Learning, Thinking, and Data Mining: How We Raised
The Bar Passage Rate at Florida International University

2018 AALS Annual Conference
Section on Empirical Study of Legal Education and the Legal Profession
San Diego, California

Raul Ruiz
Florida International University College of Law, Miami, Florida
Director of Bar Exam Preparation
Assistant Professor of Academic Support

What Does the Bar Exam Test?

Many would cite the MBE in response to this question: Civil Procedure, Constitutional Law, Contracts, Criminal Law & Procedure, Evidence, Real Property, and Torts. Factor in the MEE, the MPT, and/or a substantive state law component, and you have a myriad of subjects tested on the bar exam.

What does not come mind at first, however, is that the bar exam also tests learning and critical thinking skills. These are skills that we often believe are developed during the undergraduate course of study. However, we have discovered that this assumption does not hold true for a number of our students. More importantly, we have discovered that despite these deficits, early intervention utilizing sound science can develop these skills in law students with sufficient time to have a demonstrably corrective effect.

Data Mining – Discovering What Makes *Your* Students Tick on the Bar Exam

Data mining is the process by which we extract new knowledge from existing knowledge. At FIU, our existing knowledge included information such as a student's LSAT, undergraduate GPA, first year GPA, graduating GPA, grades in various classes, participation in our Academic Excellence Program, number of bar tested courses taken, and whether the student passed one or both parts of the Florida bar exam, just to name a few.

We conducted non-linear binary logistic regressions[1] to determine the statistical significance and effect of these variables after students were exposed to our Academic Excellence Program (AEP). What we found may surprise you.

---

[1] A regression is nothing more than a process by which we estimate the relationship between certain variables (independent variables) to a result (dependent variable). For example, a regression can be computed to determine how the average life expectancy (dependent variable) of an individual changes based on the number of cigarettes and alcoholic drinks consumed each day (independent variables).

First, we determined that a student's LSAT score, while statistically significant, had a *de minimus* impact on a student's odds of passing the bar exam. A student's graduating GPA had the largest impact on the probability of bar exam passage. How much was the difference in effect between these two? Although this varies in a logistic regression, an increase of 1 point in LSAT score raises a student's probability of passing by between 2-3% at FIU. However, a .1 increase in GPA raises a student's probability of passing by between 10-12% at FIU[2]. With such information, we can even determine the GPA range at which is a student is most likely to convert from a probable fail on the bar exam to a probable pass.

Similar information has been gleaned from independent variables mentioned previously, such as grades in particular courses, effectiveness of bar preparation companies for various GPA ranges, and many others.

These results allow us to generate a model[3] predicting the bar passage probability of a student as they progress through law school. By doing so, we can implement sound policies that focus on students lacking the critical learning and critical thinking skills to succeed in law school and on the bar exam. In addition, we are also able to measure the impact of our program on student outcomes.

Overall, our data analytics have led us to one major realization: about 20% of our students entering law school lack several critical skills usually developed at the undergraduate level, as exemplified by low LSAT scores and low first year grades. However, the data indicates that with a well-designed and implemented academic excellence program, those students are able to remain in law school, improve their GPA, and ultimately pass the bar exam on their first attempt.

What we have learned from our data is relevant only to FIU. Our results depend on the nature of our incoming students, their histories, families, life experiences, undergraduate experiences, work schedules, language issues, and a myriad of other factors. It is important that each law school conduct thorough analyses to determine that makes their student body "tick" on the bar exam.

---

[2] There are diminishing returns associated with this math.
[3] Models are created using the results of statistical regressions. We use models to take the results of the regression to predict future outcomes. We can use these models to determine what factors have the greatest effects on the desired outcome.

How to Get Started with Data Analysis

Step 1 – Acquire Data

Deciding on the Data to Acquire

You must first decide what data you wish to analyze. Generally, more data is preferred to less data. Examples of data that may be of use to you from your law school include: LSAT, first year law school GPA, graduating law school GPA, bar exam result (first attempt), undergraduate GPA, grades in 1L courses, grades in bar tested courses, grades in final year bar prep course, commercial bar prep provider selection, participation in academic excellence programs, participation in clinics/externships, etc.

Deciding How to Store the Data You Have Acquired

Developing a data acquisition and storage method is critically important and will make all future data analysis easy. Microsoft Excel and Microsoft Access database are two user-friendly programs to help with this. Many statistics software packages are able to extract data from these data sources without issue.

Statistical analysis software described below, such as IBM's SPSS, have built-in data storage tools to centralize your datasets.

Step 2 – Learn Statistics

Easier said than done. A good understanding of linear and non-linear regressions is important. It pays to invest time into learning how these models are created, how strong they are, and what conclusions are safe to draw from the data.

Alternatively, your university may have a central research department that can conduct statistical analysis on your behalf. Utilize those resources. It pays to invest in a good textbook that teaches you the basics of statistical analysis, regressions, and modeling so you can have effective conversations with your statisticians if you go this route.

Step 3 – Adapt Based on What the Data Tells You

If you have an academic excellence program at your law school, use this data to shape the program to maximize its returns. Perhaps you need to change your target audience, or emphasize certain classes that provide needed skills over other courses in your academic excellence program.

If you have thinking of starting an academic excellent program, this data can identify your students' weak skills that need to be developed.

You may be surprised at what the data tells you. You may find a particular grade in a legal writing course is important for predicting a student's bar passage down the road (we sure did!). The question you have to ask yourself, then, is "why is this so?"

Step 4 – Rinse & Repeat

I run my data analysis after every bar exam administration. I have more data that contributes to the accuracy of my model and tells me what we are doing right and, more importantly, what we are doing wrong.