The making of an MSBA program

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Industry demand, diverse entering class drive the UC Davis Master of Science in Business Analytics program, set to launch this fall.

By Sanjay Saigal

Davis is my dream school!"

An admissions coach must have stressed the need for such a declaration – "and make it passionate!" – to a tutorial on admission interviews somewhere in cyberspace, I decided. I heard it so frequently I began to anticipate it in every admission interview, betting myself how soon it would turn up. And there were a lot of interviews – at least 170 by our records. Why did we invest in such a high-touch admissions effort? How did we go about it? How did our first-ever admissions cycle work out? To answer those questions, I should start by describing the UC Davis Master of Science in Business Analytics (MSBA) program.

An analytics-oriented master's degree program was first mooted at UC Davis' Graduate School of Management (GSM) more than seven years ago. However, the current realization of the notion began to take shape in discussions with two GSM colleagues – Hemant Bhargava and Prasad Naik – in late 2013. There were about 30 master's programs in analytics in the United States at the time. Surveying the field, it seemed to us that for every truly innovative program out there, there were multiple "product extensions": often operations research programs reorganized under the analytics label. Even though I do not recall it being a matter of explicit discussion, an early strategic decision for us was to not extend, say, the existing

business analytics concentration of the UC Davis MBA. We decided instead to have our design reflect industry demand.

Most of our conversations were with Silicon Valley firms. Dozens of industry interviews later, we had the essential elements. Hiring managers were telling us that their dream program would be:

- **Relevant –** teach material that graduates could use on Day One at their new job
- **Practical –** ensure that students experienced the complete decision analytic life-cycle
- **Quick –** less focus on function-specific knowledge that would be learned on the job, and more on core skills

That led us to design an MS in business analytics that would:

Prepare students for business impact. To the standard computing and statistics, we added a three-course sequence focusing on effectively translating analytic insight into profitable change. In other words, unlike a purely technical program focusing on turning information into insight, we would teach how to turn insight into influence.

The program's first order imperative would be to "learn by doing." Instead of a capstone project occurring at the end of the program, we designed a practicum spanning the entire duration of the MSBA. Student teams would collaborate on a soup-to-nuts consultative engagement with an industry partner, learning the ups and downs of a real engagement, and quickly applying "book learning" from their courses to the practicum effort.

After considering multiple configurations, we settled on a short 10-month program spanning three and one-half quarters. We would do away with summer internships. By leveraging the deep experience gained during the practicum, our students would graduate job-ready.

An immediate consequence of our program wireframe was the need to extend our student search beyond the usual quant disciplines. Real analytics is done in teams, with colleagues from different functions, motivations and backgrounds. We decided to explicitly search for

Sanjay Saigal and his colleagues designed the MSBA program at UC Davis to meet the demands of industry.

students with diverse backgrounds and interests, specifically focusing on four key competencies: 1) quantitative skills (of course!), 2) data and computing, 3) business experience and 4) organizational savvy.

We realized quickly that our portfolio-oriented admissions process would need to be more flexible and open to ongoing improvement than

Figure 1: Mix of entering class by experience.

a single ranking process. We'd be picking students in skill buckets, without good foreknowledge of applications to come. Recall that we were recruiting for our charter class, with no historical basis on which to forecast the shape and composition of the demand.

As it turned out, we needn't have worried. Winnowing the more than 600 submitted applications, we have had no trouble whatsoever exceeding our planned Year One enrollment of 40 students. The entering class has an excellent mix of students fresh out of college and experienced working professionals, as seen in Figure 1 in the split between fresh (0-1 years since graduation), early-career (2-5 years work experience) and mid-career (6+ years work experience) students.

Ensuring gender equality, a key diversity-related objective, drove our outreach efforts domestically and abroad. As a result, slightly more than half of admitted students are women, even though gender was never a factor in admissions decisions.

Student backgrounds are also quite diverse. In addition to business and STEM majors such as accounting, economics, finance, electrical engineering and statistics, our students have degrees in journalism, psychology, GIS, urban studies, construction management, political science and even public relations! One in five students have master's degrees, including MBAs.

The skill-set distribution is not quite as planned. While quantitative, business and organizational skills were extant among applicants, computing skills were less so, as seen in Figure 2. In response, we created a professional development scholarship to encourage students to improve their computing ability through a structured proposal/selection process before they arrive in class. The response has been gratifying, though at the time of this writing it remains to be seen if skills will actually show the expected improvement.

Practicum teams are formed based on evidence of project-specific competencies. In addition to the four skill sets mentioned before, team-assignment attributes include project management and data management. In all cases, we look at evidence from transcripts or descriptions of work done, not students' self-assessment.

At the time of this writing, we're still two months from the first day of classes. We realize that no battle plan survives the first skirmish. We'll learn a great deal from student performance over the coming academic year. And we shall tune the admissions process based on the evidence. One prospect is clear: Thanks to a well-designed enrollment system, we have all the data we need. We've already begun to extract descriptive statistics from the database.

In coming months, we'll be eating our own dog food – assessing our admissions criteria and decisions against student outcomes in coursework and placements. Perhaps sometime next year, I'll be able to document our insight into our findings and how we use that knowledge to better deliver the "dream" experience so many of our students expect! **ORMS**

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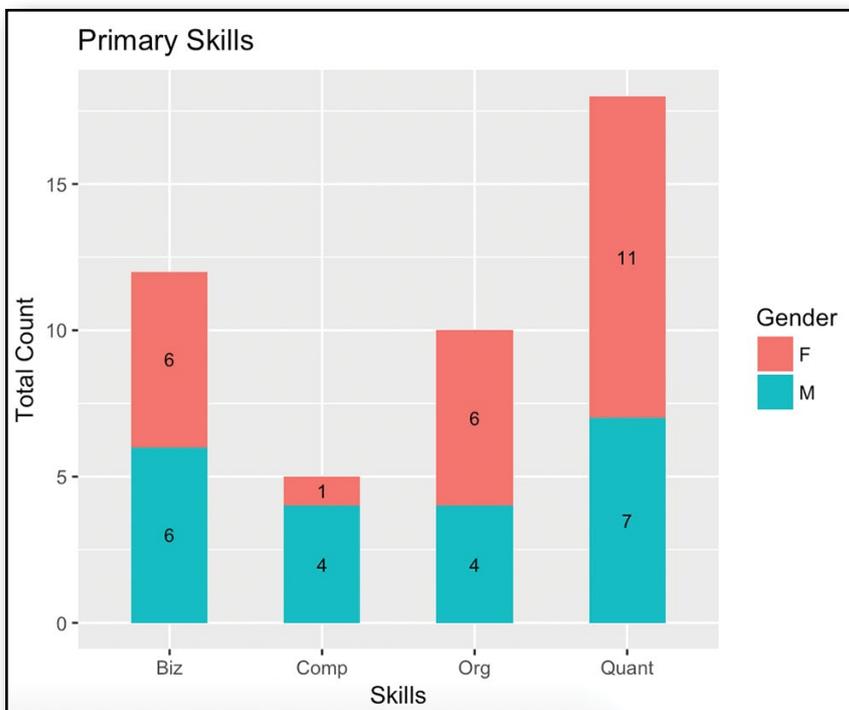

Figure 2: Mix of entering class by primary skills.