Application Number	M22
Grant Amount	$2,000
Applicant	Gary Fisk, Ph.D.
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Team Members	None
Works Being Revised	This is a new ancillary resource to support the transition to open source software in Psychological Statistics.
Final Semester	Fall 2018
Grant Amount	$2,000
Description	Title: Replacing SPSS software with PSPP Rationale: Psychological Statistics is a required course in most Psychology programs across North America. The statistics requirement promotes a proficiency in data analysis that will prepare psychology majors for basic research in the social sciences. This statistics course is also taken by Sociology majors and Political Science majors. An essential component of most Psychological Statistics classes is the use of computer software for performing the analyses. This saves statisticians from the time and drudgery involved in doing the work by hand on paper. The standard software for our discipline is Statistical Package for the Social Sciences (SPSS) by IBM. The typical class in Psychological Statistics involves both explanation of key ideas, such as null hypothesis testing, accompanied with hands-on applications that are done with the computer software. The downsides of using SPSS software are the cost and the licensing. The overall cost for our classroom (26 computers), computer lab (seven computers), and library (one computer) for fiscal years 2016 through 2018 has been $4861, $5120, and $5891, respectively. The software has a restrictive one-year license that must be renewed to keep the software running. The cost burden is largely driven by the need for yearly renewals. Another significant SPSS cost is that our Information Technology technicians must take time each year to install the new software and the new licenses on each machine (34 computers). We have also experienced significant delays in our access to the new software. In 2017, our software expired on August 31. It took about six weeks for us to get the new software from the University System Software Resources and Services group. This delay caused significant changes in the instruction of the Psychological Statistics course. The cost and licensing of SPSS have also created logistical problems for our students, who must use SPSS for homework problems. A student version of SPSS costs approximately $60 for a six month "rental" license, so I encourage our students to use SPSS in the computer lab to save money. The lab-based software works well for traditional undergraduate students, but it poses a problem for some students who are working and cannot easily come to campus to use the computer lab. These students

complain that the software is inaccessible and unfriendly to nontraditional student needs.

There is also a cost concern about how students might use SPSS after finishing college, when they would not be eligible for a student discount. The current standard price from IBM is to rent SPSS for $99/month, which works out to almost $1200 per year. This price only covers the standard features. Advanced SPSS features require an add-on package that costs an additional $79/month. Only people with significant institutional or grant support can afford this high cost.

Our proposed solution to the high expense and restrictions of SPSS is to replace it with a free, open-source software application called PSPP. The PSPP program was designed to provide most of the SPSS features in a free, open source form. The PSPP application can perform all of the basic statistics that would be covered in an introductory-level statistics course, such as means, standard deviations, correlation coefficients, and t-tests. In addition, PSPP has a graphical user interface called PSPPIRE ("perspire") that has a look and feel similar to SPSS software. Like SPSS, the PSPPIRE user interface has a spreadsheet-like window for entering data and configuring variables. The desired statistical analysis can be chosen from a drop-down menu on the data view window. The results of the analysis are displayed in a separate output window. These similarities to SPSS will help students who are trained on PSPP transition to using SPSS if they should need to make this change in graduate school.

We estimate that this switch from SPSS to PSPP will produce an immediate savings of approximately $6000 for the 2018-19 academic year and a similar degree of savings in subsequent years. It is important to note that individual students will not directly experience this savings. SPSS is currently purchased through Student Technology Fee funds, which are currently $55 per student each semester. This savings will be an indirect benefit to all GSW students in that their Student Technology Fee money can be redirected towards other technology projects on campus. Another cost savings will be a reduction in the time and effort that it takes our IT technicians to install new SPSS software each year.

The free – as in freedom or liberty – quality of PSPP will also benefit students. They will be able to install PSPP on their laptops or home computers without licensing problems. This will make the software more convenient to use. Students will also be able to easily use this software after they graduate.

Mini-grant Deliverables:
A significant barrier to the PSPP/PSPPIRE adoption is that the software has very little in the way of instructional resources that explain how the software should be used. Some documentation is available, but this documentation is professional-level and quite technical. The PSPP documentation is well beyond the capabilities of most undergraduate students. A thorough search has failed to turn up an example of a student-friendly instructional resource for people who are just starting to use PSPP.

The proposal is to create student tutorial for basic PSPP features that would be aimed towards the needs of students in an introductory-level statistics course. These software tutorial web pages would cover the basic features of data entry and choosing statistical tests. Commonly used

analyses like descriptive statistics, correlations, t-tests, and analysis of variance would also be explained in the tutorial resource. These tutorials will make extensive use of screenshot images to help students see the parts of the program that they must click on or use to achieve the desired analyses. The tutorials will be formatted as web pages to facilitate use in a wide range of learning environments.

The tutorial web pages will be licensed with a Creative Commons license to promote sharing and reuse. The student resource will be hosted on a public web server to facilitate the free sharing of this guide. In addition, these tutorial pages will be published as a LibGuide resource.

Applicant qualifications: I received my Ph.D. in behavioral neurobiology from the University of Alabama at Birmingham in 1995. Since 1997, I have been teaching full-time for the University System of Georgia, first at Gordon College (1997 to 2000) and then at Georgia Southwestern State University (2000 to present). I estimate that I have taught Psychological Statistics for 14 years. This has given me a thorough appreciation for the struggles that the students in this course typically have. I have been involved in two OER textbook transformation grants (Introductory Psychology and Human Growth and Development). For service, I am involved in several instructional technology committees. My book on scientifically-based tips for teaching with PowerPoint will be published by the University of North Georgia Press this fall.

Timeline	January 2018: Mini-grant application June, 2018: Develop the tutorial web pages August 15, 2018: Deadline for publishing the tutorial to the web September, 2018: Begin using PSPP instead of SPSS in Psychological Statistics Fall, 2018: Make any necessary corrections or improvements in the tutorial resources December, 2018: File the final report on the effectiveness of this project All resources will be developed by Gary Fisk.
Budget	Gary Fisk: $2000 to develop PSPP instructional web pages Extra expenses: No additional expenses are anticipated. The author already possesses the computer technology that is needed to create the tutorial web pages.