Factors that increase stress and those that decrease stress were studied with 33 graduate students in an introductory educational research course. Participants completed the Statistical Anxiety Rating Scale (STARS) (R. Cruse, R. Cash, and D. Bolton, 1985) and were asked to rate their anxiety daily during the 4 weeks of the class. The instructor's recognition of anxiety, the instructor's use of humor, and the ability to work with a partner or group were seen by students as anxiety reduction factors. Reducing fear of evaluation was more difficult; students were highly anxious even with an open-book/open-note test. Other situations that increased stress were being unfamiliar with the tools and materials of statistics, having to make a presentation in front of peers, and being given assignments that differed from those required in other courses. Personal and family concerns and the amount of work required in other classes added to the strain of taking the educational research class. (SLD)
Stress and Stress Relief in the Educational Research Classroom

Vicki A. Wilson
Wilmington College
Wilmington, Ohio

Mathematics anxiety has been described as “panic, helplessness, paralysis, and mental disorganization that arises among some people when they are required to solve a mathematics problem” (Hunt, 1985, p. 32). This fear of mathematics generalizes to statistics and causes students in statistics classes and educational research classes, which often include the study of elementary applied statistics, to experience feelings of anxiety and incompetence. Sometimes students drop out of such courses, curtailing their career advancement (Richardson & Suinn, 1972); sometimes they just labor through the course, making it a high-anxiety arena for their classmates and instructors (Wilson, 1999).

Many researchers have suggested ways to alleviate anxiety, including addressing the anxiety (Tobias, 1978 and 1991; Hunt, 1985), using humor (Schacht & Stewart, 1990), reducing fear of evaluation (Hunt, 1985; Kosbab, 1989), and encouraging students to work in cooperative groups (Mealey & Host, 1992). Wilson (1999) found that students perceive specific teaching behaviors and the interpersonal style of the instructor as being helpful in reducing stress in the educational research classroom. Effective teaching behaviors include giving individual help, expressing concern about anxiety, breaking the material into small steps, using humor, and giving the students activities that help explain and clarify statistics concepts. Interpersonal factors include having a positive attitude and being encouraging, reassuring, supportive, and calm.

Although much has been written about anxiety reduction, little research, other than that on test anxiety, has addressed what happens in the mathematics, statistics, or educational research classroom to increase anxiety, as perceived by students. The purpose of this study was to explore both sides of this phenomenon: What are the things that increase stress and what are
the things that decrease stress, as reported by students in the graduate educational research classroom?

In this study, 33 graduate students enrolled in an introductory educational research course in a master's program in a small southeastern Ohio college were administered the Statistical Anxiety Rating Scale (STARS). Mean anxiety scores were above the normative scores, as reported by Cruise, Cash, and Bolton (1985), for the total battery and for all six factors (worth of statistics, interpretation anxiety, computation self-concept, test and class anxiety, fear of asking for help, and fear of the statistics teacher).

During the four weeks of the class, which met four times a week for three-hour sessions, students were asked to complete a daily journal entry in which they rated their anxiety on a scale of 1 ("Not anxious at all") to 10 (Stressed out”) and three prompts: "Today, in general, I’m feeling...,” “These things made me more anxious today...,” and “These things made me less anxious today.” On the final day of the course, students complete a Likert-scale questionnaire that was developed from those factors emerging from the journals. Students rated from "Not at all" to "A great deal" 17 possible factors in increasing anxiety and 21 possible factors in decreasing anxiety.

Data analysis included finding the mean anxiety rating for each day and comparing it to the activities that were going on in the classroom, calculating and ranking mean scores for the factors outlined on the questionnaire, and analyzing journal entries for patterns and themes.

Mean anxiety ratings for the 13 days in which data was collected were as follows: 5.24, 4.15, 5.09, 4.73, 5.82, 5.00, 3.88, 4.28, 6.19, 3.41, 3.11, 3.29, and 3.78. Interesting to note are that the mean anxiety rating fell after the first day, rose markedly on the day before the single
test (Day 5), and rose even higher on the day that students were introduced to $t$-test concepts and their computation using SPSS 8.0 for Windows (Day 9). Also interesting is that high stress days were immediately followed by low stress days. The class ended in a series of reasonably low stress days.

A preliminary analysis of the journal entries supports the numerical rankings. On the first day of class, students reported being “anxious,” “confused,” “stressed,” “nervous,” and “overwhelmed.” Only one was “pretty comfortable,” and one was even “looking forward to beginning this research.” On the second day of class, almost half reported feeling “better than yesterday,” “more relaxed,” and “fine” or “good.” On the day before the test, students reported feeling “overwhelmed,” “having too much to do,” and “more and more stressed,” “unnerved,” and “brain-fried.” After the test, they were “tired,” “beat,” and “worn out,” but also “relieved.” The introduction of $t$-tests resulted in more than half reporting feeling “pretty stressed,” “anxious,” “overwhelmed,” and “ready to cry.” The following day, nearly all were relieved, reporting feeling “good,” “great,” and even “super.” Over the last few days, many reported feeling “happy,” “great,” “relaxed,” and overwhelmingly “glad that things are almost over.”

Analysis of the questionnaire shows that several factors increased anxiety. At the top of the rankings were the following: doing computer assignments in the lab, difficulty of material covered in this class, amount of work in other classes, taking the test, presenting a group research project, preparing an individual research proposal, and personal or family problems. Of the factors that reduced anxiety, the following were ranked highest: instructor’s encouragement, getting a good grade on an assignment, instructor’s reputation, instructor’s use of humor in the classroom, knowing professor is sympathetic to personal/family priorities, instructor’s
recognition of anxiety of students, completing an assignment, and working with a partner in the computer lab.

The results of this study appear to offer some support for at least three of the strategies purported in the literature to alleviate anxiety. Instructor’s recognition of anxiety, instructor’s use of humor, and ability to work with a partner or group were seen as anxiety reduction factors by students. Reducing fear of evaluation seems to be more difficult. Even with an open book/open note test and the opportunity to raise test grades with subsequent instruction and completion of similar problems, students were highly anxious. Interpersonal factors as stress reducers, especially encouragement by the instructor, supports earlier work by the author (Wilson, 1999).

In addition to the known stressors of testing and evaluation, this study shows that being unfamiliar with the material and tools of statistics, including computer software, having to make a presentation in front of peers, and competing assignments different from those required in other classrooms (research proposals and critiques of research articles) also increase stress. With these adult students, whose mean age was nearly 35 and most of whom were taking another class, it is not surprising that personal and family concerns and the amount of work required in other classes added to the strain of taking the educational research class.

Although the results of this study have limited generalizability due to the homogeneity of the sample, there may be some implications for educational research professors. First, it is important to note that the encouragement of the instructor appears to be instrumental in the reduction of anxiety in the classroom; second, that acknowledgment of anxiety, use of humor, and cooperative learning also play a role; third, that there are many factors outside the control of the research instructor that increase student anxiety, including personal/family problems and the
amount of work students encounter in other classes; and probably most importantly, that there is a certain amount of anxiety inherent in a class in which students are asked to learn and respond to information, including mathematical procedures, statistical concepts, and research conventions, with which they are unfamiliar.
Resources


## REPRODUCTION RELEASE

### I. DOCUMENT IDENTIFICATION:

<table>
<thead>
<tr>
<th>Title:</th>
<th>Stress and Stress Relief in the Educational Research Classroom</th>
</tr>
</thead>
<tbody>
<tr>
<td>Author(s):</td>
<td>Vicki A. Wilson</td>
</tr>
<tr>
<td>Corporate Source:</td>
<td></td>
</tr>
<tr>
<td>Publication Date:</td>
<td></td>
</tr>
</tbody>
</table>

### II. REPRODUCTION RELEASE:

In order to disseminate as widely as possible timely and significant materials of interest to the educational community, documents announced in the monthly abstract journal of the ERIC system, Resources in Education (RIE), are usually made available to users in microfiche, reproduced paper copy, and electronic media, and sold through the ERIC Document Reproduction Service (EDRS). Credit is given to the source of each document, and, if reproduction release is granted, one of the following notices is affixed to the document.

If permission is granted to reproduce and disseminate the identified document, please CHECK ONE of the following three options and sign at the bottom of the page.

The sample sticker shown below will be affixed to all Level 1 documents:

**PERMISSION TO REPRODUCE AND DISSEMINATE THIS MATERIAL HAS BEEN GRANTED BY**

---

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

---

**Level 1**

☑

Check here for Level 1 release, permitting reproduction and dissemination in microfiche or other ERIC archival media (e.g., electronic) and paper copy.

The sample sticker shown below will be affixed to all Level 2A documents:

**PERMISSION TO REPRODUCE AND DISSEMINATE THIS MATERIAL IN MICROFICHE, AND IN ELECTRONIC MEDIA, FOR ERIC COLLECTION SUBSCRIBERS ONLY, HAS BEEN GRANTED BY**

---

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

---

**Level 2A**

☐

Check here for Level 2A release, permitting reproduction and dissemination in microfiche and in electronic media for ERIC archival collection subscribers only.

The sample sticker shown below will be affixed to all Level 2B documents:

**PERMISSION TO REPRODUCE AND DISSEMINATE THIS MATERIAL IN MICROFICHE ONLY HAS BEEN GRANTED BY**

---

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

---

**Level 2B**

☐

Check here for Level 2B release, permitting reproduction and dissemination in microfiche only.

Documents will be processed as indicated provided reproduction quality permits.

If permission to reproduce is granted, but no box is checked, documents will be processed at Level 1.

---

I hereby grant to the Educational Resources Information Center (ERIC) nonexclusive permission to reproduce and disseminate this document as indicated above. Reproduction from the ERIC microfiche or electronic media by persons other than ERIC employees and its system contractors requires permission from the copyright holder. Exception is made for non-profit reproduction by libraries and other service agencies to satisfy information needs of educators in response to discrete inquiries.

---

**Signature:**

Vicki A. Wilson

**Printed Name/Position Title:**

Vicki A. Wilson, Chair

**Organization/Address:**

Wilmington College

Wilmington, DE 19894

**Date:**

4/3/00

---

(over)
March 2000

Dear AERA Presenter,

Congratulations on being a presenter at AERA. The ERIC Clearinghouse on Assessment and Evaluation would like you to contribute to ERIC by providing us with a written copy of your presentation. Submitting your paper to ERIC ensures a wider audience by making it available to members of the education community who could not attend your session or this year's conference.

Abstracts of papers accepted by ERIC appear in *Resources in Education (RIE)* and are announced to over 5,000 organizations. The inclusion of your work makes it readily available to other researchers, provides a permanent archive, and enhances the quality of *RIE*. Abstracts of your contribution will be accessible through the printed, electronic, and internet versions of *RIE*. The paper will be available full-text, on demand through the ERIC Document Reproduction Service and through the microfiche collections housed at libraries around the world.

We are gathering all the papers from the AERA Conference. We will route your paper to the appropriate clearinghouse and you will be notified if your paper meets ERIC's criteria. Documents are reviewed for contribution to education, timeliness, relevance, methodology, effectiveness of presentation, and reproduction quality. You can track our processing of your paper at http://ericae.net.

To disseminate your work through ERIC, you need to sign the reproduction release form on the back of this letter and include it with two copies of your paper. You can drop off the copies of your paper and reproduction release form at the ERIC booth (223) or mail to our attention at the address below. If you have not submitted your 1999 Conference paper please send today or drop it off at the booth with a Reproduction Release Form. Please feel free to copy the form for future or additional submissions.

Mail to: AERA 2000/ERIC Acquisitions
The University of Maryland
1129 Shriver Lab
College Park, MD 20742

Sincerely,

Lawrence M. Rudner, Ph.D.
Director, ERIC/AE

ERIC/AE is a project of the Department of Measurement, Statistics and Evaluation at the College of Education, University of Maryland.