Teaching MBAs How to Design: Experimenting at the Haas School of Business

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Can you teach design – or better said, 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 seventeen years, we’ve experimented with teaching design in a number of different ways at the Haas School of Business. Some classes focused on “design thinking”. Some involved multi-disciplinary teams of students in actually designing products – at least through a first-pass prototype. Some were semester-long, three-hour classes. Others were quick passes through the materials 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”. Here’s what we’ve learned from our various experiments.

We started our journey to integrate design into the MBA program at Haas back in 1993 when student Amy Lee Chen approached us to ask, “why isn’t there more design in the MBA curriculum?” Amy had worked as a fashion designer in New York before coming to Haas and, after completing her first year courses, simply thought there was something missing. We responded by challenging her to put together a class – a real, three-hour class – that would help MBA students better understand what design was and could do for them.
Amy, deathly afraid that she might have to stand in front of the class herself and speak, promptly invited the likes of Jerry Hirschberg, Bill Moggridge, Sara Little Turnbull, Davis Masten, Arnold Wasserman, and even Phil Condit (who subsequently became CEO of Boeing) to speak. They, and several other design luminaries, came to Haas toting carousels of 35MM slides and impressed the students with knowledge of a whole new world (and with their handwritten mindmaps of what they wanted to share). Thus, our class “Design as a Strategic Management Issue” was born.

A couple of years later Peter Lawrence, of the Corporate Design Foundation, hosted a conference at which the handful of faculty teaching multi-disciplinary design classes around the country described their work. UC Berkeley’s delegates – Sara Beckman and Alice Agogino – attended that meeting and launched the second Haas class to embed some elements of design: “Managing the New Product Development Process” or simply, NPD. NPD is jointly taught – Sara is in the Haas School, and Alice is in the College of Engineering – and engages students from various departments across the Berkeley campus including engineering, business and the school of information management. It also involves design students from a parallel class at the California College of the Arts (CCA) in San Francisco.

The learning in the NPD class is entirely delivered through a project in which multi-disciplinary teams take an idea – student-proposed or company-proposed – through to first pass prototype. They do (at least a little) observational research, use a variety of framing and reframing tools to analyze and synthesize that data, generate a variety of different solutions, and then choose a few to prototype and test. Each team is coached by a designer from a local design firm. At the end of the semester, the teams present at a “tradeshow” to a panel of local design experts who give them feedback on how well they’ve executed the steps of the design process.

Writing a business plan is not a part of the class, as we have just enough time to cover the essentials of the product design and development process. Nonetheless, some of our teams have taken their solutions to market. The “school lunch program” project, for example, morphed to Revolution Foods, a successful startup that serves thousands of meals daily to schoolchildren in California and Washington D.C. Another team of students designed a new underwear company to sell underwear that tell a story, and donate to a variety of causes. They met Yves Behar when he judged their final presentation, and launched a relationship with him and their new company, wearPACT.
We’ve learned a great deal about what the students take away from this class over the years. At the end of each semester, we ask the students to write the lessons they’ve learned from the class on sticky notes, share them and cluster them. In addition to giving the students a chance to learn from each other, we get a chance to see what they take away from the class. Of the 2,348 lessons learned we analyzed over several years, nearly half were related to the multi-disciplinary team experience – learning about roles, responsibilities, the value of diversity, how to manage conflict and simply managing the logistics of meetings and communicating.

The other half of the lessons learned came from the process itself, many of them around the value of deeply understanding customer and user needs, and using that understanding to drive the design process. Some examples of the students’ comments about user research are included in the table below. When we tested these results with alumni, they agreed. The experience of working in a multi-disciplinary team was invaluable to them, as was learning about the importance of generating multiple alternative solutions to a problem.

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<th>Category</th>
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| Listening  | "Ask plenty of open-ended questions of users/customers."
              | "Listen, listen, and listen again."
| Observation| "What customers say doesn’t always = what they do."
              | "During interviews, watching is just as important as listening." |
When we dig more deeply into this data, we find quotes that suggest that not only did MBA students learn something about the process of design, but they came to appreciate the unique skill sets that designers brought to their teams. In particular, they cited the ability of the designers to visualize data, alternative concepts, and potential solutions. In short, they internalize what Bill Buxton teaches in Sketching User Experiences – the importance of visualization to how you think.

These two classes -- Design as a Strategic Management Issue and Managing the New Product Development Process -- now have a long history at UC Berkeley. We’ve also experimented with a handful of other, shorter-lived classes. “The Post-Dilbert Workplace” brought together MBA, psychology and college of environmental design students to redesign the workplaces of a number of local organizations. “Design Thinking” was a short, 16-hour class that took the students through a very quick spin of the design process – observation, framing, selecting imperatives, and generating solutions. The more in-depth “Design and Systems Thinking for MBAs” integrated materials from critical thinking, systems thinking and design thinking.

Our newest experiment, the “Problem Finding, Problem Solving” class was borne of this long experience 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, many improvements on our list for the next iteration. But, for now, we offer here the core elements of what we tried 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:

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.

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.

Synthesize (and Analyze): Identify patterns and anomalies in the data gathered, and from them generate insights around which to create new concepts.

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

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

Although we attempted to ground much of the material we presented in the class 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 attempted to create 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, and markers, all of which we carted to and from the classroom each day.)
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 among 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 on an “as-is” business model canvas depiction of their organization.

[Photo Caption: Work-in-progress – a partially completed “as-is” business model canvas]

The Observe phase required the students to experiment briefly with some 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 Berkeley PhD student 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% of the students in the class had a converging learning style, while only 2% had a diverging style. This bias showed up in several ways: reluctance to engage in observation activities at all, 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. (This is one of the places where we will make significant adjustments in the next offering to help students better hone their observation skills.)

Armed with all the data collected in the Understand and Observe phases, the students set themselves to the task of Synthesizing all 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 (from Osterwalder and Pigneur), business ecosystem 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 present in each class, we couldn’t spend sufficient time with each of the twelve teams – a learning for staffing next year’s class.
The “how might we” questions they 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 rolls grew long as they collected their many ideas, clustered them and then voted on them. And those with 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.
We can’t tell you much about the Experiment phase of the process yet, because it will happen next week. But we can tell you our hopes for this unique “final exam.” All of the CEOs and founders of the organizations the students have studied are coming to campus to see the students’ work. We’ll cart all 48 rolls of butcher paper to a large auditorium, and each team will unfurl its roll to share its work with the CEOs. Our greatest hope is that at the end of the evening, we’ll see them collectively pulling out blank sheets of paper and starting afresh to design the next round of business models they can imagine for their organizations.

Here’s some of the feedback we received halfway through the class:

“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 enjoy having a huge roll of blank paper and being asked to brainstorm in various ways with my teammates. I have enjoyed re-learning how to mind map, and learning the other methods (except that we don’t practice them often enough for me to feel comfortable with them).”

“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.”
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 concept, create business plans for commercialization of advanced clean technologies, and help U.S. 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 how to use design approaches? We’re in the early stages of setting up a network of “design labs” around the campus furnished to engage teams of students across the 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 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 student community, but faculty and – we hope – you, the design community, as well. We welcome your inputs as we continue the journey.
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