
Design Thinking and How It Will Change Management Education: An Interview and Discussion

DAVID DUNNE
ROGER MARTIN

Joseph L. Rotman School of Management

Roger Martin, dean of the Rotman School of Management, University of Toronto, is interviewed on the subject of “design thinking”—approaching managerial problems as designers approach design problems—and its potential impact on management education. Under a design-thinking paradigm, students would be encouraged to think broadly about problems, develop a deep understanding of users, and recognize the value in the contributions of others. In Martin’s view, the concept of design thinking can potentially address many of the criticisms currently being leveled at MBA programs. The interview is followed by a discussion and critique of the themes Martin raises.

INTRODUCTION

The design of products and services is a critical component of business competitiveness, to the extent that major companies such as Procter and Gamble have committed themselves to becoming design leaders. Beyond product and service design, however, *design thinking*—approaching management problems as designers approach design problems—may have important implications for management, an emerging prospect that has begun to gain recognition in both academic literature and the business press.

In *The Sciences of the Artificial* (1996), Herbert Simon calls for the establishment of a rigorous body of knowledge about the design process as a means of approaching managerial problems. In *Managing as Designing* (Boland & Collopy, 2004), several authors from the fields of design and management comment on the parallels between the two domains and explore the intellectual foundations for approaching managing as designing.

The management press has also latched onto the potential of design as a way of approaching management. Publications such as *Fortune* and *BusinessWeek* regularly showcase design successes and comment on the relevance of design for managers. Nussbaum (2005b), for example, discusses the importance of innovation and how managers are being schooled in these approaches.

Nevertheless, the idea of applying design approaches to management is new and, as yet, largely undeveloped. Even as managers are adopting these approaches, academics and practitioners are attempting to define them. What has implications for managers ultimately will affect business schools. As managers become more interested in design methods, business students will need to develop competency and business schools will, in turn, be expected to provide courses in these approaches.

At the same time, business schools are under intense criticism and, in the view of some, have reached a point of crisis. Both academics and management practitioners criticize MBA programs for their lack of relevance to practitioners, the values they impart to students, and their teaching methods (e.g., Bennis & O’Toole, 2005; Ghoshal, 2005; Mintzberg, 2004; Pfeffer & Fong 2004).

My purpose in this interview is to explore the extent to which design thinking can address the problems afflicting business schools. As one of the leading proponents of design thinking in business, Roger Martin is an ideal choice of interviewee, as he gives us a window on understanding the scope of the concept and its potential for improving business education.

Dean of the Rotman School of Management at the University of Toronto since 1998, Roger Martin

is a former consultant and founding partner of Monitor Company. Martin has been at the forefront of efforts to introduce design thinking to management education and has published several articles on business design (e.g., Martin, 2004, 2005a, b). He has spoken at several conferences on the subject. The Rotman School's magazine, *Rotman Management*, published a special issue on design in winter 2004 and on creativity in spring/summer 2006. In addition, Rotman hosted a conference, entitled "The Future of the MBA" in March 2006 that brought together the major critics of MBA programs.

On the Rotman School's website, Martin claims: "we are on the cusp of a design revolution in business," and as a result, "today's business people don't need to understand designers better, they need to become designers." In this interview, Martin describes his interest in design thinking, how it will affect management education, and how it can address some of the criticisms recently leveled at MBA programs.

How did you become interested in the topic of design in relation to management?

It started with my encounters with Hambly and Woolley, a small design firm here in Toronto. Just by osmosis I got interested in the way they would think about problems. For example, one assignment was a hunting lodge where the owner was bankrupt and was selling off all of his property. The designer had to do a selling brochure for this extremely fancy lodge, but there was no budget for it. I was so fascinated with what he did: He created a very rough photo album with shots of the lodge mounted with those little black corners. I was fascinated at how he took this on with such joy, this notion of how on earth could he possibly, with very little money, create something that looks great and sells. The idea was: "There is this problem—all these constraints and something has got to look great."

As I watched it, I saw that this is what great business leaders do. They enter some kind of constrained environment where they want to do something that is near impossible. They have to figure it out by thinking differently from anybody else. The best of what I see in the best business people is the same as what I see in designers at their best.

I saw that this is what great business leaders do. They enter some kind of constrained environment where they want to do something that is near impossible. They have to figure it out by thinking differently from anybody else.

I discussed this with A. G. Lafley, CEO of Procter and Gamble, who believes that P&G needs to be more design intensive. But he had a slightly different rationale for it than I did. Lafley worked in Japan for couple of years and just saw how much Japanese companies invested in elegant packaging and delivery system and the like, yet Procter and Gamble products, to a great extent, weren't elegant and lovely. So he was thinking in terms of product design; I was in love with this design mind-set that doesn't worry about constraints because there is always a way to figure your way around them.

So for you, design could be anything, not just products, but also an organization or a pricing strategy?

Yes, I later became involved with IDEO, who were originally high-tech designers but more recently started working with healthcare organizations where they had to design the entire consumer experience. But as they started doing that, they got into compensation systems and all kinds of other areas they didn't know anything about. That's when they approached me. Though our discussions I came to my ideas about traditional organizations versus design shops (see Table 1). I started to believe that companies just have to become more like design shops in their attitude and work methods. My belief is that we have to change from traditional work patterns to something that I think of as "design shop," which means changing on a continuum along five dimensions: Flow of Work Life, Style of Work, Mode of Thinking, Source of Status, and Dominant Attitude.

Design shops work on projects that have defined terms; whereas a traditional firm sees itself as engaged in an ongoing task. The traditional firm treats its activities as an ongoing assignment even though it is really a bundle of projects. As a result, it ends up with big budgets and large staff; whereas, for a design firm, it's all about solving "wicked" problems.

The designers who can solve the most wicked problems do it through collaborative integrative thinking, using *abductive* logic, which means the logic of what might be. Conversely, *deductive* and *inductive* logic are the logic of what should be or what is. In traditional organizations do you get rewarded for thinking about what might be? Encouraged? No . . . these firms can only do what they know how to do and constraints are the enemy—as opposed to the design firm, where constraints bring challenge and excitement.

This relates directly to integrative thinking (Mar-

TABLE 1
Traditional Firms and Design Shops

Feature	From Traditional Firm . . .	To "Design Shop"
Flow of Work Life	Ongoing tasks Permanent assignments	Projects Defined terms
Style of Work	Defined roles Wait until it is "right"	Collaborative Iterative
Mode of Thinking	Deductive Inductive	Deductive Inductive Abductive
Source of Status	Managing big budgets and large staffs	Solving "wicked problems"
Dominant Attitude	We can only do what we have budget to do Constraints are the enemy	Nothing can't be done Constraints increase the challenge and excitement

Adapted with permission from "The design of business," by Roger Martin, *Rotman Management*, Winter, 2004.

tin, 2002). The nonintegrative thinker readily accepts unpleasant trade-offs and the integrative thinker instead seeks creative resolution of the tension.

So under the traditional model, it seems that we are selecting among predetermined alternatives. With a design model we would like to think outside the existing alternatives and create new alternatives.

Exactly. A traditional manager would take the options that have been presented and analyze them based on deductive reasoning. You typically get those options on the basis of what you have seen before—that is, inductive logic. You then select the one that has highest net present value. Whereas a designer uses abductive reasoning to say, "What is something completely new that would be lovely if it existed but doesn't now?"

So what does all this mean for business education?

Business education has to be made more like design education.

What does that mean?

It means, first, getting MBAs to think in terms of projects where you solve wicked problems using abductive reasoning, in addition to deductive and inductive skills.

Second, MBAs have to learn collaborative skills. They have to learn to listen to other people and understand their reasoning process. Not spend their time saying, "Their reasoning process is different than mine; therefore, it is wrong; therefore, I must stomp it out." That would be the traditional MBA approach, based on the Harvard model.

In a Harvard Business School class, you would never say to another student, "I don't understand fully why you think that: Could you just talk a little bit more about what you saw in the case that caused you to believe that?" You are not taught the skill of listening with the intent of gaining some insight that you didn't have in your head already. Instead, you are taught to build cases in your mind that are airtight and completely logically sound, and anybody who thinks otherwise is the enemy you must crush. That may be too strong a way of thinking about MBAs; but I don't think it is very much too strong.

Third, a great design school would have the student go much, much deeper on understanding the user and the user experience than we do in business schools. I would like to have students start with a project where they have to go out and understand users, understand everything they can about users, whether it's beer drinkers or car drivers. The skills you need are skills of observation and inquiry. Do we teach that in MBA programs? I don't think so.

Aren't projects and team collaboration an important part of most MBA programs?

We teach a very narrow form of collaboration, which is to find somebody who thinks like you and then work together. I don't think we teach students to really dig deep and to understand somebody else. We don't understand users; we don't understand clients; we don't understand other people really well. We don't teach students about visualizing and imagining something that does not now exist that would take care of users' needs. We don't teach them about prototyping, giving the product to the consumer and then improving it and improving it some more. We don't do any of that. I think that is the skill set that is not known or understood

by students and is actually antithetical to the vast majority of what we do.

If we teach only a narrow form of collaboration, would a design approach mean more diversity in MBA programs? And if so, would that mean new admissions standards and would we look for different things in applicants?

I think we would. I don't think it would be like an absolute sea change. But there would be some people who don't like the idea of this type of MBA because they think it should be analytical, quantitative, number crunching, deductive-inductive, self-oriented, all of those things. People who don't like other people, like to think really hard and long at their desk about an idea, try to convince everybody that that's the best idea in the world and then execute on that idea—these people would either not be interested or get weeded out in the application process.

So people who like to work solo wouldn't fit in very well in a program like this.

Yes and no. There are some solo designers, but they love working with clients and they love working with customers. The kind of person I imagine it's going to be more attractive to is somebody who thinks there is value to understanding in depth what is in the mind of somebody who is not me. That somebody might be a colleague, might be a client, and might be an end consumer.

It seems that contentwise a lot of things wouldn't change. MBAs would still do ROIs, discounted cash flows, etc., but it's more about how you use the tools.

You do need *most* of what we teach by way of tools. But, the big question is, "In service of what?" I think we in the business school fraternity teach in service of convincing somebody to let us do what we want to do, and in service of inductive and deductive reasoning to make our case.

Now, the tools that we do teach are overwhelmingly logical and rational tools, they are based on economics, traditionally.

Or psychology. I don't subscribe completely to Jeffrey Pfeffer's argument that economics has taken over the management discipline and that drives all this thinking (Pfeffer & Fong, 2004). Psychology is another foundational skill. There is operations management, which is different from economics.

There is also a kind of linguistics; what is accounting? I think it is not really economics-based, but in a way linguistics-based. It is a language you need to learn for describing a company.

What other tools might be useful additions to what we have now?

Chris Argyris discusses fundamental insights about how people learn through the skill of inquiry (Argyris & Schön, 1978). One version of this is *appreciative inquiry* (Cooperrider & Whitney, 1999), where the emphasis is on better understanding what the other person is thinking. If you tell me you think that the moon is made of green cheese, I want you to tell me more: Tell me what you observe, tell me what you see that makes you very confident that that's the case. I think you will probably answer that question because I am indicating an appreciation for your point of view.

How many times do you get a blinding insight out of your own head? You get to blinding insight when you listen to somebody and take that little snippet of logic or data or whatever, merge it with something that is in your head and—whammo—out comes a new interesting thought. That is where the out-of-the-box ideas come from, and you systematically prevent yourself from getting there by being dismissive of users, dismissive of clients, dismissive of colleagues who don't agree with you.

The kernel of somebody who doesn't agree with you is either different data, or different logic; I think you get out-of-the-boxness by getting outside your own head and understanding this different data or logic, not by digging deeper in your own head for something that just isn't there.

This implies an attitude of curiosity—students who always want to find out more. Can you train people for that or do you recruit for it?

I think it is easier to recruit for, but I believe you can train for it because I believe people are, in the main, pragmatists. They will use what works. But I think you can get completely self-defeating logic that says other people are not useful. If business schools can help students have experiences that cause them to find other people useful, then I think they will be more open to learning the skills they need for this.

But aren't MBA students driven by the need to get good grades, to be more attractive in the job market?

Yes, but they vastly overestimate the value of grades in the job market. I think very few compa-

nies actually pay meaningful attention to grades. It's partly because the MBA is so short. Whether you make the Dean's List as you graduate or not is completely irrelevant, because you have gotten your job by the time employers find that out, and I don't think companies are willing to make the decision weigh heavily on one year's worth of MBA grades.

I think it would be scary for students to really understand why companies hire people. I think it has a lot to do with appropriate dress, speaking in a manner that can be readily understood by the listener, and an ability to hold a conversation and look the person in the eye. I think all this dramatically outweighs anything about your grades. MBA students don't believe that, but a designer would.

A designer would understand that because he would see it as a whole package. A real designer, if he were an MBA student, would look around and say, "What is appropriate dress?" He would sit around in the lobbies of the buildings and watch executives who are in the kind of company he wants to work for. If it's a design firm or a marketing agency he'd notice they're not wearing ties, if it's an investment bank grey and blue suits; then he would observe how they speak, where they hang out, what they pay attention to. He would design himself as a package that would include academic content and going to a good business school, good dressing, and so on, and would view each piece of it as integral to the overall product that he wants to deliver. Many bright students who get As and get on the Dean's List dress without thinking, don't learn anything about the industries they aspire to work in, and have resumes that they understand but aren't written so as to help the reader understand.

How receptive do you think the business world is to MBAs as designers?

Totally. If you tell them we are going to produce designers, some in the business world would say they don't want designers, but they do. The people who rise to the top of these companies are designers more often than not. They see the whole picture of what they are, what their company is, what they are trying to accomplish, and they listen carefully to others. For our part, we have to teach students integrative thinking, the broader notion of what is salient, what the important relationships are, to look at things as a whole, not piece parts that you put together.

So integrative thinking is a methodology then, and the goal is design. Is that a way of putting it?

The goal is to produce designers and the method of thinking in the head of the designers is what I call integrative thinking.

Is the word "design" going to be problematic in the business community?

Many will hate that name, but I think design is going to be acceptable. It is becoming such a popular word now: *Fast Company's* design issue last year was the biggest selling issue in the history of that company (Breen, 2004); *BusinessWeek* is now all about design, design, design (Nussbaum, 2005). It may be a fad. There are fads that come and go, but some of it sticks.

Would the idea that design might be a fad make you cautious about making wholesale changes?

No, I just think it is right.

Having talked about the external world, what has to change in the internal world of business schools?

I think faculty need to be less doctrinaire in accepting only deductive and inductive logic, and teaching in a way that suggests they are right and everyone else is wrong. If they just back off a little bit on those things, then I think there is room to get students to think the way we'd like them to think. Some professors will decide they don't want these ideas at all—all they want to do is teach the basic concepts that would be the building blocks for the designer, and some will want to lean more into the wind by giving them design challenges.

There are all kinds of criticisms fired at MBA programs. One is the issue that students learn to value shareholders' interests over those of customers and society (Ghoshal, 2005). From this comes the idea of ENRON-itis, that students do not develop an appropriate sense of social responsibility. Does the design idea address this issue in any way?

Yes, it absolutely does, because design is not about either/or but about integrative thinking. So there is no reason why it has to be *either* about customers or about shareholders. If you are teaching from a design standpoint, those two things are inexorably linked and you have to think about

both—but it's hard. It's supposed to be hard. The problem is not thinking about the broader system, and doing things that are actually bad for all the systems we operate in. A designer would say, "Well, that doesn't work, that's not sustainable; the people that you are ripping off will eventually find out and get you."

Another criticism is lack of professionalism—the idea that business research doesn't produce new ideas, so business as an academic discipline is getting a bad name as pandering to the ratings but light on research (Hinings & Greenwood, 2002). How would design help here?

Maybe my most severe criticism of business schools is that we are in a period of diminishing returns to research. That is because we have ploughed away at figuring out everything within narrow disciplines and the only way we can study those narrow disciplines is to assume away all the complexity and make them narrower and narrower.

Fortunately, we occasionally break out of a cul de sac. Behavioral finance is that—we got as far as we could go in figuring out how the market must work if everybody were a rational thinker. Well, they are not.

There are big questions that could be addressed by business education, like integrative thinking, like integrating corporate social responsibility into the business world, like imagining the world is full of people that have emotions and biases, and integrating that into accounting, finance, and marketing. But we just avert our eyes; we don't want to think about these things because they are too complex.

So it's a moment of crisis, in other words?

I think so, and we are really averting our eyes from that big complex swirling world when we say, "I don't know how I could do empirical research on this question so I won't look."

Another area of criticism is around teaching people the wrong skills; an emphasis on analysis rather than synthesis (Starkey, Hatchuel, & Tempest, 2004). How does design help here?

What the critics are doing is to critique in a business school way, using business school logic. They are making everything either/or. It is not either/or: You have to do analysis *and* synthesis. But they are right that business schools, because they have the same mind-set as the people writing these

articles, view the world as either/or. I get that from some faculty: "But you are saying we don't have to teach them the models and they don't have to know double entry accounting by the time they get out of here." But it is not either/or: As students become designers, they will still need to learn the models.

Mintzberg's idea is that teaching people models isn't teaching them how to manage (Mintzberg, 2004). Is he wrong there, do you think?

I think he is right, although I'd say he hasn't modeled management. Everything is models. Chris Argyris says all action is design (Argyris & Schön, 1978). So if you have a design of actions you must have a model of some sort. Great managers have models of management. We just don't know what they are. So we teach subcomponents—we teach subassemblies, and I want to teach the final assembly. So again it is a narrow-minded critique to a certain degree. They are critiquing in a fashion that indicates they are part of the problem, not the solution.

COMMENTARY AND CRITIQUE

Martin's proposals that business schools consider design thinking are far-reaching, and, if implemented, would result in significant changes to curriculum and the profile of students recruited to MBA programs. These ideas reflect contemporary discussion in the business press (e.g. Nussbaum, 2005a) and are also emerging in some academic literature (e.g., Boland & Collopy, 2004). In this section, I examine design thinking more closely, first by defining Martin's version of design thinking in relation to the literature and its potential importance, and then by considering its implications for management education. I conclude with a discussion and critique of Martin's ideas and identify areas for further development.

Design Thinking

Martin distinguishes *design thinking* from design. *Design thinking* is the way designers think: the mental processes they use to design objects, services or systems, as distinct from the end result of elegant and useful products. Design thinking results from the nature of design work: a project-based work flow around "wicked" problems.

As distinct from managers, whose work flow is centered around ongoing, permanent assignments, designers work on a "project" basis, where the project has a specific deadline, and, once completed, disappears from sight (Martin, 2005a). De-

signers, as a result, are accustomed to forming ad-hoc teams and collaborating for a specific purpose. They view their career development as an accumulation of the projects they work on rather than progression through levels of a hierarchy.

The idea of "wicked" problems was originally developed by Horst Rittel in the 1960s (Buchanan, 1992) and describes a "class of social system problems which are ill-formulated, where the information is confusing, where there are many clients and decision makers with conflicting values, and where the ramifications in the whole system are thoroughly confusing" (Churchman, 1967). Whereas managers avoid working on wicked problems because their source of status comes from elsewhere, designers embrace these problems as a challenge.

To address project-based wicked problems, Martin claims that designers have developed a way of thinking that is distinct from conventional management thinking. In the interview, he discusses three aspects of design thinking: cognitive, affective, and interpersonal.

Cognitive Aspects

Design thinking includes inductive, deductive, and abductive reasoning. In Aristotelian logic, *inductive reasoning* is generalization from specific instances, while *deductive reasoning* involves inference from logical premises. In Martin's view, MBA programs provide students with both inductive and deductive reasoning, but underemphasize abductive reasoning. Charles Pierce (1905; cited in Hoffmann, 1995) describes *abductive logic* as "the process of forming an explanatory hypothesis. It is the only logical operation which introduces any new idea."

Design thinking, therefore, combines the generation of new ideas with their analysis and an evaluation of how they apply generally. A designer uses abduction to generate an idea or a number of ideas, deduction to follow these ideas to their logical consequences and predict their outcomes, testing of the ideas in practice, and induction to generalize from the results. This learning in turn helps generate new ideas and the process can be depicted as a cycle, as shown in Figure 1.

Another aspect of thinking that underlies Martin's discussion is "systems thinking" that is, visualizing a design or managerial problem as a system of structures, patterns and events, rather than just the events alone—and understanding the impact of changes in one component on the others, and on the system as a whole (Senge, 1994). Hence Martin argues that MBA students in the job market

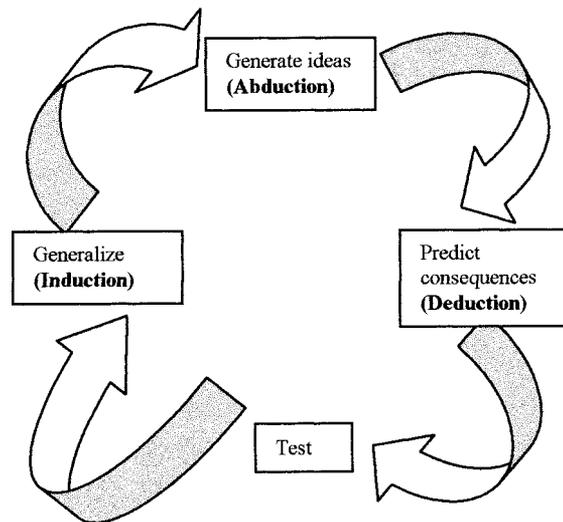


FIGURE 1
The Cycle of Design Thinking

should present themselves as a "totality," comprising academic performance, appearance, extracurricular activities, and so forth, rather than focus exclusively on grades.

Attitudinal Aspects

Martin argues that a designer's attitude toward constraints differs as compared with conventional management thinking. In conventional management thinking, constraints are seen as an undesirable barrier to the generation and implementation of ideas; for a designer, however, constraints are embraced as the impetus to creative solutions.

In conventional management thinking, constraints are seen as an undesirable barrier to the generation and implementation of ideas; for a designer, however, constraints are embraced as the impetus to creative solutions.

Boland and Collopy (2004) also distinguish between a design attitude and conventional management thinking. They claim that a *decision attitude* is overwhelmingly dominant in contemporary management education and practice. A decision attitude is about solving existing, stable problems with clearly specified alternatives through the use of analytical decision tools. By contrast, those with a *design attitude* view each problem as an opportunity for invention that includes a questioning of

basic assumptions and a resolve to improve the state of the world:

[The decision attitude] starts with an assumption that the alternative courses of action are already at hand—that there is a good set of options already available, or at least readily obtainable . . . the design attitude, in contrast, is concerned with finding the best answer possible, given the skills, time and resources of the team, and takes for granted that it will require the invention of new alternatives (p. 6).

Martin argues that constraints play a positive role in the design process as opposed to limiting it. In "Embedding Design Into Business" (2005a), Martin claims that constraints increase the challenge and excitement level of the task at hand, illustrating the point by reference to Buckminster Fuller:

If something can't be done, it is only because the thinking around it hasn't yet been creative and inspired enough. For Buckminster Fuller, the problem of buildings getting proportionally heavier, weaker and more expensive as they got larger in scale was not an intractable problem: it was only intractable until he designed the geodesic dome, which gets proportionally lighter, stronger and less expensive as it gets larger in scale (p. 7).

Martin's view of constraints as inspiration to design differs from that of some other thinkers. Simon (1996), along with Boland and Collopy (2004), sees the design process as one of inventing subject to constraints: Constraints are seen as limits to the creative process rather than a means of generating new ideas. His argument is, however, consistent with Norman (2002), who claims that constraints facilitate the design process by reducing the load on memory; and with Vandenbosch and Gallagher (2004), who argue that constraints have the capacity to inspire.

Interpersonal Aspects

Martin places a good deal of emphasis on empathy with others as part of the design process. A designer works with other people on two levels: (1) By understanding users' perspectives and their needs, and (2) by collaborating with peers. In the former case, observation and reflection provide insights into user experience. In the latter, he rejects uncompromising advocacy of one's own position in favor of developing mutual understanding.

The principle of user-centricity is well established in the design literature. In his analysis of design and the design process, Norman (2002) calls for greater emphasis on user-centered design. Because we tend to project our own rationalizations and beliefs onto others, designers can become isolated from users' needs and interests, and functionality can suffer. Hence it is essential to develop a clear understanding through interaction with, and study of, users as early as possible in the design process. Similarly, Leonard and Rayport (1997) argue for the use of observational research to get close to users and understand needs they may not be able to articulate.

Martin's perspective on user understanding and collaboration with peers in the design process reflects the approach taken by design firms such as IDEO, which emphasize both user understanding and teamwork (Kelley, 2001). He acknowledges that some designers prefer to work alone, but argues that even in these cases, user understanding and collaboration with peers play an important part in the process.

Collaboration with peers is also an important element of the design process. Individuals disagree either because they have different facts available to them or because they process these facts differently. Martin argues that mutual understanding involves a commonly agreed upon set of facts and an appreciation of the underlying mental models being applied by different individuals.

An important aspect of collaboration, however, is the idea of expanding perspectives by collaborating with individuals unlike oneself. While Martin does allude to this in the interview, Leonard and Straus (1997) go further in arguing for "creative abrasion" to encourage innovation by hiring and developing people who make one uncomfortable. Creative abrasion refers not to interpersonal conflict but to the constructive management of people with different cognitive approaches. Since Martin's purpose in promoting diverse perspectives in teams is the expansion of the range of ideas available, it is likely that he would endorse Leonard and Straus' view.

Importance and Implications for Management Education

Martin's comments come at a time when management education is under intense scrutiny. In the pages of *Academy of Management Learning & Education*, *Harvard Business Review*, and elsewhere, academics and practitioners alike have questioned the practices and premises of management education. In the following I explore the relevance

of design thinking to these critiques.

The major critiques of management in the recent literature can be classified according to what material is taught, how it is taught, and to whom it is taught. Specifically, there are three broad directions:¹

1. The "Values" critique, exemplified by Ghoshal (2005) and Pfeffer and Fong (2004), that management education does not foster in its graduates an appropriate set of ethical values. From Ghoshal:

"By propagating ideologically inspired amoral theories, business schools have actively freed their students from any sense of moral responsibility (p. 76)."

2. The "Relevance" critique, exemplified by Bennis and O'Toole (2005), that business schools produce research that has little relevance to management practice, and consequently, teach students concepts with little such relevance:

"Some of the research produced (by business schools) is excellent, but because so little of it is grounded in actual business practices, the focus of graduate business education has become increasingly circumscribed—and less and less relevant to practitioners (p. 2)."

3. The "Pedagogy" critique, exemplified by Mintzberg (2004), claiming that business schools teach inappropriate material, using ineffective teaching methods, to the wrong students:

"It is time to recognize conventional MBA programs for what they are—or else to close them down. They are specialized training in the functions of business, not general education in the practice of managing. Using the classroom to help develop people already practicing management is a fine idea, but pretending to create managers out of people who have never managed is a sham (p. 5)."

Martin's comments about design thinking tend to address the first two critiques and, to an extent, the third. They do not address Mintzberg's contention that it is futile to teach management to nonpracticing managers.

Martin answers the first critique by arguing that a designer would consider the interests of all

stakeholders, customers, shareholders, and society at large, not just one. The reason for this is that, in his view, a designer is by definition an integrative thinker who finds creative solutions to problems rather than accept unpleasant trade-offs (Martin, 2005b). In addition, Martin suggests that designers would think about the system as a whole and thereby envisage the consequences of their actions. In this, he echoes Peter Senge who, in *The Fifth Discipline* (1994), describes the manager as a researcher and designer and argues that *systems thinking*, the ability to appreciate the whole pattern instead of its isolated parts, is a critical skill.

It should be noted that Martin's vision of the MBA of the future is a "method-centered" (i.e., design) one as opposed to a "values-centered" one. In the interview, he does not suggest that management programs attempt to impart a specific set of values: Students would not learn what is generally "right" or "wrong" but instead how to think about the broader implications of their decisions. In the MBA program of the future, students learn to balance the interests of all stakeholders by understanding the consequences of their actions on the system as a whole—including poverty, the environment, and geopolitics. If this seems like a tall order, it may be. Nonetheless, it seems reasonable to suppose that a broader view of stakeholder interests would be an improvement over a narrower one.

The second critique, of relevance, has two aspects: the type of research business schools do and the skills developed in students. On the first, Martin argues that management research is at a point of diminishing returns, because its practitioners are locked into a single paradigm and are unwilling to accept others. In this view, others would certainly agree: Bennis and O'Toole (2005) for example, call for epistemological pluralism in business schools; Ghoshal (2005) complains that business schools recognize only one² of Boyer's (1990) four kinds of scholarship; and Peter Vaill (1989) and others promote the development of arts-based learning in management education.

As reflected in his comments about collaboration between diverse individuals with diverse views, Martin believes that designers are open to multiple perspectives; he sees a business world that is ready to accept the idea of managers as designers, but criticizes business school faculty for a doctrinaire approach that admits only certain types of

¹ These critiques include discussions of the dominance of the "scientific" approach to management at the expense of other ways of knowing; a business school culture that puts faculty research needs ahead of the need for managerial relevance; an ideology of self-interest; pandering to business school rankings; and a focus on careers at the expense of values and learning. While there is much common ground, the distinctive emphasis of each author is used here for classification. The critiques are mostly full-time MBA programs, and this is the focus here.

² The scholarship of discovery. The other three are the scholarship of integration, the scholarship of application, and the scholarship of teaching.

thinking. He argues that business schools, currently focused on deductive and inductive logic, need to become more open to abductive logic. However, where others suggest that legitimization of knowledge from the humanities—philosophy, history, theology, and so on—would be a step forward for business school, Martin is not specific about what new perspectives might be included.

On the question of skills developed in students, Bennis and O'Toole argue that because business school professors teach what they know, a narrow perspective in research inevitably leads to a narrow perspective in curriculum and teaching. The result is that the material students learn lacks relevance to managerial decision making.

Addressing this, Martin argues that students need to learn design skills. CEOs of successful companies are engaged in design as he defines it: a project-based work flow, the use of abductive reasoning in addition to deductive reasoning, user-centricity, and collaboration. While he provides no examples in the interview, Martin's view accords with Lester, Piore, and Malek (1998) who cite Levi Strauss, Intel, cell phone companies AT&T, Motorola and Matsushita, and biotech company Chiron as examples of a more interpretive approach—a rather more loosely defined version of design thinking. Lester et al. base their advocacy of an interpretive approach on their view that the world of business is no longer characterized by stable problems that lend themselves readily to analysis.

If successful companies are engaged in design, it follows that the real-world skills management education needs to impart are the principles of successful design as they apply to managers. In *The Sciences of the Artificial*, Herbert Simon (1995: 111) also argues that management schools, along with other professional schools, are centrally concerned with the process of design. For Simon, professional schools have an opportunity to "discover and teach a science of design, a body of intellectually tough, analytic, partly formalizable, partly empirical, teachable doctrine about the design process."

Lester et al. also call for changes in management education based on their interpretive model of management:

Management teaching would need to be broadened, focusing on developing not only problem-solving skills but also the humanistic skills traditionally associated with the more interpretive fields of literature, history and anthropology. Management would need

to be viewed as much as a liberal art as a science (p. 182).

Hence the teaching of design in business schools requires a pluralistic approach that is currently missing. Martin is not specific about what courses would be added to the curriculum, and which might be discontinued; however, he does comment that there would continue to be a need to teach the "standard" models currently taught in addition to a design approach, so some courses would be added to the curriculum. By contrast, Ghoshal (2005) and Pfeffer and Fong (2004) are more radical in calling for a fundamental reorientation of business school curricula and, in Ghoshal's case, for fewer courses, not more.

Mintzberg's (2004) "Teaching" critique takes aim not only at the business school curriculum, but also at teaching methods and the types of students taught: In Mintzberg's view, management cannot be effectively taught to nonpracticing managers. While Martin argues for changes in the curriculum, he makes no specific comments on teaching methods. He would disagree with Mintzberg on the issue of the futility of teaching nonpracticing managers. His comments are directed to changing the modes of thinking of business students, but it is clear he believes that students' attitudes and behavior can change, and there is, therefore, no need to focus exclusively on practicing managers.

CONCLUSIONS AND IMPLICATIONS

Martin's vision of design thinking calls for significant changes in curricula and the types of students admitted, but goes further still in addressing the type of acceptable discourse in business schools and even the type of research conducted by faculty. Nevertheless, he presents it as a prescription for evolution rather than revolution.

Where other thinkers look to shake up business schools, refocus them on core values, and instill a strong sense of moral responsibility in students, Martin does not call for such radical change. He does not advocate the elimination or deemphasis of any field within management education, but would add the design perspective to the current curriculum as both a new set of ideas and a way of integrating existing ones. Martin might be accused of not going far enough to make a difference; on the other hand, this may mean that his ideas have a better chance of being implemented.

Yet it seems unlikely that design thinking can merely be added to the current curriculum. Martin's comments go to the heart of what is expected from MBA graduates. MBA students are not re-

cruited for their creativity (as design students are), and most would not see themselves as particularly innovative. Yet Martin is suggesting that success in contemporary business requires these qualities, in addition to the traditional analytical and coordination skills we associate with effective administrators. This certainly implies that business school admissions criteria as well as their curricula would have to change.

If design thinking were added to the current curriculum, there is a risk that it would become another silo alongside finance and marketing. To live up to Martin's vision, design thinking needs to pervade everything business students do: It would necessarily affect their approach to "traditional" MBA courses. And it is here that design thinking will face its greatest challenge.

Embedded as they are in a single world view and epistemology, some business faculty will find it difficult to accept the different types of knowledge implied by design thinking. Moreover, the existing business school model is successful in many ways: Over 20% of graduate degrees awarded in the United States are MBAs and the U.S. model is being copied around the world (Pfeffer, 2006). Hence there is little incentive for such radical change.

Weighing against this inertia is the groundswell of dissatisfaction expressed both by business leaders and by leading academics. With declining enrollments, intense competition for the best students, and a heavy focus on rankings, there is a strong push for innovation within business schools. As noted earlier, design thinking addresses several of these dissatisfactions because it involves epistemological pluralism and consciousness of the systemwide consequences of decisions. So while design thinking will be a challenge to implement, the effort may be warranted because it offers a comprehensive answer to what ails business schools.

Some of Martin's comments about designers' concern with collaboration and sustainability appear to paint a rather idealized picture of the design profession. In practice, most designers are undoubtedly as uncollaborative and as unconcerned with sustainability as any other group. However, Martin's intent is to draw a parallel between the most successful designers and the most successful business executives. It should be borne in mind that Martin is describing an approach that he associates with business success, rather than the behavior of a particular profession. As such, it is indeed an idealized portrait, and necessarily so.

Many MBA students would disagree with Martin on the issue of importance of grades in finding

employment. While he argues that employers give limited consideration to grades, others would argue that grades act as a screening device and an essential prerequisite to further consideration. The importance of grades will vary from employer to employer, and "design thinking" will be more attractive to those employers who are interested in innovation and customer focus. This does not apply to all employers: Investment bankers, for example, are likely to be more interested in the traditional "technical" skills associated with MBA graduates (Gangemi, 2005). He positions such skills, however, within a total package that includes grades, behavior and appearance, the central point being that a designer thinks in terms of a total system rather than its component parts.

Several aspects of the design approach remain unspecified and stand as opportunities for further work. The components, characteristics, and process of design thinking need to be specified in more detail. For example, Martin has written and spoken widely on the subject of integrative thinking (e.g., Martin, 2002; Gerdes, 2005), and the relationship between design and integrative thinking needs elaboration. While Martin alludes to the role of integrative thinking in design, how it meshes with deductive, inductive, and abductive logic will need to be explored in more detail.

If business schools are to adopt epistemological pluralism, there needs to be a dialogue on just what types of knowledge will be included and according to what criteria. A further issue is whether business schools should espouse a set of values to their students according to which they would design solutions to problems.

The design approach does not address all the complaints leveled at the contemporary MBA. It would require significant changes to student selection and curricula, yet is not radical enough for some. At this stage, much needs to be elaborated further. Nevertheless, at its core, it remains an intriguing idea, one that is gaining currency in the world of practicing managers. As such it warrants further consideration.

REFERENCES

- Argyris, C., & Schön, D. 1978. *Organizational learning: A theory of action perspective*. Reading, MA: Addison-Wesley.
- Bennis, W., & O'Toole, J. 2005. How business schools lost their way. *Harvard Business Review*, May.
- Boland, R. J., & F. Collopy, Eds. 2004. *Managing as designing*. Stanford, CA: Stanford University Press.
- Boyer, E. J. 1990. *Scholarship reconsidered: Priorities of the professorate*. Princeton, New York: Jossey-Bass.
- Breen, B. 2004. Masters of design. *Fast Company*, June.

- Buchanan, R. 1992. Wicked problems in design thinking. *Design Issues*, 8(2): Spring, 5–21.
- Churchman, C. W. 1967. Wicked problems. *Management Science*, 4(14) December, 141–142.
- Cooperrider, D. L., & Whitney, D. 1999. *Collaborating for change: Appreciative inquiry*. In P. Holman, & T. Devane, (Eds.), Berrett-Koehler Publishers.
- Gangemi, J. 2005. Harvard: No more grade secrets. *Business Week Online*, http://www.businessweek.com/bschools/content/dec2005/bs20051216_4604.htm?campaign_id=search. Accessed April 30 2006.
- Gerdes, L. 2005. An MBA with a thematic approach, *Business Week Online*, http://www.businessweek.com/magazine/content/05_36/b3949099_mz056.htm, accessed May 5, 2006.
- Ghoshal, S. 2005. Bad management theories are destroying good management practices. *Academy of Management Learning & Education*, 4(1): 75–91.
- Hinings, C. R., & Greenwood, R. 2002. Disconnects and consequences in organization theory? *Administrative Science Quarterly*, 47, 411–421.
- Hoffman, M. 1995. Is there a logic of abduction? <http://www.uni-bielefeld.de/idm/personen/mhoffman/papers/abduction-logic.html>, accessed April 5, 2006.
- Kelley, T. 2001. *The art of innovation*. New York: Currency/Doubleday.
- Leonard, D., & Straus, S. 1997. Putting your company's whole brain to work. *Harvard Business Review*, July-August.
- Leonard, D., & Rayport, J. F. 1997. Spark innovation through empathic design. *Harvard Business Review*, Nov.-Dec.
- Lester, R. K., Piore, M. J., & Malek, K. M. 1998. Interpretive management: What general managers can learn from design. *Harvard Business Review*, March-April.
- Martin, R. 2002. Integrative thinking: A model takes shape. *Rotman Management*, Fall.
- Martin, R. 2004. The design of business. *Rotman Management*, Winter.
- Martin, R. 2005a. Embedding design into business. *Rotman Management*, Fall.
- Martin, R. 2005b. Why decisions need design, Part 1. *Business Week*, August 30.
- Mintzberg, H. 2004. *Managers not MBA's: A hard look at the soft practice of management development*. Berrett-Koehler.
- Norman, D. A. 2002. *The design of everyday things*. New York: Basic Books.
- Nussbaum, B. 2005a. Get creative! *BusinessWeek*, August 1.
- Nussbaum, B. 2005b. Getting schooled in innovation. *BusinessWeek*, January 3.
- Peirce, C. S. P. 1903. Pragmatism as a principle and method of right thinking. In P. A. Turrisi, Ed., *The 1903 Harvard Lectures on Pragmatism*. Albany, NY, 1997: State University of New York Press.
- Pfeffer, J. 2006. The business school 'business': Problems and prospects.. Presentation, Future of the MBA Conference, Joseph L. Rotman School of Management, March.
- Pfeffer, J., & Fong, C. 2004. The business school 'business': Some lessons from the US experience. *Journal of Management Studies*, 41(8): 1501–1520.
- Senge, P. 1994. *The fifth discipline: The art and practice of the learning organization*. New York: Currency/Doubleday.
- Simon, H. A. 1996. *The sciences of the artificial*, 3rd ed. Cambridge, MA: The MIT Press.
- Starkey, K., Hatchuel, A., & Tempest, S. 2004. Rethinking the business school. *Journal of Management Studies*, 41(8): 1521–1531.
- Vaill, P. 1989. *Managing as a performing art: New ideas for a world of chaotic change*. San Francisco: Josey-Bass.
- Vandenbosch, B., & Gallagher, K. 2004. The role of constraints. In R. J. Boland & F. Collopy, Eds., *Managing as designing*: 198–207. Stanford, CA: Stanford University Press.



David Dunne is adjunct professor of marketing and co-director of the Rotman Teaching Effectiveness Centre at the Joseph L. Rotman School of Management, University of Toronto. His research interests include branding, design, and management education. He is a recipient of the 3M Fellowship, Canada's national award for university teaching across disciplines.



Roger Martin

Copyright of *Academy of Management Learning & Education* is the property of *Academy of Management* and its content may not be copied or emailed to multiple sites or posted to a listserv without the copyright holder's express written permission. However, users may print, download, or email articles for individual use.