

Berk, R. A. (1996). Student ratings of 10 strategies for using humor in college teaching. *Journal on Excellence in College Teaching*, 7 (3), 71-92.

Student Ratings of 10 Strategies for Using Humor in College Teaching

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This three-year study evaluated the effectiveness of 10 systematic strategies for using humor as a teaching tool: (a) humorous material on syllabi; (b) descriptors, cautions, and warnings on the covers of handouts; (c) opening jokes; (d) skits/dramatizations; (e) spontaneous humor; (f) humorous questions; (g) humorous examples; (h) humorous problem sets; (i) Jeopardy!™-type reviews for exams; and (j) humorous material on exams. Student ratings at the end of three undergraduate and five graduate statistics courses assessed the extent to which each strategy reduced anxiety, improved the ability to learn, and made it possible to perform at one's best on problems and exams. Median student ratings of the three outcomes for all of the strategies across all of the classes over three years indicated consistent evaluations of Very Effective to Extremely Effective.

Introduction

The 1997 report by UCLA's Higher Education Research Institute indicated that in a national survey, over 89,000 first-year students at nearly 500 universities said that they were frequently bored in class. One of the greatest challenges in college teaching is to tackle course content that students perceive as very boring, very difficult, or excessively anxiety-producing. Most students probably hold one or more of those perceptions about some of their courses. Effective teaching requires imagination and creativity to turn those negative perceptions around. Humor can be used as a teaching tool for that purpose.

Psychological and Physiological Research

The research literature is replete with evidence of the psychological and physiological benefits of humor and laughter. The psychological effects include decreased anxiety and stress, improved self-esteem, increased motivation, and higher perceived quality of life (Berk et al., 1989b; Cornett, 1986; Cousins, 1989; Fry, 1992; Martin & Dobbin, 1988; Martin & Lefcourt, 1983). Physiological benefits of laughter have been documented for the muscular, respiratory, cardiovascular, endocrine, immune, and central nervous systems (Fry, 1986, 1992). The specific physiological effects of laughter include the following: relaxes muscles (Fry, 1992; Paskind, 1932); stimulates circulation (Fry & Savin, 1988; Fry & Stoft, 1971); improves respiration and exercises the lungs and chest muscles (Fry & Rader, 1977; Lloyd, 1938); decreases serum cortisol, dopec, and epinephrine levels in the blood (Berk et al., 1988; Berk, Tan, Napier, & Eby, 1989a; Fry, 1971, 1984a, 1992); increases the immune system's ability to respond and protect the body (Berk et al., 1989a; Dillon, Minchoff, & Baker, 1985; Martin & Dobbin, 1988); increases the production of endorphins that decrease pain (Berk et al., 1989b); and lowers pulse rate and blood pressure (Fry & Savin, 1988).

College Teaching Research

The research generated on the effects of humor in college teaching is less scientifically rigorous than that conducted in the physiological research domain. Much of the research is anecdotal, uncontrolled, pre-experimental, and correlational. The use of humor as a teaching tool in college classrooms has rarely been implemented systematically. Classroom humor is frequently a random act that occurs spontaneously (Bryant, Crane, Comisky, & Zillmann, 1980a) rather than being used intentionally to achieve specific learning outcomes. The research evidence accumulated over the past 30 years is sparse, inconclusive (Gruner, 1967, 1970; Powell & Andresen, 1985; Taylor, 1964), and contradictory (Bryant, Comisky, & Zillmann, 1979; Kaplan & Pascoe, 1977; Smith, Ascough, Etinger, & Nelson, 1971).

A few studies have examined the use of humor in introductory college textbooks in psychology (Browning, 1977) and communication (Bryant, Gula, & Zillmann, 1980b) and humorous illustrations in communication texts (Bryant, Brown, Silberberg, & Elliott, 1981; Klein, Bryant & Zillmann, 1982). There are numerous and typically unsubstantiated claims about the benefits of humor in college teaching cited in the litera-

ture, including claims that humor: decreases anxiety, tension, stress, and boredom; improves attitudes toward the subject; increases comprehension, cognitive retention, interest, and task performance; increases motivation to learn and satisfaction with learning; and promotes creativity and divergent thinking (Adams, 1974; Bryant et al., 1980a; Elmore & Pohlmann, 1978; Fry, 1984b; Kaplan & Pascoe, 1977; Korobkin, 1988; Moses & Friedman, 1986; Parrott, 1994; Powell & Andresen, 1985; Smith et al., 1971; Watson & Emerson, 1988; Welker, 1977; Zillmann & Bryant, 1983).

Teaching Statistics Research

Students probably bring more negative perceptions into a required introductory statistics course than any other course. Those perceptions may be due to math anxiety associated with low math ability or low self-esteem; computer anxiety due to lack of computer proficiency and experience; and, most of all, negative attitudes toward statistics resulting from students' lack of interest in the subject, the perceived uselessness of statistics to their field or career goals, and/or the sometimes true, but usually exaggerated, horror stories about statistics told by their peers. All of this negative baggage can interfere with students' learning of statistics and adversely affect their performance in the course.

The pertinent research on statistics courses has concentrated on how attitudes and anxiety toward statistics influence achievement (Elmore, Lewis, & Bay, 1993; Green, 1992, 1993, 1994; Harvey, Plake, & Wise, 1985; Roberts & Saxe, 1982; Schau, Dauphinee, & Del Vecchio, 1993; Sutarso, 1992; Wise, 1985). Also, nearly 40 specific methods for reducing and coping with anxiety in statistics courses (sometimes called *statisticophobia*) have been identified in the literature (Green, 1994). Notably missing from that extensive list is the use of humor.

Purpose

Despite the paucity of college teaching research on humor and the omission of humor in the methods used to help students cope with anxiety, the psychological and physiological effects documented suggest that humor is a potentially powerful strategy that can be planned into instruction to facilitate learning. It can be employed as a legitimate teaching tool rather than as only the occasional high-risk stand-up joke or ad-lib in response to a student's question. And it can break down the barriers to communication between professors and students so that professors may better connect and transmit their messages.

The variety of types and forms of humor that can be systematically integrated into instruction have not been fully explored and evaluated. Previous research has not investigated the effectiveness of “low-risk” versus “high-risk” humor; oral versus written formats; content-specific versus generic humor; and techniques for inserting humor into standard print material other than textbooks, such as syllabi, handouts, assignments, homework problems, project outlines, and exams.

Over the past decade, I have developed specific low-risk techniques for using humor in the college classroom to change students’ perceptions of undergraduate and graduate statistics courses (Berk, 1997). Although the techniques were applied and tested in these particular courses, they can be generalized to any subject matter or discipline, course level, professional teaching style, and cultural application. This study evaluated 10 strategies for using humor as a teaching tool to reduce students’ anxiety, improve their ability to learn, and make it possible for them to perform at their best on problems and exams. The students’ end-of-course ratings of the 10 strategies in terms of those three outcomes served as the basis for assessing the effectiveness of the humor.

Methods

Participants

Eight incidental samples of students ($n = 316$) enrolled in three undergraduate and five graduate introductory (level one) statistics courses at The university’s School of Nursing were selected for this study. These 2- and 3-credit courses met for 15 weeks during each regular semester (not summer) from fall 1994 through fall 1996. The accreditation board requires all students to satisfy these course requirements in the baccalaureate and master’s degree programs, unless the requirements were waived because students earned passing grades (“C” or above for undergraduate, “B” or above for graduate) in comparable courses elsewhere before entering the program.

The class sizes ranged from 21 to 68 students. The typical undergraduate in the statistics courses is 27.73 years old, in his/her junior year of the program, Caucasian (72-83%), and female (92-97%). African Americans comprise about 10% of the students in these courses, Latinos about 5%, and Asian-Orientals about 2.5%. Only a small percentage of the undergraduates (24%) have had any previous statistics courses, which is the primary justification for the statistics requirement in the program. By comparison, the graduate statistics courses enroll advanced under-

graduates (up to 60% in some classes), master's-level students (30-60%), and special students (up to 35%) who have not been admitted to any program. These graduate-type students are older ($M = 32.89$ years old) and more diverse ethnically (64-84% Caucasian, 4-16% African American, and 7-14% Asian-Oriental) but are still predominantly female (81-95%). Usually a majority of graduate students also have taken at least one statistics course at the undergraduate level (43-64%), and a few (10-30%) have had two or three undergraduate and graduate statistics courses.

Research Design

This study was planned in two stages. In year one (1994-1995), student evaluations were collected in three courses ($n = 142$), one undergraduate and two graduate, to conduct psychometric analyses of the items and scale structure and furnish substantive information on the students' perceptions of the effectiveness of eight strategies for using humor to reduce anxiety, improve the ability to learn, and perform at their best. In years two and three (1995-1996), a second set of evaluations was gathered from five new classes of the same statistics courses ($n = 174$), two undergraduate and three graduate, to corroborate and cross-validate the ratings from 1994 plus field test two more strategies. The independent variable in the study was the systematic use of humorous material in statistics instruction. The dependent variable was the effectiveness of the humor, measured by the Humor Effectiveness Evaluation rating scale, which was administered to all students at the end of each course.

Instruments

A two-part post-course questionnaire was constructed expressly for this study. It consisted of a 22-item Humor Effectiveness Evaluation and a 5-item Socioacademic Characteristics Survey.

Humor Effectiveness Evaluation (HEE). The Humor Effectiveness Evaluation was developed to pinpoint those forms of humor that the students rated as highly effective and those that they considered less effective. It defined the effectiveness of the humor strategies in terms of three outcomes: (a) reducing anxiety in the course, on any specific topic, or in the exams; (b) improving the ability to learn the content; and (c) making it possible to perform at one's best on problems and exams. These outcomes furnished the operational criteria for measuring the effectiveness of the humor strategies and provided the structure for the scale.

The eight systematic strategies for using humor in the course were then individually rated according to their degree of effectiveness in producing those outcomes. Not all strategies were rated on all subscales; only those that were appropriate and were intended to produce the particular outcome were included. A 5-point anchor continuum was used throughout the scale to rate each strategy's effectiveness. The psychometric analyses of the scale and the three subscales were based on the combined samples in the three courses ($n = 135$).

The Reducing Anxiety subscale consisted of all eight humorous strategies: (a) humorous material on syllabi, (b) opening jokes, (c) skits/dramatizations, (d) in-class spontaneous humor, (e) in-class humorous examples, (f) humorous problem sets, (g) *Jeopardy!*[™]-type reviews for exams, and (h) humorous material on exams. A final overall effectiveness category was also listed. Rating these strategies with the five anchors of effectiveness produced a total score range of 0 to 36. The item and reliability analyses computed for this subscale indicated that item-subscale correlations for the eight strategies being rated were very high (.56 to .86), with an alpha coefficient of .92.

The Ability to Learn subscale consisted of only six strategies: (a) opening jokes, (b) skits/dramatizations, (c) in-class spontaneous humor, (d) in-class humorous examples, (e) humorous problem sets, and (f) *Jeopardy!*[™]-type reviews, plus an overall effectiveness item. The possible total score range was 0 to 28. Item-subscale correlations were slightly lower (.48 to .74) than those for the Reducing Anxiety subscale, with an alpha coefficient of .83.

The Perform Your Best subscale contained four of the six strategies on the Ability to Learn subscale (d, f, g, h), plus one other strategy, humorous material on exams, and the overall effectiveness item. The total score range was 0 to 24. Item-subscale correlations were very high (.51 to .82), and the alpha coefficient was .85.

The validity coefficients among the three subscales were consistently high ($r = .81$ to $.83$) for the three undergraduate and two graduate courses. The percentages of explained variance, which ranged from 66% to 69%, indicated significant amounts of overlap among the three outcomes of humor effectiveness. In other words, the students' ratings of the impact of humor on reducing anxiety, improving the ability to learn, and performing at one's best were quite similar, with slightly more than 30% of unexplained variance contributed by each subscale.

After year one of the study, these scales were administered to all undergraduate and graduate statistics classes. However, in year three, two other strategies emerged that were worth including in the scales: hu-

morous material on handout covers and in-class humorous questions. Although these methods were used in all of the classes, it was not until fall 1996 that they were added to the list of systematic techniques on the HEE.

Although the psychometric quality of the three subscales would justify using subscale scores to measure the effectiveness of the humor, it was the effectiveness rating of each strategy that really indicated what types of humor were successful in improving the quality of the students' performance in statistics. Therefore, the results of the students' evaluations will be reported by item within each subscale of the HEE.

Socioacademic Characteristics Survey (SCS). A brief one-page section of the questionnaire asked questions about age, gender, ethnicity, degree program enrollment, and number of previous statistics courses taken. These data were collected to provide student profiles of each class.

Procedures

Two major steps were required to execute this study. First, 10 systematic strategies for using humor were integrated throughout 14 weeks of statistics content instruction (not including classes during which exams were given). Second, at the end of the last class (before the final exam), the post-course questionnaire was distributed, completed, collected, and hermetically sealed to preserve confidentiality and anonymity until final grades were submitted to the Registrar. The administration time of the questionnaire was approximately five minutes.

Statistical Analysis

In order to rank the most to least effective strategies for using humor, the students' evaluations of the effectiveness of each strategy listed in the three subscales were summarized with the strategies' median ratings. The choice of the median as the appropriate statistic (as opposed to the mean) was based on the ordinality of each item on the HEE and the negatively skewed distributions of item scores. The use of means with these distributions would have produced biased results.

Humor as Instructional Intervention

From the beginning of the first class through the final exam in the last class of each course, systematic techniques for integrating humor were used at every instructional and testing opportunity. These techniques, with examples, are presented next.

Humorous Material on Syllabi

The syllabus is the students' first glimpse into what the course will cover and their first impression of the character of the professor. It also provides the professor's first opportunity to insert humor. A professor can draw from the six different methods for using humor on syllabi suggested below.

Title. A descriptor commonly used on food and household products can be placed under the course title, for example, "NEW and IMPROVED," "MICROWAVE SAFE," and "FAT FREE/CHOLESTEROL FREE."

Prerequisites. If a course has no "real" prerequisites, humorous ones can be used, such as: one semester of *Sesame Street*, *Mister Rogers' Neighborhood*, *Barney*, or the equivalent. If the course has prerequisites, the real ones should be listed first, followed by the humorous ones.

Professor's Credentials. When the professor is identified on the first page, degrees, licenses, and rank can be altered for fun—for example: Ronald A. Berk, Ph.D., CNN, ESPN, and All-Around Fun Guy.

Office Hours. Fictitious office hours that would be impossible for students to meet can be stated, such as MWF 4:30 a.m.-7:00 a.m.; T-TH 9:00 p.m.-12:00 a.m.

Teaching Strategies. Actual strategies can be listed first, such as lecture, discussion, and small groups, followed by absolutely ridiculous methods for most courses, such as stand-up comedy, IMAX movies, field trips, picnics, and cruises.

Reading List. Humorous references that poke fun at course topics and professional publications can be mixed among the real references, recommended reading list, or bibliography.

Descriptors, Cautions, and Warnings on the Covers of Handouts

The cover of every packaged handout furnishes another outlet for humor that can have an immediate impact on students. Two simple techniques can be used.

Title. Descriptors similar to those inserted in the syllabus can be placed under the title of any handout. A professor can easily develop a pool of descriptors so that he or she can choose different ones for each handout.

Cautions and Warnings. Extending the descriptor concept one step, a professor can select well-known cautions, warnings, and information labels or notices found on food, household products, medicine and drug prescriptions, and road signs for the cover of each handout. Three or

four of these can be placed under the appropriate heading on the bottom half of the handout cover, as shown below:

Cautions

- DO NOT fold, mutilate, or spindle.
- Keep away from moisture, rain, snow, sleet, gloom of night, and so on.
- Store in a cool, dry place.
- Close cover before striking.

Opening Jokes

Opening class with a dose of humor has three purposes: (a) to motivate students to be on time or else they will miss the joke (humor provides a reason to look forward to class rather than to dread or avoid it); (b) to serve as a release valve for the stress, tension, anxiety, and negative baggage students may bring into class (once they have laughed, perhaps their minds will be free and open to receive what the professor has to present); and (c) to trigger a “fun” attitude toward learning and the content to follow.

There are at least seven forms of humorous material that professors can employ: stand-up jokes; quotations, proverbs, and probing questions; cartoons; multiple-choice items; top-10 lists; anecdotes; and one-shot handouts (humorous diets, medications, stories, letters, articles, memos, pictures).

Skits/Dramatizations

A skit using music and a few simple props or a costume can be a great warm-up and tone-setter for any topic. The challenge is to choose a television, stage, or movie character to whom students can relate and to develop a short skit based on the character that can be the springboard for the presentation. Most skits can project well in almost any size class. Examples include parodies of *Star Trek*, *Home Improvement*, *Mister Rogers' Neighborhood*, *The X-Files*, *Masterpiece Theater*, *Rocky*, and *Chariots of Fire*.

Spontaneous Humor

Responses to Students' Questions. This is the most frequently used type of humor in college classrooms (Bryant et al., 1980a). Ad-lib responses to questions can promote an informal, relaxed, and nonthreatening classroom environment that is conducive to learning (as long as the comments are not put-downs or offensive).

Responses to Professor's Mistakes. "Self-downs" can serve as a face-saving maneuver to reduce a professor's feeling of embarrassment and release the tension the students feel.

Responses to Interruptions. Humor can be employed in response to outside interruptions, distractions, and physical and equipment breakdowns. A timely, spontaneous response that is humorous is the best way to put students at ease and regain their attention. After all, if the professor cannot stay focused and get back on track, how can the students be expected to do so?

Humorous Questions

A professor can ask a series of substantive questions on virtually any course topic, followed by one or two punch-line questions. Because a response to the questions is required, the students are compelled to become involved. For those whose attentions were wandering, the questions bring them back to the topic at hand. An example of two serious questions that can be asked on any subject, followed by two punch lines, appears below:

- a. How many of you think this one is the correct answer?
- b. How many of you think this one is the correct answer?
- c. How many of you don't care?
- d. How many of you want to go back to bed?

The unexpected twist of the last two questions creates the humor. Other punch-line questions could include, "How many want to go to lunch (or dinner)?" or "How many don't like to be awakened during class?"

Humorous Examples

One of the easiest ways to use humor is through the examples a professor presents to illustrate concrete and abstract content in the subject

area. In fact, there is some evidence that students have better recall of humorous examples than serious ones (Kaplan & Pascoe, 1977). The standard examples should serve as the prototypes for the structure and format of hypothetical, ironic humorous examples or applications. Modifying a descriptive situation in a serious example can sometimes produce a jocular version.

Humorous Problem Sets

The same approach used to prepare in-class humorous examples can be applied to the development of humorous problem sets on any topic. Humorous problem sets can supplement or provide an alternative to the typically “serious” textbook problems. The problem sets can be assembled as handouts and assigned to the students as in-class practice problems, small-group problem-solving exercises, or homework. This strategy can extend the humor used to illustrate particular points in class to the students’ own learning experiences in class and in their home environments. It tests their ability to apply methods and concepts taught in class to completely new, generic (albeit humorous) problem situations. A few serious, content-specific problems may also be included in the problem sets to reinforce that the required skills may be generalized to other topics.

***Jeopardy!*[™]-Type Reviews for Exams**

Professors can format most any type of test review into a *Jeopardy!*[™] game. There are four basic steps: (a) List the content to be covered in the review; (b) convert the content into *Jeopardy!*[™]-style answers with humorous cues when possible; (c) conduct the review by presenting the answers in *Jeopardy!*[™]-style boxes on an overhead projector as students write the “questions” on a prepared response sheet; and (d) conclude with *Final Jeopardy!*[™] using the t.v. show procedure and the theme music.

Humorous Material on Exams

Title. Humor on the cover page of an exam can make a significant impact on students’ psychological state even before they answer the first test question. The descriptors recommended previously for syllabi and other handouts can appear under the title of the test. For example, “BAKED WITH PRIDE” for the midterm and “DOLPHIN SAFE” for the final can be very effective.

Directions. Encountering jocular directions on the first or second page of an exam is an unexpected twist that can help to release students' tension. An example is shown below.

General Directions

The purpose of this test is to find out whether you know anything.

Place the ANSWER sheet somewhere in front of you. Using the little pencil you kept from your last miniature golf game, print your name, social security number, and test booklet number in the upper right corner so we can track you down. Read the directions for marking your answers.

You may do computations in the test booklet or on a separate worksheet, because if I said, "DO NOT MARK IN THE BOOKLET," you would probably do it anyway.

Answer all questions as best you can. There will be no penalty for guessing, so have a blast. You will have the entire class period to complete the test.

DO NOT begin the test until you are told to do so or you can be hurt.

Test Items. This section of the test has the greatest jocular potential. Probably the highest levels of tension, stress, and anxiety that students experience during a course occur while answering test items. The research evidence on the effectiveness of humorous items to reduce these characteristics is inconsistent (McMorris, Boothroyd, & Pietrangelo, in press). However, the research recommends the use of humorous items, especially if humor is included in the class instruction. The serious test items can be converted into humorous items following the same humor formula used to develop the humorous examples and problem sets described previously. Humor is most effective for application, analysis, synthesis, and evaluation questions. In other words, it fits well with items that measure cognitively complex and higher order thinking skills.

Last Page. Finally, a humorous note on the last page of the test can end the students' grueling test-taking experience with a smile. It serves

as a kind of cooling down jocular exercise or mirthful debriefing. For example:

NOTE: This was only a TEST. If this had been an actual emergency, you wouldn't be sitting here suffering through this stuff. You may now resume your regularly scheduled activities.

Results

The students' ratings of the effectiveness of each of the 10 strategies for using humor in statistics instruction were summarized as class medians by subscale. Those results are presented in Table 1. Based on the five anchor ratings, ranging from *Ineffective* to *Extremely Effective*, the median ratings by the three undergraduate (UG) and five graduate (G) classes for every strategy on all three subscales ranged from *Very Effective* to *Extremely Effective*. Distinctions among the undergraduate and graduate ratings of the strategies for each subscale are examined next.

Reducing Anxiety Subscale

Undergraduate. The 1994 UG classes rated seven of the eight humor strategies as *Very Effective* for reducing anxiety, with *Jeopardy!*[™]-type reviews receiving an *Extremely Effective* rating. The 1995 and 1996 classes rated every strategy as *Extremely Effective* for reducing anxiety, including the two new strategies added in 1996, humorous material on handout covers and humorous questions. The overall effectiveness rating (k) reflected that trend.

Graduate. The 1994 G ratings of the strategies for reducing anxiety were almost identical to the 1994 UG ratings, except that *Jeopardy!*[™]-type reviews received a *Very Effective* rating. The four G classes in 1995 and 1996 either confirmed the 1994 G ratings of *Very Effective* or exceeded those ratings with *Extremely Effective*, with the fall 1996 class producing the highest ratings of all. The overall effectiveness rating (k) by the four cross-validation classes was *Extremely Effective*.

Ability to Learn Subscale

Undergraduate. The 1994 UG ratings of the six humor strategies for

d. In-class spontaneous humor	VE	EE	EE	VE	VE	VE	VE	VE	EE
e. In-class humorous questions	NR	NR	VE	NR	NR	NR	NR	NR	EE
f. In-class humorous examples	VE	EE	EE	VE	VE	VE	VE	VE	EE
g. Humorous problem sets	VE	EE	EE	VE	VE	VE	VE	VE	EE
h. <i>Jeopardy!</i> [™] -type reviews	EE	EE	EE	EE	VE	VE	VE	VE	EE
i. OVERALL EFFECT	EE	EE	EE	VE	VE	VE	VE	VE	EE
3. To PERFORM YOUR BEST									
a. Humorous material on handout covers	NR	NR	EE	NR	NR	NR	NR	NR	EE
b. In-class spontaneous humor	VE	VE	VE	VE	VE	VE	VE	VE	EE
c. In-class humorous questions	NR	NR	VE	NR	NR	NR	NR	NR	EE
d. In-class humorous examples	VE	EE	VE	VE	VE	VE	VE	VE	EE
e. Humorous problem sets	VE	EE	VE	VE	VE	VE	VE	VE	EE
f. <i>Jeopardy!</i> [™] -type reviews	EE	EE	VE	VE	VE	VE	VE	VE	EE
g. Humorous material on exams	VE	VE/EE	EE	VE	VE	VE	VE	VE	EE
h. OVERALL EFFECT	EE	EE	EE	VE	VE	VE	VE	VE	EE

Key

Rating Scale Effectiveness Continuum ranged from 0-4:

I = 0 (Ineffective)

SE = 1 (Somewhat Effective)

ME = 2 (Moderately Effective)

VE = 3 (Very Effective)

EE = 4 (Extremely Effective)

NR = Not Rated (item not included on Rating Scale)

improving the ability to learn matched the 1994 UG ratings on the Reducing Anxiety subscale. The 1995 and 1996 UG classes rated in-class spontaneous humor, humorous examples, and problem sets as *Extremely Effective*, whereas opening jokes and skits / dramatizations were rated consistently at *Very Effective* all three years. *Jeopardy!*[™]-type reviews and the strategies' overall effectiveness were judged *Extremely Effective* by all of the classes as well. Among the two new strategies rated in 1996, humorous material on handout covers was rated *Extremely Effective*, and humorous questions were rated *Very Effective*.

Graduate. The 1994 G ratings of the strategies for improving the ability to learn were identical to the 1994 UG ratings on all strategies. The four 1995 and 1996 G classes virtually replicated the 1994 G class's ratings for opening jokes, skits / dramatizations, humorous examples, and *Jeopardy!*[™]-type reviews. Spontaneous humor was consistently rated *Very Effective*, and problem sets and overall effectiveness varied between *Very Effective* and *Extremely Effective*, with the highest ratings across all five classes given in fall 1996.

Perform Your Best Subscale

Undergraduate. The 1994 UG ratings of the five humor strategies for helping students perform their best were the same as the 1994 ratings on the two other subscales. However, the 1995 and 1996 patterns were not as consistent. Only spontaneous humor was rated *Very Effective* all three years. The ratings of the other strategies ranged from *Very Effective* to *Extremely Effective*, although the strategies' overall effectiveness was rated *Extremely Effective* by the three classes.

Graduate. The 1994 G ratings of the strategies for helping students perform their best were all *Very Effective*. These ratings were replicated by three of the four 1995 and 1996 G classes for spontaneous humor, humorous examples, problem sets, and humorous material on exams. The highest *Extremely Effective* ratings by the cross-validation classes were assigned to *Jeopardy!*[™]-type reviews and to the strategies' overall effectiveness. The fall 1996 class rated all strategies as *Extremely Effective*.

Discussion

The results of this study provide preliminary evidence of the effectiveness of a 10-strategy humorous instructional intervention in both undergraduate and graduate statistics courses. Both undergraduate and graduate students' evaluations of all of the humor strategies in terms of

the three outcomes measured—reducing anxiety, improving the ability to learn, and making it possible to perform at one’s best—indicated consistently high ratings of *Very Effective* to *Extremely Effective* for the three years of the study. The differences among the median ratings reported in the previous section are not instructionally significant. The value that the students placed on the various strategies is extremely encouraging. The results of this study are corroborated by the outcomes of a companion study of the same classes during 1994-1995 using independent measures of attitude, anxiety, and achievement (Berk & Nanda, in press). The eight classes’ verdicts on the effectiveness of humor as a teaching tool also support the findings of earlier research in other disciplines.

One interpretation of the students’ blanket endorsement of all 10 humor strategies might be that the students simply wanted to be entertained. This inference from the results may or may not be justified. Whereas students may enjoy the use of humor in instruction that results in fun, laughter, and other forms of mirth, it is unlikely that they want an entertainer as their professor. With yearly tuition exceeding the \$20,000 mark at Johns Hopkins, professorial competence is most likely preferred to jocular skills, although the combination of the two would probably be rated as a “Best Buy” by *Consumer Reports*.

In the process of developing all of the humorous material for the different classes, it soon became apparent that one does not have to possess the comedic gifts of a Jerry Seinfeld, Billy Crystal, or Ellen DeGeneres to write jocular problem sets or top-10 lists. Those professors who admit to having “twisted minds” or a flair for the dramatic, however, will certainly have an advantage. Most of the formats for the low-risk humor on the syllabi, handout covers, in-class questions and examples, problem sets, *Jeopardy!*[™]-type reviews, and exams are based on rather simple humor formulas that any professor can follow by substituting his/her own course content. Further, a considerable amount of the humorous material used in this study for opening jokes and skits was generic and adapted from a variety of popular humor resources, such as David Letterman’s “Top-10 Lists.” Employing both content-specific and generic humor in instruction, when appropriate, provides a larger pool of humorous material and greater flexibility in its use than does restricting oneself to one type of humor.

Conclusions

The students’ ratings of the 10 strategies for using humor in the classroom and my experience with a variety of types and forms of humor in an instructional context suggest seven conclusions:

1. Students view humor as an effective teaching tool to facilitate their learning;
2. A wide range of low-risk humor techniques can be very effective in reducing anxiety and improving learning and performance;
3. Strategies for using humor must be planned well and executed systematically to achieve specific outcomes;
4. Both content-specific and generic humorous material tailored to the characteristics of each class can be effective in appropriate applications;
5. Humor tends to be more effective when two or more of the senses, especially visual and aural (written and oral), are involved rather than just one sense;
6. Offensive humor should never be used in the classroom; and
7. The 10 strategies for using humor in this study are adaptable and can be generalized to any discipline and course content.

What cannot be generalized are the results reported here. They are limited to the types of statistics courses, classes of students, and forms of humor tested in this investigation. Although the cross-validation of the students' 1994 effectiveness ratings with the 1995 and 1996 ratings indicated a high degree of consistency, the external validity of the ratings can only be determined by replications and extensions of the study to other types of course content and instructional formats.

As professors, we must take humor seriously; it is no laughing matter. The potential of humor as a teaching tool to change attitudes, decrease anxiety, and increase achievement is unlimited and, at this point, largely unrealized. The process of generating creative strategies for using humor has just begun, and this research contributes preliminary evidence that the effort is worth continuing.

Professors in all disciplines are hereby challenged to take any of the ideas and techniques described in the preceding intervention section and to replicate, modify, adapt, and/or extend them to their courses and students. They are encouraged to report their strategies anecdotally and to collect evidence of those strategies' effectiveness descriptively and experimentally. Both qualitative and quantitative research are essential to

assess the value of humor in college classrooms. Publishing research results in college teaching journals such as this one will document the substantive contributions of humor as a systematic teaching tool to foster active learning. There is already incontrovertible evidence that students cannot laugh and snore simultaneously.

Over nearly 25 years of college teaching, I have never had so much fun and laughed so much as I have in the past five years, and my students seem to be learning more because of it. Some of us rarely succeed at anything unless we have fun doing it. As two of America's greatest philosophers, Ben & Jerry, once said, "If it's not fun, why do it?"

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The author gratefully acknowledges the assistance of Joy P. Nanda in the data analysis. A special appreciation is also extended to Ellen Spies for preparing the final manuscript. The data analysis for this research was partially supported by funding from The Johns Hopkins University Center for Nursing Research. The interpretation of the results and the conclusions do not necessarily reflect the views of the Center, the university, or anyone else on earth. The content should be blamed solely on the author.

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