The menu bar at the top of the screen gives a range of options from which to choose for moving through the hierarchy.

1. Type. The subject can choose to alter the nature of the image seen. SpiderPC always starts off with a harmless cartoon spider, "Smiley." The next is "Incey," who is rather more representative of a real spider. The third, "House," is a real house spider. Finally, "Exotic" is a real tarantula-type spider.

2. Size. This gives four options for the size of the spider image, except "Exotic," which comes in only one size. SpiderPC always starts with the smallest.

3. Movement. All images have three options. "Static" is just that. "Controlled" allows the user to keep some control over the image's movement. Each image moves in a different manner. "Smiley," being the least threatening, just smiles; "Incey" goes up and down on his thread; "House" scuttles about the screen; and "Exotic" goes for a walk on his owner's hand. After the subject has chosen "Free," all spiders continue to move in the same way as before, but this time they move in a free and random manner.

4. File. This gives options to quit, restart, take a break, and, most importantly, report. "Report" gives access to the timed record of the session detailing changes made, the length of time that any image was on the screen, and the change that was made to move to the next image. Fourteen lines are shown on each page, and further pages are accessed by using the up and down arrows on the menu bar. A maximum of 100 changes are recorded. "Report" also provides two graphical representations of the exposure session, a bar chart or a pie chart. Charts and data files can be printed to Hewlett–Packard- or Epson-compatible printers or saved in a PCX file for inclusion in a Windows document.

Applications

Teaching. SpiderPC can be used to demonstrate the principles of the behavioral treatment of graded exposure. The irrational fear of spiders occurs so commonly that there will probably be several sufferers in any class of a reasonable size, some of whom may be persuaded to act as volunteer subjects.

The record of a subject's progress can be printed out as raw data for class members to use. In studying the individual case, a useful procedure is the graphical presentation of data. Two possible methods are available in File-Report from the menu. The manual accompanying the program contains some theoretical notes intended to be useful to teachers.

Research. SpiderPC provides a standardized form of treatment that allows for detailed investigation into the processes involved in the treatment of simple phobias. SpiderPC may be administered in contrast to other treatments. It may also be used to inquire more deeply into the processes occurring during therapy. Because the stages of the hierarchy are easily monitored, a subject's progress may be simultaneously measured with cognitive, psychophysiological, or emotional measures.

Therapy. Exposure therapy is well established as the treatment of choice for simple phobias. Traditionally, this has required the therapist to have on hand a supply of drawings, photos, and even videos of spiders. SpiderPC replaces all these in a single convenient package that may be used time and again. It may also be loaned out to patients for homework.

Of course, SpiderPC only takes the patient as far as a fairly creepy moving *picture* of a spider. To complete the cure, the patient will need to continue with a hierarchy of real spiders arranged in a graded sequence.

Availability

SpiderPC is published by Gwent Psychology Services, St. Cadocs Hospital, Caerleon, Gwent NP6 1XQ, UK (Tel: 0633-421121, ext. 262. Fax: 0633-430184). The price is $45 for individual use and $152 for an institutional site license.

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Automated Calculation of Diagnostic Efficiency Statistics

Kessel and Zimmerman (1993) recently reported on the computational inaccuracies and incomplete presentation of diagnostic efficiency statistics discovered among 26 studies published in *Psychological Assessment: A Journal of Consulting & Clinical Psychology* and the *Journal of Consulting & Clinical Psychology* between 1980 and 1991. They recommended that a standardized reporting format be used in future research reports to reduce computation errors and allow reviewers and readers to check the accuracy of calculations. Their suggested format included presentation of a 2×2 table, complete with cell sizes, along with indices, such as sensitivity, specificity, positive and negative predictive power, overall correct classification, and Kappa.

Description. The standardized reporting format suggested by Kessel and Zimmerman (1993) has been computerized to ensure accurate calculation and consistent presentation of diagnostic efficiency statistics. The automated code was written for the Microsoft Excel spreadsheet program, as optimized for the Apple Macintosh microcomputer (Microsoft, 1992). This template calculates sensitivity, specificity, positive predictive power, negative predictive power, false positive rate, false negative rate, overall correct classification (hit) rate, Kappa, and standard error of Kappa (Cohen, 1960; Fleiss, 1981; Fleiss, Cohen, & Everitt, 1969; Kessel & Zimmerman, 1993). The statistical significance of Kappa is tested utilizing formulas specified by Fleiss et al. (1969) and Fleiss (1981, p. 219). Although the calculation of Kappa is important to obtain the level of agreement correcting for chance-expected agreement, a significance test to determine if Kappa is significantly different from

Diagnostic Efficiency Table

Diagnosis

Test		Present	Absent	Total
	Positive	70	10	80
	Negative	6	14	20
	Total	76	24	100

Results

Sensitivity (True Positive Rate) = 0.9211
Specificity (True Negative Rate) = 0.5833
Positive Predictive Power = 0.875
Negative Predictive Power = 0.70
False Positive Rate = 0.4167
False Negative Rate = 0.0789
Overall Correct Classification (Hit) Rate = 0.84

Observed Agreement Po = 0.84
Chance Agreement Pc = 0.656

Kappa = 0.5349
Standard Error of Kappa = 0.099321658

Significance Test for Kappa Ho: k = 0   Z = 5.385532319
$p < 0.00000007$ two-tail test
$p < 0.00000004$ one-tail test

Figure 1. Sample printout of the Excel for the Macintosh diagnostic efficiency statistics template.

chance agreement (H_o: Kappa = 0) is equally important. Figure 1 presents a printed copy of the template complete with a sample data set.

Availability. An operational version of the Excel spreadsheet template may be obtained from G. L. Canivez by sending a Macintosh-formatted 3.5-in. disk with a self-addressed, stamped envelope and $5.00 to cover duplication expenses. It can also be downloaded at no charge from the America OnLine BBS service. This template is also available as a stand-alone program written in SuperCard and again can be downloaded at no charge from the America OnLine BBS service. Send correspondence to G. L. Canivez, Department of Psychology, Eastern Illinois University, 600 Lincoln Ave., Charleston, IL 61920-3099 (e-mail: cfglc@eiu.edu, or http://www.eiu.edu/ac/sci/psy/canivezhp).

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