environment that is the core of this generative principle. For example, we may give greater emphasis to experience and, thereby, focus attention on the personal perspective of the designer. Similarly, we may give greater emphasis to the environment and, thereby, focus attention on the surrounding natural or spiritual conditions that some people believe are decisive in explaining the nature of design and human experience. However, this is precisely where the generative principle of experience and environment becomes most evident. It seeks to identify and integrate multiple causes of design rather than reducing design to a single cause.

In this way of thinking, design is shaped by many factors, any one of which may be isolated to become the basis of a hypothesis. For example, when material conditions are given primacy, natural forces and processes logically provide the mechanism for interpreting the world. When forms are given primacy and detached from their concrete existence in experience, transcendent universals logically provide the guide for explaining phenomena. Or, finally, when agency is given primacy, the personal vision of the designer is the logical key to meaning. But the *interrelation* of factors is the essential reality of the environment, and the interrelation is a matrix of *agency, form, matter, and purpose*. Therefore, alternative hypotheses and conceptions, drawn together by common problems in the environment, continually supplement each other in the collective effort of human beings to understand and act in the world.

This is how a discipline such as design is formed: by the collective effort of many people working over a period of time to solve common problems in alternative ways. The effort gradually reveals the essential nature of the discipline and its relation to the natural and cultural environment. The cultural environment is





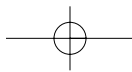
constantly changing, but not because it is a meaningless flux. It changes because our understanding changes and because we act on our evolving conceptions of the nature of the circumstances in which we live. Design is a problem-finding and problem-solving activity, based on different conceptions of our circumstances. The products of design become part of our cultural environment, with consequences for how we lead our lives.

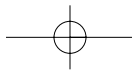
This circumstantial, environmental principle is neither retrospective nor prospective with regard to how we think about the future. Planning for the future is best understood, in Dewey's phrase, as the *continuous reconstruction of experience*. It is based on the intellectual and moral character of human beings and on the problems that they encounter and resolve, with each resolution giving rise, in turn, to new problems that require further attention. Anchored in the present, the study of design begins with the common problems that human beings encounter in their environment. The goal is to understand the nature of the problems that people face and how they have subsequently tried to solve those problems in ways that are suited to their particular natural, cultural, and historical circumstances. For this purpose, the investigator pays special attention to the hypotheses that people have formed to address those problems.

The study of design has an important historical component when history contributes to understanding the problems we face in the present. Each problem or area of problems—scientific, artistic, political or social—has its own history, and the histories are often interconnected. What we learn from history is used to further explore the problems of the present, often leading to new hypotheses or conceptions that may be further tested in action. Indeed, what we learn from history may also be used to rethink old disciplines or to formulate new disciplines—for example, new disciplines such as design and design studies—that are better suited to the problems human beings face today or that they anticipate for the future. This is the continuous reconstruction of experience, guided neither by the past nor by the future but by the alternatives that we conceive in the circumstances of the present. Just as the histories of various problems are often interconnected, disciplines are also interconnected and interdependent. The development of design today and in the future will be both the ongoing formation of a distinct discipline and a deeper exploration of the relationships among that discipline and others in the natural sciences, the social sciences, and the arts and humanities.

## 2

The second generative principle comes from the agent who performs an action. Design is shaped by the actions that human beings take in creating and projecting meaning into the world. Our first action in life is the effort to perceive the world around us. At first, we have only confused perceptions of psychic and physical

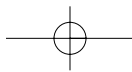


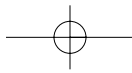


phenomena, but as we find differences among our perceptions, we begin to interpret and give meaning to ourselves and to the external phenomena that we experience. However, meaning does not lie in the phenomena that we interpret. It lies in our act of interpretation, shaped by the perspective or frame of reference from which we perceive the world. This approach is often associated with the work of individual artists who regard creation as a matter of self expression or a search for personal meaning that may be shared through communication. However, the projection of meaning into the flux of existence is no more than the creation of models that may be tested, refined, or overturned in an ongoing effort to make sense of existence, satisfying our felt needs and desires. From this perspective, a simplistic distinction between art and science is not adequate. The models that constitute science are some of the most powerful and influential efforts to make sense of phenomena.

The extension of artistic and scientific models in technology has reshaped and influenced social life in revolutionary ways. If our interpretation of perceptions happens to match the course of phenomena, all we can say is that we have created a powerful experience, formed a useful model, or invented a law, not that we have discovered the ultimate conditions of nature and reality. Our interpretations are only models, created by individuals and projected for others to follow or overturn. Indeed, they are designed. And design—the creation and projection of meaning, whether in science, art, or politics—is the distinguishing attribute of human beings. To paraphrase Herbert Simon, the proper study of mankind is the study of design, whether as an emergent science of predictive modeling or as a body of practices and skills for creating the artificial world. The move from professional design practice—the skillful work of graphic and industrial designers as well as engineers—to a design science is, in this way of thinking, measured by our ability to create models of creativity. The science of design, if it ever emerges with analytical rigor and teachable doctrine, will be a science of the artificial or human-made. It will not be a natural science or reducible to the natural sciences—though it will doubtless make use of those sciences.

This existential, operational approach is *exemplary* in its key features. It looks to successful examples of design practice in the past or present for models that may guide future ventures in designing. Examples may be found among individual designers or among organizations and institutions that are bent to the will of individuals. History is an account of alternative *visions* of design in society and the formation of *skills* used by the designer to project a vision and, at the same time, satisfy human needs and desires. It finds a succession of worlds created by individuals who possess imagination and initiative. The path to the future lies in planning the extension of a vision into new circumstances in order to achieve desired ends. However, there is a randomness in the play of external phen-





omena which easily overturns the intentions of all people, making prediction—better known in the contemporary world as strategic planning—one of the most seductive and least reliable skills that the designer or any other entrepreneurial leader may possess.

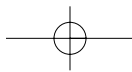
The study of design begins with what people say and do about design, rather than with problems that are encountered in the essential matrix of the environment. The goal is to understand what people perceive, what are their individual perspectives or frames of reference, and what are the meanings that follow from their different points of view. Both literally and metaphorically, vision is the key feature of design. Literally, it represents the most vital of our senses. Metaphorically, it is the perspective or frame of reference from which we project meaning. However, if our perception of psychic or physical phenomena changes, our metaphoric vision, too, may change, along with what we say and do about design. This accounts for the continual change that we see in design throughout history. Changes in all of the arts and sciences, as well as in social life, affect the perceptions of the designer and lead to new perspectives, new ways of designing, new intentions, and new products.

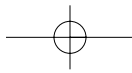
While sharply contrasting, the two phenomenal approaches to designing share a common interest in the experience of design in immediate circumstances. Since all that one can be sure of in life comes from what one experiences, both approaches view speculation about timeless ontic conditions with reserve and skepticism, well aware that theories always undergo change in the human community, based on new perceptions, new experiences, and new facts. However, those who investigate the phenomenal processes of designing do not discount the contributions that the ontic ways of thinking have made to design in the past or present, since speculation informs design practice in concrete ways. Indeed, philosophy, in one of its forms, is the *theory of deliberately conducted practice*. Such a concept of philosophy is central to Dewey, who argues: “Philosophy [is] a form of thinking, which, like all thinking, finds its origin in what is uncertain in the subject matter of experience, which aims to locate the nature of the perplexity and to frame hypotheses for its clearing up to be tested in action.”<sup>12</sup> Such thinking does not replace the intuitive and creative work of designers, but it does promise to inform design practice with clearer reasons for current practice as well as new concepts and new possibilities for future practice. Philosophical investigation of the different conceptions of design and designing may affect design practice as well as our understanding of the ecology of design culture.

### **B. Ontic Conditions**

The ontic conditions of design are, as the name suggests, the “real and ultimate” conditions that determine the nature of design in human experience, whether in the past, present, or future. However, those who reflect on design seek such conditions in two opposing

<sup>12</sup> John Dewey, *Democracy and Education*, 331.



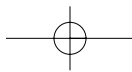


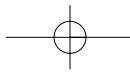
directions. They are sought either in *material reality and underlying natural forces* or in *transcendent ideas and spiritual or cultural ideals*. Both are well represented among designers in the twentieth century.

### 3

The third generative principle comes from underlying natural forces and material reality. Design is shaped by the necessities and contingencies that are inherent in the movements of nature and psychological and social life, including the contingencies of taste and preferences for aesthetic pleasure. Design depends on the accumulation of knowledge in the physical, psychological, and social sciences, but it also depends on emotive aspects of life which are not easily reduced to scientific knowledge. In this way of thinking, some argue that design is or can become a science, if we discover the fundamental natural processes or movements that underlie the practice of design and the trajectory of products in social and cultural life. The paradigm of design is engineering, since engineering is closest to the natural conditions that are the “real and ultimate” conditions of human life. But engineers, possessing only limited knowledge of nature due to the slow advance of the physical and biological sciences, must also work with other types of designers who have better appreciation for, if not complete scientific understanding of, the emotional and aesthetic needs of human beings. The rise of “human engineering” and cognitive psychology were important events in the development of design, since they promised to reveal the natural laws and natural movements underlying the workings of the human mind and body. The efforts are still underway, with some important results. However, there is still much that is not known about the contingencies of human experience, aspects that may forever remain irrational and unpredictable. The search continues for rules and laws in branches of the social sciences and even the humanities, in areas such as semiotics and the visual arts, where design may discover a firmer foundation for its creative work in meeting the needs of human beings.

This natural, empirical approach is retrospective in its essential features. It looks to the conditions that have shaped the past and seeks to project the trends of fundamental forces and movements into the future—recognizing, of course, that the future is not determined by a simple calculus of forces, since there are many contingencies and accidental influences that no one can predict. In general, we may say that this way of thinking seeks to accommodate the future to the forces that have shaped the past. In turn, it also recognizes that human history is a record of the slow development of our understanding of those forces. Therefore, any consideration of the future of design must include discussion of the possible advances of scientific knowledge as well as advances in technology and the trends of social and cultural life. In the best of circumstances, design





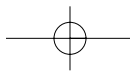
builds on the past in an advance of scientific knowledge and social expression.

#### 4

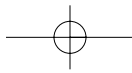
The fourth generative principle comes from transcendent ideas and spiritual or cultural ideals. Design is shaped by ideas and ideals that transcend the necessities and contingencies of physical or material nature and the limitations of individual, personal experience. Indeed, many scientists regard their investigation of material nature as an attempt to discover deeper truths about the rational structure of the universe that are only partly revealed in scientific knowledge of the regularities and necessities of physical or natural movements. They believe in a divinity, or at least in a pervasive and interconnected rationality, as the “real and ultimate” condition of human experience. In this way of thinking, the effort to discover a scientific or quantitative basis of design is not misguided, but it provides only a partial understanding of the nature of design, since it ignores ethical considerations or reduces ethics to quaint manners and mores studied in one of the social sciences. In this idealist way of thinking—reminiscent of Platonism in the ancient world and associated with Jewish and Christian beliefs in the traditions of Western culture and with Buddhist thinking in the traditions of Eastern culture—design seeks to satisfy the immediate needs of human beings in a world driven by conflict and pragmatic interests, but it also seeks to elevate human beings to a higher ethical and aesthetic vision. This vision is sometimes religious and theological, sometimes philosophical, and sometimes cultural, but it is always oriented toward an ideal of beauty, truth, or justice that transcends and permeates the world of human experience, giving structure to meaning and values.<sup>13</sup> Design is a spiritual and visionary art that seeks to penetrate the confusion of daily life and express fundamental values or truths about the place of human beings in the spiritual order of the universe. Products must be more than functional, usable, or pleasurable. They must be appropriate in supporting the spiritual life of individuals and groups within the rational and ethical structure of the universe.

This idealist way of thinking is *prospective* in its essential features. If the former approach focuses on material conditions as a beginning, this approach focuses on ideal conditions as an end. It uses the cultural products of the past as inspiration for a continuing quest toward an ideal goal, which is often best revealed through art, philosophy, and religion. Design participates in the spirit of its time and helps to create the myths that characterize a period of history, but it looks beyond, always moving in its best expressions toward a timeless goal. In Plato’s phrase, time is the moving image of eternity, and it is eternity that we seek in timeless principles and values. Advances in science are important, but they are not the fundamental determinate of the shape of design in the future nor of our un-

13 For an example of this approach to design, see George Nelson, “Design as Communication,” in *Problems of Design* (New York: Whitney, 1966).







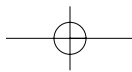
derstanding of the timeless. For this, we must look beyond science to a deeper wisdom about what it means to be human in spirit and in aspiration. The arguments of science are supplemented by myths, whose structures and themes express truths and values in all periods of human activity, whether in the past, present, or future. Design participates in the unfolding of myths, and myths often tell true stories about the ascent or descent of human beings—or their cyclical rise and fall—in the natural and spiritual order of the universe.

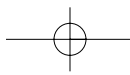
While sharply contrasting, the two ontic ways of thinking about design share an interest in understanding the conditions upon which design depends for its work and accomplishments. It is not surprising that they place design in a larger context than the immediate environment of professional practice, turning toward science or toward art, philosophy, and religion for understanding. Furthermore, since the conditions of design lie, in a sense, outside of time in the unchanging laws of nature or in timeless truths, both ways of thinking view the moving present with reserve and detachment, well aware of its limitations in the broad scheme of things.

#### **Strategies of Design Thinking and the Search for Causes**

The generative principles that we have identified are seldom found in pure expression in the work of scholars or designers. Most often they are combined in what Kenneth Burke would call “ratios” and “stratagems” of inquiry.<sup>14</sup> For example, one may explore the relationship (ratio) of *agent and cultural ideals* in order to investigate how personal values are expressions of collective cultural values. Or, one may explore the ratio of *agent to underlying forces and processes* in order to investigate cognitive processes of decision making in design practice. Indeed, there is no limit to the strategies of design thinking that come from the changing ratios of the generative principles, and it would be a project in itself to demonstrate the diversity of ideas and methods that emerge in design thinking from such strategies of combination and synthesis. For the present, I merely want to suggest that the search for causes in design takes place today, and will take place in the future, in the locations marked off by the four generative principles that we have discussed. Some will find the cause of design in the action of the individual designer. Others will find the cause in underlying natural and social forces or in transcendent ideas and cultural ideals. And there will be others who resist the reduction of design to a single cause and look, instead, to the pluralism of the ecology of culture, seeking the integration of multiple causes that are revealed in our interactions with each other and with our environment. The challenge for design thinking is to achieve a vision of design that embraces the complexity of causation in theory, practice, and education. To meet this challenge we will have to follow Whitehead’s suggestion, widening the vision of design by investigating more carefully the presuppositions that underlie our beliefs. We are all children of the moving present.

14 Burke, *Grammar*, xvii.





### **Conclusion**

Those who study and practice in the field of design recognize that the activity of designing is an important part of human culture and that its full potential in theory and practice has not been fully realized. Yet, there is no clear intellectual strategy for understanding the complexity and diversity of design in the present. The design community is divided into many schools of theory and practice, and thoughtful members of the design community are struggling to find the common core of our enterprise. Rethinking design for the future will simply perpetuate our confusion about design today unless we rethink design for the present. Rethinking design should be an inquiry into the nature of design as we understand it today, and a reflection on what may follow from its continued exploration in many directions. This is a task that requires the support of philosophy as we pursue the continuous reconstruction of design in theory as well as in practice and education.

