Using the Past to Mold the Future: Results of Surveys of Alumni from an Undergraduate Statistics Program

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Abstract

What kinds of jobs do individuals with undergraduate degrees in statistics obtain after they graduate? What skills developed in their undergraduate experience do they use? What skills do they wish they had gained while they were in college? The authors explore the answers to these questions and more in this paper. The results of a survey of alumni of Eastern Kentucky University's undergraduate statistics program are presented. This paper summarizes data gathered regarding the types of jobs the program's alumni have held, the skills they have used in their positions, the software and programming languages they have utilized, whether they attended graduate school, and other information provided on a 2014 survey. The results obtained in 2014 are compared with the results from similar surveys conducted in 2000-2001 and 2006.

Key Words: Statistics, alumni, survey, undergraduate, jobs, skills

1. Introduction

Eastern Kentucky University (EKU) is a regional four-year institution with a total enrollment in Fall 2013 of 16,111 students. The Department of Mathematics and Statistics at EKU offers one of only two BS degrees in Statistics in Kentucky. During the fall of 2014, the BS in Statistics degree at EKU will undergo program review. As part of that review, the authors began conducting a survey of alumni during July 2014.

2. Alumni Survey

The authors obtained information from EKU's alumni relations office for all 154 living alumni who graduated from May 1980 through May 2014 with a BS degree and statistics major. On July 11, 2014, they e-mailed any alumni whose e-mail address was known and messaged alumni who were Facebook friends with either of the authors. The message described the program review and provided some personal information about current statistics faculty. It also included a link to a survey created using SurveyMonkey, which asked each graduate to provide information about current and previous jobs, information about any graduate work completed, use of statistical software in jobs or graduate work, opinion of the strengths of the statistics program, and suggestions for improvement of the program. The authors also posted a link to the survey in the Facebook group "EKU Statistics Alumni." On July 16, 2014, letters were mailed to all alumni who had not yet responded. (This was the first contact with some alumni the authors were unable to contact electronically.) Of the 154 alumni who graduated between May 1980 and May 2014, 76 completed the survey. (There were 3 for whom no current address was known.

Thus, from the attempt to contact 151 alumni, the response rate was 50.3%.) In the fall semester of 2014, the authors will send a second letter to alumni who have not responded.

It is important to note that these results may not generalize to all alumni due to this voluntary response. In conducting this survey, the authors found it very useful to begin with the alumni relations office. The Department of Mathematics and Statistics administrative assistant was able to provide the authors with some additional alumni e-mail addresses. It also helped that one of the authors had kept a list of names of the students who had graduated over the years. In June 2007, the authors created a Facebook group and have attempted to invite as many alumni as possible to join the group during the last seven years. This was a very efficient way to distribute the survey link to many alumni.

3. Survey Results

3.1 Jobs

The survey asked alumni to give their present employers, their job titles, and whether or not they use statistics in their positions. Similar information was requested for previous jobs.

Survey results indicate that EKU's statistics alumni are able to find good jobs that enable them to use their statistical education. Of the 76 alumni who returned the survey, 52 (68.4%) said that they use statistics in their current jobs, and 14 (18.4%) said they do not use statistics in their current jobs. Ten alumni (13.2%) gave no response. Some of them are not currently working or are attending graduate school. In addition, 61 (80.3%) said that they either use statistics in their current jobs or have used statistics in their previous jobs or both. Only 10 (13.2%) have never used statistics in any of their jobs, and 5 (6.6%) did not respond. Responding alumni reported a variety of job titles in education, industry, and government; few of these titles included "statistician," "statistical," or "statistics," even though many of their jobs do involve statistics. Most alumni have jobs located in Kentucky, Ohio, Indiana, California, or Tennessee.

Alumni were asked about which software packages and computer languages they have used in any of their jobs. Seventy-three alumni provided responses; results are displayed in Figure 1.

3.2 Graduate School/Additional Degrees

The survey asked alumni if they were currently pursuing or had completed any other degrees since they graduated with their BS degree. If they had, they were asked for the name of the institution, degree received, major/area, and graduation date.

Of the 76 alumni who completed the survey, 10 of them (13.2%) are currently pursuing another degree. In addition, 37 of them (48.7%) have already earned another degree of some kind. Seventeen of the alumni who returned the survey, or 22.4%, have earned either master's degrees or PhDs in statistics or biostatistics. One alumnus earned a PhD in electrical engineering, and one earned a law degree. The remaining alumni who received graduate degrees earned master's degrees in education, mathematical sciences, computer science, finance, business, sociology, or divinity. (This is not surprising because some of these alumni had minors or second majors in these fields.)

Alumni were asked about which software packages and computer languages they have used in any of their other degree programs. Thirty-nine alumni provided responses; results are displayed in Figure 2.

3.3 What Alumni Found to Be Most Beneficial

The survey asked alumni, "What are the strengths of the B.S. degree in Statistics at EKU? What did you learn that has been the most beneficial to you?" The most common response was that learning SAS was most beneficial. Quite a few alumni also mentioned faculty and statistical applications as strengths of the program.

3.4 What Alumni Wish They Had Learned from the Program

Alumni were asked, "How can we improve our program? Is there anything that you wished you had learned at EKU?" Common suggestions included more computing in the program (some mentioned particular packages like R), more actuarial science content, greater emphasis on communication skills, and more career preparation. (An actuarial science minor and a course in R and data mining were added after some respondents graduated.)

4. Conclusions

In a similar survey conducted in 2000-2001, described by Costello and Kay (2002), of the 58 alumni who returned the survey, 45 (77.6%) said that they used statistics in their current jobs at the time, while 49 (84.5%) said they either used statistics in their current jobs or had used statistics in their previous jobs or both. Twenty of the respondents (34.5%) had earned a graduate degree of some kind, and 11 (19.0%) had earned either master's degrees or PhDs in statistics. In another survey conducted in 2006, of the 57 alumni who returned the survey, 46 or 80.7% said that they used statistics in their current jobs at the time, and 49 or 86.0% said that they either use statistics in their current jobs or had used statistics in their previous jobs or both. Twenty-three responding alumni (40.4%) had earned a graduate degree of some kind, and 9 (15.8%) had earned either master's degrees or PhDs in statistics. These results are similar to those in the current survey, although the 2014 results show a higher percentage of alumni having completed other degrees.

References

Costello, P.S., Kay, L.W. (2002). Where do all of the undergraduate statistics majors go? STATS, 34: 10-13.

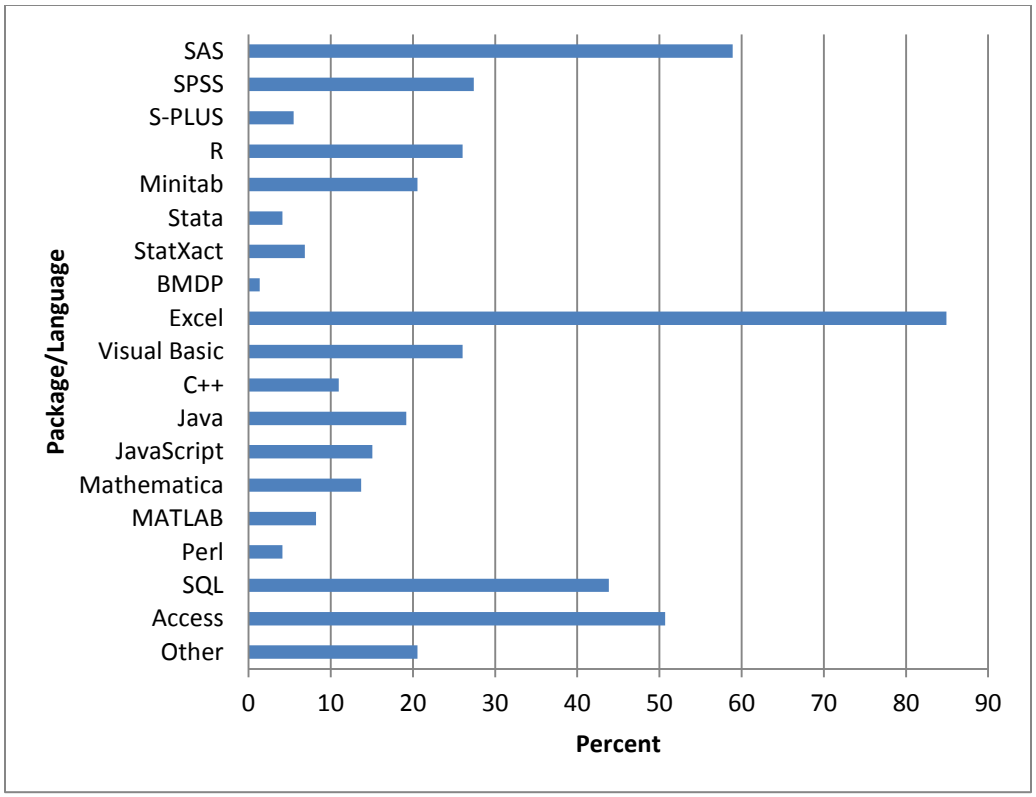

Figure 1: Computer Languages & Software Packages Used by Alumni in Jobs (n = 73)

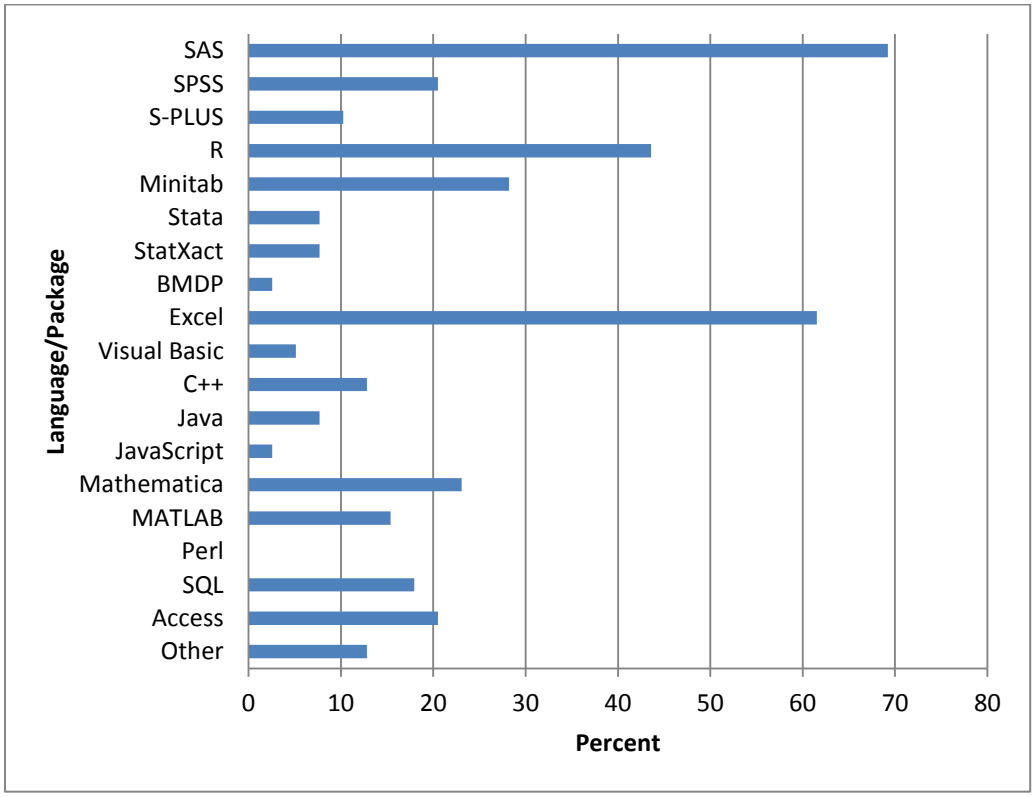

Figure 2: Computer Languages & Software Packages Used by Alumni in Other Degree Programs (n = 39)