Teaching Guide
Discovering Statistics Using JASP

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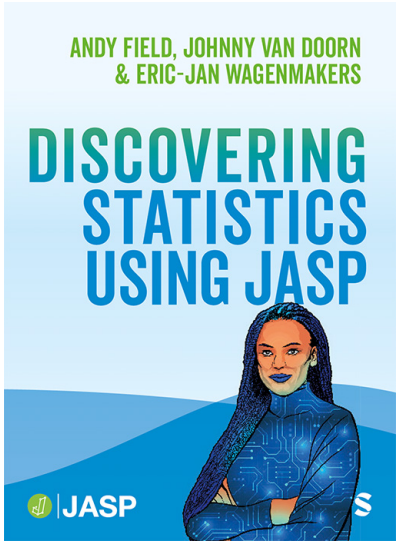


As the title suggests, the book "Discovering Statistics Using JASP" differs from "Discovering Statistics Using SPSS" mainly in the software that is being used. While the theory sections have remained largely intact, the sections that explain how to conduct the analyses using software have changed in major ways. In this guide we highlight the practical differences between JASP and SPSS in the context of teaching.

1 Ease of Use

JASP is designed to be user-friendly and intuitive. The interface is clean and straightforward, making it easy for students to navigate. Unlike SPSS, which can appear cluttered and overwhelming to beginners, JASP's simplicity helps students focus on learning statistical concepts without being bogged down by complex menus and options. For instance, JASP uses *progressive disclosure*: Instead of flooding users with information, the initial output of JASP is purposefully simple, presenting only the most basic output. Users can then request additional information by selecting additional options – this makes it easier to see the forest and not be distracted by the trees. For instance, as soon as you tick the box *mean*, the output table adds the mean; tick the box *median*, and the output table adds the median; untick the box mean and the mean is removed from the output table. This makes teaching statistics a lot more intuitive, since it is easily demonstrated how changing a single option (e.g., changing from Student's t-test to Welch t-test) influences the results.

More generally, JASP will try to shield the user from information they don't need. More advanced analysis options are tucked away under separate tabs with explicit warnings on them (like *Advanced Options*).

2 Installation and Accessibility

JASP is open-source and free to download from the JASP website. There are no complicated installation issues or licensing costs. JASP is released under a Free and Open Source license. This ensures that JASP will remain freely accessible to all students, regardless of their financial situation, for the rest of their lives.

JASP is available in several languages: English, Dutch, German, Spanish, Portuguese, French, Galician, Polish, Russian, Chinese, Japanese, and Indonesian. JASP also has keyboard navigation for extra accessibility. This includes implementation of the ALT-key, which allows users to navigate the major UI elements, such as analyses, the modules and menus. To use, press the "ALT" key ("Option" key on Mac), which will display tags on top of elements that indicate how to select each of them with the keyboard.

3 Statistical Analyses

JASP is designed with a modular architecture that allows users to tailor the software to their specific needs. At its core, JASP provides essential statistical tools and functionalities that cover a wide range of basic analyses suitable for most introductory and intermediate statistics courses (Descriptives, *t*-tests, ANOVA, mixed models, regression, frequencies, and factor analysis).

JASP offers even more functionality through add-on modules. These add-on modules are not activate by default but can be easily enabled by ticking the associated checkboxes in the JASP interface. By ticking a box, users can unlock advanced analyses such as the 'process' module (featuring mediation/moderation analysis) and machine learning module. This modular approach allows users to customize their JASP environment, adding only the features they need, which helps keep the interface clean and user-friendly while providing the flexibility to perform more complex analyses as required.

4 Data Visualization

JASP will soon feature a "chart builder", but in the mean time JASP provides analysis-specific plots in its respective analysis modules. For instance, the modules that compare means (i.e., *t*-tests and ANOVA) offer options for bar charts, while the regression module features scatter plots. There are also general plots available in the Descriptives module. There is a heavy focus in Chapter 5 on *raincloud plots* – these are a more informative method for visualizing group differences, since they not just include the mean and error bar, but also the individual data points. This added information means they can also be used to assess the data distribution and the presence of outliers.

5 Reproducibility

JASP enhances reproducibility by allowing users to save their entire analysis workflow in a `.jasp` file, which includes the original data, the options, and the results. This file can be shared and opened on any computer with JASP installed, ensuring that analyses can be reviewed and replicated easily. Analysis output can be annotated and exported to a `.pdf` or `.html` file. Please consult the JASP Data Library, which contains data files and annotated `.jasp` files, for concrete examples. The data library is available in JASP itself and in its online format at https://jasp-stats.github.io/jasp-data-library/. All of the corresponding `.jasp` files in the book will be included in the JASP data library and the companion website (https://discoverjasp.com/pages/data), for easy access. This includes the raw data files and the files with the results already included.

JASP also has an analogue to the SPSS "Syntax mode". Since JASP runs on R, future versions of JASP will be bundled with a JASP R-package, such that the analyses can be replicated from within R. Currently, analyses in JASP can display a corresponding function call, which includes all the necessary options for reproducing the analysis. This means that instead of sending a `.jasp` file, the user can copy the code and share it along with the raw data file, such that someone else can reproduce the analysis.

6 Community and Support

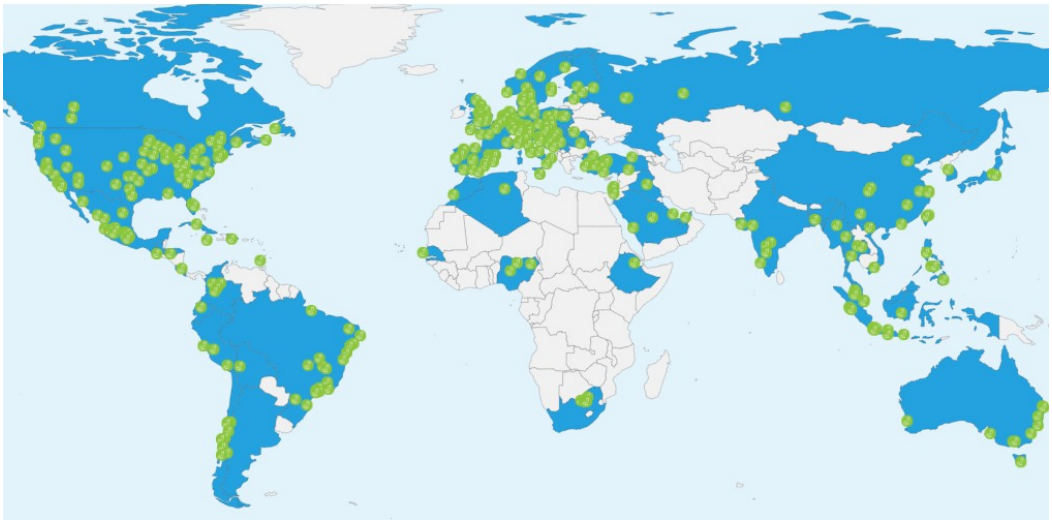
JASP has a growing community of users and developers. The support forum (https://forum.cogsci.nl/index.php?p=/categories/jasp-bayesfactor), GitHub page (https://github.com/jasp-stats/jasp-issues/issues), and extensive online documentation (https://jasp-stats.org/resources/) make it easy to find answers to questions and troubleshoot issues. The open-source nature of JASP means that it is continually evolving based on community feedback and contributions.

Institutions that wish to contribute to the JASP development can consider becoming a member of the JASP Community. Instead of paying for a yearly licensing fee to a commercial company, a fraction of those costs could be used for the continued development of an open-source project, benefiting students all over the world. Community institutions benefit from additional support, such as higher priority feature requests and access to a didactic helpdesk. More information is available at https://jasp-stats.org/community/.

7 Transitioning to JASP

Transitioning to JASP is simple and fun, and your students will be forever grateful. For teachers who wish to transition to JASP we offer the following support:

1. Teachers who use 'Discovering Statistics Using JASP' and teachers who work at an institution that has joined the JASP Community will both be given access to a private Mattermost channel devoted to teaching statistics using JASP. To obtain access please send an email to jasp.stats@gmail.com.



More than 355 universities across 73 countries use JASP in their statistics curricula.

2. 'Discovering Statistics Using JASP' is accompanied by a website (https://discoverjasp.com/) with publicly accessible background materials such as data sets, exercises, annotated examples, and more.

3. The JASP website features numerous supporting publicly-available materials: links to YouTube channels on teaching statistics using JASP, blog posts, manuals, data sets, etc.

4. The JASP Data Library provides annotated examples of many standard statistical analyses.

5. The JASP team is on standby for free help and advice.

8 Conclusion

Incorporating JASP into your statistics curriculum can provide a more accessible and engaging learning experience for students. Its ease of use and open-source nature make JASP an excellent choice for teaching since it allows the teacher to focus on the statistics rather than the endless menu's/options. More examples and explanations are available in the article "Accessible and Sustainable Statistics with JASP", available at https://osf.io/preprints/psyarxiv/ud2vj. While SPSS remains a powerful tool, JASP offers a smooth user experience that aligns well with the educational goals in Andy Field's textbook: to make statistics education slightly less painful than it would otherwise be.