

Chapter 4

Parsing Banner Downloaded Data into a Flat-File Format for Analysis

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ABSTRACT

Many institutions do not perform statistical modeling of student academic outcomes because they lack the ability to translate Banner® relational files to a flat-file database format. Accredited programs within institutions have terminal, high stakes examinations known as certifying boards that measure competencies and subject knowledge gained during the educational experience. Institutions need to know if there is a relationship between what is being taught throughout the curriculum and how well that knowledge prepares students to think critically as reflected by performance on boards. While it is easy to download Banner data in Microsoft Excel® spreadsheet format, programmers are needed to parse the file for use in statistical packages such as IBM SPSS® and SAS®. This case study details a methodology, including programming language, that will help anyone with intermediate Excel knowledge develop a relational database from Banner files.

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BACKGROUND

The Little State College of Dentistry was founded in 1881 and is the 5th oldest dental school in the United States. It is accredited by the Commission on Dental Education.

The College has a pre-doctoral dental program with 365 students, 5 post-doctoral residency programs (Oral Surgery, Pediatric Dentistry, Orthodontics, General Practice Residency and Advanced Education in General Dentistry) that train 44 post-doctoral residents a year and a Dental Hygiene certificate program that graduates 15 hygienists a year. Supporting clinical, research and didactic efforts include 68 full time faculty, 14 part time faculty and a talented staff of 59 support professionals.

The Little State College of Dentistry (LSCD) was the first American dental school to accept women on equal basis with men and was the first American dental school to have a female dean. The Little State College of Dentistry and Central State Medical College have jointly produced 91% of all African American dentists who have graduated from an American dental school and LSCD alone has produced more than 90% of all African American specialists in the fields of pediatric dentistry and orthodontics. More than 80% of LSCD's doctoral graduates are accepted into post-doctoral residency programs each year, with the remainder returning immediately to provide care for the disadvantaged, uninsured and under-insured. The Little State College of Dentistry's graduates practice in 47 states across America and in 20 countries across the continents of Africa, Europe, Asia, North and South America.

SETTING THE STAGE

Assessments and measuring student performance in mastering American Dental Education Association competencies became a mandatory requirement of all dental colleges after 1997. The intent

was to explain competency in terms of curricular development processes which were supposed to be dynamic and constantly evolving. This required the use of quantitative modeling with regression outputs of partial coefficients that reflected achievements in mastering competencies and thus performance on national boards.

The national board is a two part event, with Part I being taken at the end of the Sophomore year and Part II at the end of the first semester of the Senior year. Part I measures competence in the basic sciences core courses, such as biochemistry, anatomy, physiology and microbiology. Part II includes dental specialty areas in content, such as radiology, pathology, oral surgery and periodontology. Both are critical, high stakes standards that reflect how well curricular, teaching and measurement components were being used within a dental academic institution.

In this case, what LSCD needed was the means to determine the effect of didactic, clinical and laboratory instruction on achieving competencies and thus the relationship between mastery of competencies and national board outcomes. The process required that end-of-course behavioral outcomes listed on syllabi come from our stated competencies. Additionally, each question on the mid-term and final examinations had to be linked to a competency. Competencies were also linked to subject areas on the national board exams. Thus, individual competencies could be measured and courses that were discipline specific could be used as predictors of corresponding areas on the national board. All of this was possible if the relational data in Banner could be downloaded in an efficient manner and converted to a flat file that listed each student's performance as a row in the table. Parsing data from a table involves the writing of scripts that explore the data in the table and extracts specific variables or fields of data according to the directions encoded in the scripts. This normally requires advanced programming skills.

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