INNOVATION

Design in Business
The Right Rx

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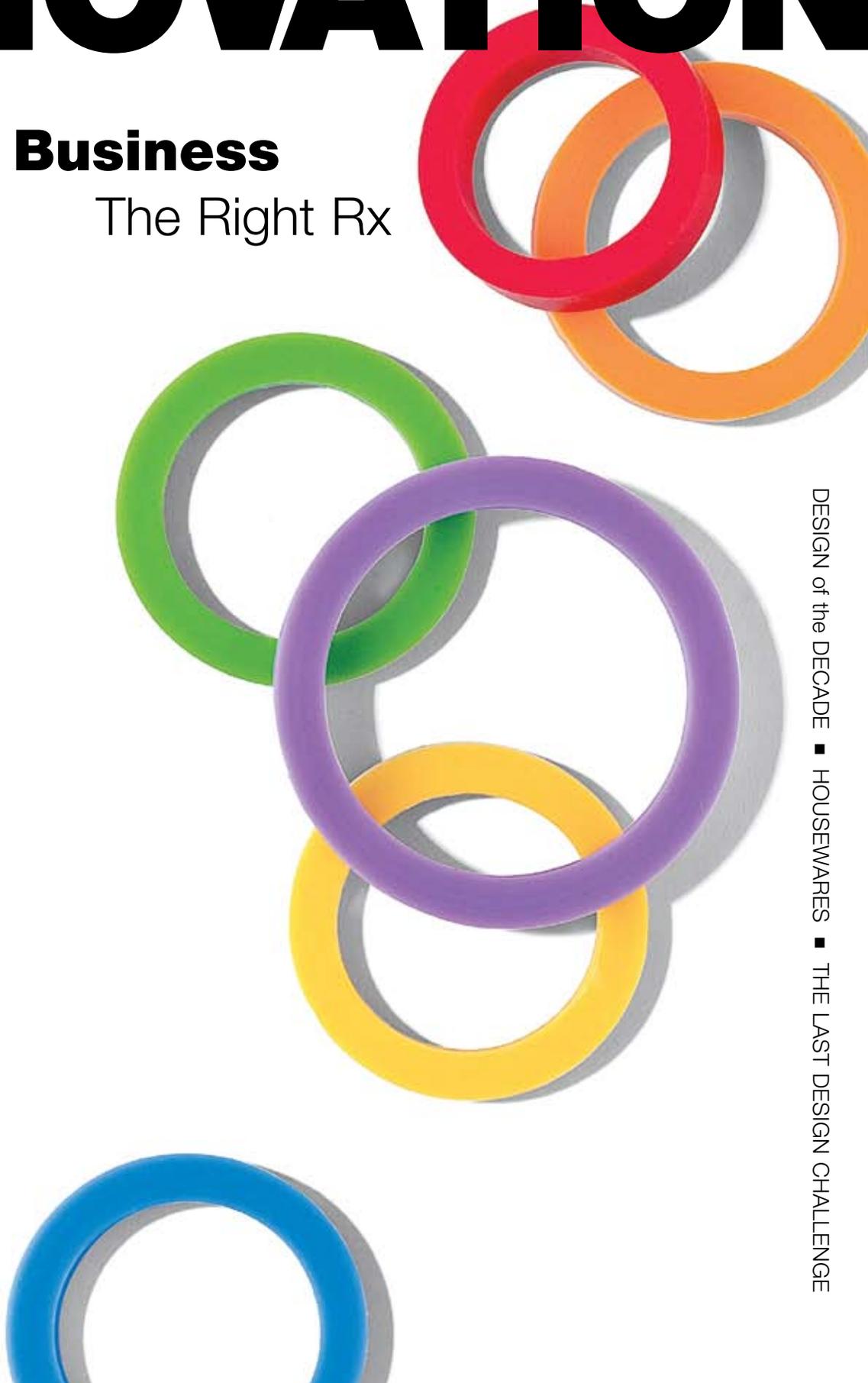
Teaching MBA Students How to Think Like Designers

PROBLEM FINDING, PROBLEM SOLVING

Can you teach design—or better asked, the process of design—in a business school? If so, what exactly do you teach? And, more importantly, what do the students take away? Over the past 17 years, we've experimented with teaching design in a number of different ways at the Haas School of Business at the University of California, Berkeley. Some classes focused on design thinking. Some involved multidisciplinary teams of students in developing products up to a first-pass prototype. Some were semester-long, three-hour classes. Others were quick passes through the material over a weekend.

This fall we ran our boldest experiment yet when we asked all of the incoming first-year full-time MBA students to take a course on the design process that we called "Problem Finding, Problem Solving." We've had predictable ups and downs with this class, and have learned more about the challenges of teaching design process to those for whom it is completely foreign and to those who question its validity.

Designing the Curriculum

The "Problem Finding, Problem Solving" class was born of our long experience experimenting with different approaches to embedding design in the MBA curriculum and the desire to distinguish Haas as a business school that generates innovative leaders. Dean Rich Lyons learned through many conversations with CEOs that "they can easily find problem solvers, but what they really need are people who can also lift their heads up and think more deeply about what the right problem or opportunity is, and how to frame it." And so, **we created a curriculum in which students learn key skills for framing and reframing problems and opportunities and then apply those skills in a series of highly practical, facilitated real-world projects.**

We have just completed the first offering of "Problem Finding, Problem Solving" and have many improvements planned for the next iteration. But, for now, we offer the core elements of what we set out to teach. As our small team of design practitioners and Haas faculty designed the course, we collected many versions of problem-solving processes, including design processes, new-product development processes as well as quality-improvement (dare we say Six Sigma) processes. From those, we synthesized the five steps—certainly familiar to most of you—we presented in the class:

1. **Understand.** Define the problem, challenge or opportunity. Then learn as much as you can about what is already known in that space from subject matter experts and other sources.

2. **Observe.** Collect firsthand information from customers, users and other stakeholders by asking open-ended questions, watching people and processes, and engaging them in co-creation activities.

3. **Synthesize (and Analyze).** Identify patterns and anomalies in the data gathered and from these generate insights around which to create new concepts.

4. **Realize.** Generate a large set of alternative solutions and then narrow that set down to a few.

5. **Experiment.** Embody the selected solutions in artifacts, gather feedback from a variety of stakeholders and iteratively refine the solutions.

Student Learnings

Category	Examples
Listening	*"Ask plenty of open-ended questions of users/customers."* *"Listen, listen and listen again."*
Observation	*"What customers say doesn't always equal what they do."* *"During interviews, watching is just as important as listening."*
Context	*"Direct observation is essential. Experience use in the customer environment."* *"Get out of the office! Viewing customers in their natural environments is key."*
Perspectives	*"Ground the conversation in 'individualization' to avoid the bias that each member envisions themselves as the end user."* *"Users' ideas can be very different than what you think."*
Sharing within the team	*"Field trips are good. Going out together to get more information is better than just talking about it in a room."* *"The team could have done a better job compiling information."*
Scope	*"There are many types of users, users are different, and you can't satisfy them all."* *"Make time in the planning phase to investigate the broader context for use. Don't narrow the scope too soon."*
Prioritization	*"Locating the 'base' need is very helpful; gets thinking outside the box."* *"Hard to get at what truly matters to users (need prioritization)."*
Accuracy	*"Find the right customer needs."* *"Accurate identification and prioritization of user needs is critical."*
Latent/ implicit needs	*"Observation and past stories can give hints to latent needs."* *"Customer stated 'wants' might be very different from their real behavior."*
Ongoing/iterative	*"Contact with the customers should happen all the time, before, after and during."* *"Need to revisit customer needs repeatedly."*
Quantity	*"Meet as many people as possible."* *"Learn as much about needs as possible early in the process. Time spent up front saves lots of time at the end."*
Need-centric	*"Stick with user needs, not solutions."* *"The consumer's voice should be heard above all others."*

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Although we grounded much of the material in the academic literature, the real focus of the class was on providing a hands-on, practical experience with a design process. We used Alexander Osterwalder and Yves Pigneur's new book *Business Model Generation* as our textbook and created a highly visual environment in which the students worked. (We did this by getting a roll of butcher paper for each team that served as its "walls," lots of sticky notes, markers and low-tech prototype materials.)

The students worked in teams of five, each of which was assigned a start-up company to examine and improve. In the understand phase of the process, they learned about the importance of understanding their own mental models and how those models color their interpretation of what they say. We talked about the differences between facts, inferences and assumptions, and the importance of identifying alternative hypotheses to explain an event. The teams applied this to collecting data about their assigned organizations and arraying that data in a "business model canvas" framework as described by Osterwalder.

The observe phase required the students to experiment briefly with ethnographic interviewing to learn about customers and users of the organizations they studied. This proved to be the most difficult activity for many of the students. A doctorate student at Berkeley studying the effects of diversity in design and innovation teams used David Kolb's learning style inventory to assess the class; she learned that over 50 percent of the students had a converging learning style, while only 2 percent had a diverging style. This bias showed up in several ways: reluctance to engage in observation activities, difficulty getting to a meaningful level of granularity in observation and being quick to judge and draw conclusions after observing for a very short time. (For the next offering of this course we will make significant adjustments to help students better hone their observation skills.)

Armed with all the data collected in the understand and observe phases, the students began synthesizing the data and identifying key insights. We presented them with a number of tools for doing so. They used general tools, such as affinity diagramming and mindmapping, as well as more specific tools, such as the business model canvas, business eco-system maps and SWOT (strengths, weaknesses, opportunities, threats) analyses. They also drew customer empathy maps to digest their interview data. Our ability to coach the teams through this process was stretched thin at this point. Although we had two faculty members present in each class, we couldn't spend sufficient time with each of the 12 teams—a lesson for staffing next year's class.

The "how might we" questions the students derived from their insights guided the concept generation work of the realize phase of the process. Once again, in this phase we used the business model canvas as the mechanism for generating and communicating the new concepts. The team's butcher paper rolls grew to 50 feet and longer as they collected their many ideas, clustered them and then voted on them. And the teams with predominantly convergent learning styles grew more satisfied with the process as they were allowed to draw conclusions and make decisions about what they would recommend to the CEOs and founders of these organizations.

At the "final exam," the teams presented their work to the CEOs and founders of the companies they studied. We moved all 48 rolls of butcher paper to a large auditorium where each team unfurled its roll to share its work. Jason Kibbey, co-founder of WearPACT, one of the participating companies, nicely summed up his reaction: "It was pretty amazing how far the students got without talking to us (much). I really liked their ideas, and they genuinely seemed enthusiastic about the whole thing. I emphasized to them how important all of the things they were learning are to real life."

The students similarly reacted to the experiences they had in the course:

■ "I enjoy having a huge roll of blank paper and being asked to brainstorm in various ways with my teammates. I have enjoyed relearning how to mindmap and learning the other methods (except that we don't practice them often enough for me to feel comfortable with them)."

Students capturing the insights from their synthesis work in "statement starters," which they then used to generate concepts.

- "This course is helping me learn ways in which to structure processes to foster innovation and new insight. Intuitively, I thought that having too much structure would inhibit the creative process, but now I see how it can guide you. I have also been reminded how important it is to have diverse opinions coming together to think about a problem. I now realize that many of the 'business-oriented' people that I will likely work with will be convergent thinkers, so it is very important to make sure we diverge enough to come up with good ideas."

- "I think the content is useful. Coming from Wall Street, it is refreshing to think about ways in which more entrepreneurial industries/people think about and approach problems."

Next Steps

So, that's where we are in our journey of experimentation with embedding design processes, tools and approaches in an MBA curriculum. Where will we go from here? In the short run, **we're working to make sure that these students will have another chance to use the process and tools we've shared with them by connecting with the faculty who will teach the real-world, project-based classes that follow.** They will choose among classes that develop social-sector solutions, embed socially responsible business concepts, create business plans for commercialization of advanced clean technologies and help US companies develop their businesses internationally.

In the longer run, we're asking the larger question—not only can we teach MBAs design processes but can we teach any student on the Berkeley campus (outside those in the College of Environmental Design who already learn the process) how to use design approaches? We're in the early stages of setting up a network of design labs around the campus to engage teams of students across disciplines in tackling the many wicked problems we face today. We envision more cafeteria-style course offerings that will allow student teams to learn what they need as they need it—imagine being able to take a three-hour workshop on how to generate concepts just as your team is ready to do so. And we envision a ready supply of coaches and mentors who can work with the teams in real time to help them get through the hard spots and learn the nuances of the process.

Can MBAs learn design processes? We think so. Is it easy? Just as it is difficult for those of you in real-world companies to get design approaches and tools adopted and used, it is difficult in an MBA program. But, we are making progress, and we will keep experimenting with different ways of engaging not just the MBA students but the faculty and—we hope—you, the design community as well. We welcome your input as we continue the journey. ∎