

Counterattitudinal Advocacy as a Means of Enhancing Instructional Effectiveness: How to Teach Students What They Do Not Want to Know

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This study was designed to determine the effectiveness of counterattitudinal advocacy in overcoming beginning students' erroneous beliefs about psychological phenomena. Introductory psychology students (N = 71) either wrote an essay (counterattitudinal advocacy) or read an essay supporting a scientifically acceptable position contrary to one of their beliefs. Writing a counterattitudinal essay was more effective in changing students' beliefs than either reading such an essay or learning about the topic through standard pedagogical techniques. The method of delivering instructional materials (lecture vs. text vs. both lecture and text) made no significant difference in the elimination of erroneous beliefs.

A survey of 1,236 adult Americans (Gallup & Newport, 1991) reported that 49% believed in ESP and another 22% were not sure whether there is such a phenomenon. The survey further revealed that substantial percentages of the population either believe in or are unsure about many phenomena for which there is little or no scientific support, including paranormal explanations of déjà vu, subliminal perception, and the existence of extraterrestrial beings.

Teaching a college course can be challenging when students come into the classroom with preconceived notions such as those addressed in the Gallup poll. This challenge is especially noteworthy in the field of psychology when university instructors are pitted against the purveyors of pop psychology who proclaim many dubious, if not patently false, ideas as truth.

Students' commitment to unfounded beliefs about psychological processes is not a new phenomenon. Nixon (1925) noted "The beginning student especially, while willing to admit ignorance on many technical questions, comes to psychology with certain concepts of causation in human behavior quite firmly fixed" (p. 418). His research revealed that the prevalence of belief in nonscientific sanctioned ideas about human behavior was 41.1% for women and 35.1% for men. Other researchers have reported similar results. For example, Lehman and Fenton (1930) found the percentage of misconceptions about psychological topics among college students to be about 50%. Psychologists' concern about students' unfounded beliefs was reflected in a

review by Caldwell and Lundeen (1931) that included an annotated listing of 23 studies, conducted between 1887 and 1930, of superstitious beliefs among college students.

Have things changed since these studies were conducted? Not really. In fact, some forms of unfounded beliefs, especially belief in the paranormal, have increased (see Singer & Benassi, 1981; Woods, 1984). In a study of undergraduates, Messer and Griggs (1989) found that 99% of those surveyed expressed belief in at least 1 of the 10 paranormal phenomena listed on their questionnaire.

The record of success of traditional classroom approaches in overcoming students' unfounded beliefs has been discouraging (Lamal, 1979). Tobacyk (1983) documented a reduction in paranormal belief attributable to a course specifically designed to examine evidence of the paranormal critically. Using the Belief in the Paranormal Scale, which ranges from a high of 125 to a low of 25 (Jones, Russell, & Nickel, 1977), Tobacyk found that students entered with a belief score just above the median (78), which was reduced to a score of 60 after completing the course. Unfortunately, many unfounded beliefs still remained. Similarly, Woods (1984) found that, after students had completed a reading program designed to reduce beliefs in the paranormal, scores on the Belief in the Paranormal Scale fell from the precourse mean of 71 to a posttest mean of 51. Again, many unfounded beliefs remained. Similarly, Banziger's (1983) 1-week course on parapsychology taught to participants in an elderhostel program resulted in a reduction of 8 points on the Belief in the Paranormal Scale. Finally, Gray (1985), whose one-semester course emphasizing methodological issues resulted in some reduction in unfounded beliefs, stated: "Should we be pleased that belief in ESP can be brought down from 85% to about 50%, or should we be seriously concerned that 50% of those tested still believe in ESP, UFOs, and Reincarnation?" (p. 269).

When students arrive on the first day of class with a preconceived notion about the content of the class, instructors cannot assume that simply laying out the facts will cause them to change their minds. In fact, students will more likely persevere in their false beliefs than readily renounce them, even when confronted with disconfirming

evidence (Nisbett & Ross, 1980). Anderson, Lepper, and Ross (1980) reported that changing a false belief can be surprisingly difficult once an individual has generated ideas to support it. Thus, the assumption that students walk into the classroom with an open mind that can be easily swayed by the classroom experience is clearly not true. Indeed, students may inoculate themselves from potential cognitive changes by various techniques, some of which may even preserve good grades. Students may superficially process the arguments to the extent that reasonable test performance can be achieved; assume that the arguments apply only in a limited context (such as the classroom); or, at worst, simply ignore arguments that run counter to their present beliefs. The problem of how to change a student's mind seems to be more difficult than how to fill a student's mind.

Given the lack of dramatic change in students' paranormal beliefs produced by traditional teaching methods, it seems that college-level instruction should impart up-to-date factual information designed to counter students' erroneous beliefs and be a forum for attitude change. This is not a new goal for higher education. However, the view that the university instructor should institute specific techniques designed to change students' attitudes is relatively new.

One promising method for changing attitudes is derived from the induced compliance paradigm (Festinger & Carlsmith, 1959) and involves the use of counterattitudinal advocacy. A variant of counterattitudinal advocacy was used by Lord, Lepper, and Preston (1984) and Anderson and Sechler (1986) to reduce belief perseverance. In these studies, participants were required to explain why the opposite of their own beliefs might be true. This approach resulted in a less biased consideration of the evidence. A procedure for eliciting counterattitudinal advocacy that is easily implemented in the classroom was developed by Cohen (1962). It requires individuals to write an essay advocating a position that is counter to their privately held opinions. When the subjects' opinions are reassessed, those who have written a counterattitudinal essay show more attitude change toward the advocated position than those who have written a neutral essay.

Results of these studies may be accounted for by Festinger's (1957) concept of cognitive dissonance. According to Festinger, beliefs and attitudes must maintain a degree of consistency. Inconsistent or contradictory beliefs and attitudes create a state of dissonance, which is said to be an unpleasant and highly motivational state. While in a state of cognitive dissonance, participants are driven to reduce the cognitive tension by somehow resolving the conflict among cognitions. In the earlier example, one's privately held opinion concerning an issue and the fact that he or she just wrote an essay espousing the opposite position puts the participant in a state of dissonance. If the essay was not written for a strong reason (e.g., the payment of money), the participant must somehow reduce the cognitive dissonance. Because the participant cannot deny writing the essay, the remaining dissonance-reducing option is to change the original opinion.

Various factors have been shown to be important to the success of counterattitudinal advocacy in changing attitudes. Linder, Cooper, and Jones (1967) noted the importance of free choice. Students who were asked to write an essay and promised a small incentive exhibited significant change, but

those who were required (no-choice condition) to write a counterattitudinal essay exhibited very little change. Zanna and Sande (1986) examined the effects of writing alone or in a group and demonstrated that diffusion of responsibility in a group-writing situation can lessen the dissonance effects. Zimbardo (1965) noted that the amount of effort expended in the counterattitudinal advocacy can increase the amount of attitude change, and Axsom (1989) reported that mere anticipation of high effort is sufficient to arouse dissonance.

In our study, we applied the technique of counterattitudinal advocacy to teaching introductory psychology. A pre- and posttreatment assessment of attitudes concerning a set of psychology topics was the design we used. The topics were selected on the basis of their potential for irrational (and wrong) opinions concerning these topics by students. The treatment was an in-class assignment requiring that students write an essay espousing a position opposite to their own or read such an essay written by another student. The design also permitted assessment of the effects of different means of covering the material (i.e., lecture, book, lecture and book, or no coverage).

Method

Participants

Participants were 71 introductory psychology students (41 women and 30 men) enrolled in one of two sections taught by the same instructor during the fall 1993 semester at the University of Nebraska at Kearney. Participants completed the study as part of their regular course routine. Fifteen participants in the pretest were not present in class at the time of the posttest; thus, their data were discarded from the analysis.

Materials

The pre- and posttreatment questionnaires were composed of the same 48 items. Each item was a declarative statement concerning a psychological phenomenon (e.g., "Under hypnosis, people can be induced to perform feats that they would otherwise find impossible"). The initial population of such items was taken from Bolt's (1989) *Instructor's Resources for Use With Myers: Psychology* (2nd ed.). The instructor of the introductory psychology classes reviewed a list of 190 statements from Bolt's *Instructor's Resources* and indicated the type of coverage each topic would receive. Because the instructor used a book other than the Myers text, each item was rated as to whether it would be covered (a) in the textbook only, (b) in a lecture only, (c) in both the book and lecture, or (d) in neither the book nor the lecture. From the entire list of items, a four-person panel of senior undergraduate psychology students selected 12 items from each category of coverage on the basis of how likely introductory psychology students would be to hold an incorrect opinion about the topic. Preference was given to topics related to paranormal phenomena.

On the pre- and posttreatment questionnaires, each of the 48 items thus selected was accompanied by a 6-point scale

ranging from 1 (*strongly agree*) to 6 (*strongly disagree*). The items were balanced with respect to which end of the scale represented the answer that was scientifically supported.

Procedure

The pretreatment questionnaire was administered by the instructor during the third week of the semester. All students enrolled in the courses completed the questionnaire, which also requested demographic data and their name. Completed questionnaires were assessed by the experimenters so that two topics could be assigned to each subject. The topics were selected on the basis of whether the participant's response agreed or strongly agreed with the position contrary to existing scientific evidence. One of the topics was assigned to the participant so that he or she could write an essay supporting the opposite position; the other topic was assigned so that the participant could read an essay, supporting the opposite position, which would be written by another participant.

Participants were instructed to complete an in-class writing assignment 3 weeks before the end of the semester. At this time, each participant was given the preassigned writing topic and the following instructions:

The Psychology Department is assessing a number of introductory psychology classes with regard to their knowledge of psychological issues. Your task is to write a persuasive essay supporting the position listed below. You will have 30 minutes to organize your thoughts and write your essay. Support the position with as many valid arguments as you can think of. This essay will be graded by a student reader as well as a professor in the Psychology Department. Raise your hand when you are done; do not leave your seat.

Participants were not given specific information on how the writing assignment would be graded or what portion of their course grade the assignment would represent. After 30 min, the essays were collected and redistributed to the participants. Each participant was given an essay written by another participant that supported an alternative position the reader also opposed. Participants received the following instructions about reading the essay:

Please read over the essay and assess it on how persuaded you are by the arguments in the essay. Assign a letter grade (A–F, no pluses or minuses). You have 10 minutes to do this task. Raise your hand when you are done; do not leave your seat.

All essays were then collected by the experimenters. The entire task fit into one class period of 50 min. The posttest questionnaire was administered during finals week by the instructor 3 weeks after the writing assignment had been completed.

Design

The three independent variables were advocacy condition, time of testing, and type of coverage. Advocacy condition consisted of writing an essay, reading an essay, or

neither reading nor writing an essay. To obtain scores for the latter condition, comparison items that met the criteria for being chosen for writing/reading were randomly selected from the pretest questionnaire. Students' beliefs were assessed on the full set of items both before and after counterattitudinal advocacy. The four levels of topic coverage were book only, lecture only, book and lecture, and material not covered in either the book or the lecture. Equal numbers of participants from each level of topic coverage were assigned to each level of advocacy condition.

Results

Half the ratings were transformed so that, in all cases, a high rating indicated a high degree of agreement with the scientifically accepted position. Subjects' scores indicating the extent to which they agreed with the correct scientific position were analyzed using a 3 (advocacy condition) \times 2 (time: pre- vs. posttest) repeated measures analysis of variance (ANOVA). A significant main effect for the advocacy condition was found, $F(2, 285) = 21.30, p < .001$, along with a significant main effect of time, $F(1, 285) = 816.24, p < .001$. The advocacy condition \times time interaction was also significant, $F(2, 285) = 19.54, p < .001$.

Figure 1 presents the effects of the different advocacy conditions. All participants, regardless of advocacy condition, showed significant change toward an opinion more consonant with the scientific view. However, the extent of change differed depending on the type of counterattitudinal behavior in which students engaged. Simple effects analysis of the posttest means indicated that students who wrote counterattitudinal essays ($M = 4.46$) showed the greatest change at the posttest in comparison to those who read ($M = 3.29$) counterattitudinal material, $F(1, 143) = 31.53, p < .001$, as well as with those in the control condition who neither read nor wrote ($M = 3.79$) about such material, $F(1, 205) = 10.78, p < .001$. Students who only read a coun-

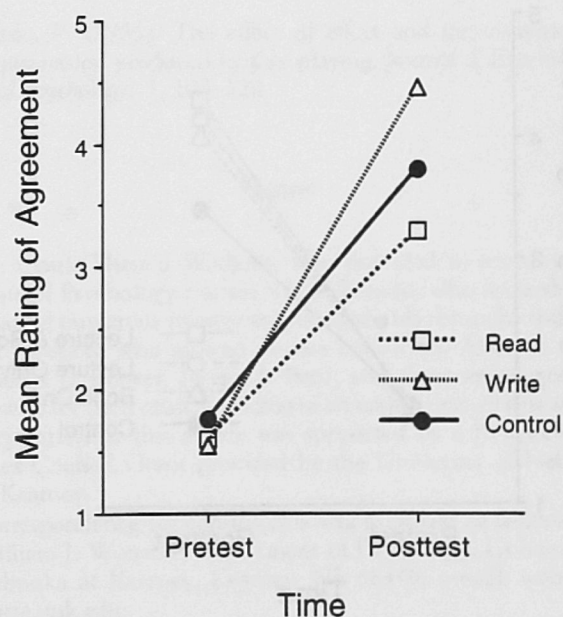


Figure 1. Mean agreement scores as a function of counterattitudinal advocacy condition and time of testing.

terattitudinal essay showed the least amount of change, scoring significantly lower than those in the control condition, $F(1, 204) = 16.77, p < .001$.

To examine the relative effectiveness of different ways of covering the instructional material, participants' scores on the control group items (i.e., those about which the participant neither read nor wrote) were analyzed using a 4 (type of coverage) \times 2 (time: pre- vs. posttest) repeated measures ANOVA. Significant main effects for type of coverage, $F(3, 126) = 5.73, p < .001$, and time, $F(1, 126) = 601.08, p < .001$, were found. Also, the type of coverage \times time interaction was significant, $F(3, 126) = 5.32, p < .01$. Figure 2 presents these means.

Simple effects analysis of the posttest means indicated that coverage of the material by lecture ($M = 4.15$), $F(1, 145) = 5.39, p < .05$, and by lecture plus textbook ($M = 4.31$), $F(1, 131) = 7.37, p < .01$, were both effective in causing a belief change as compared to scores on the posttest items not covered during the course ($M = 3.40$). Reading material in the textbook ($M = 4.02$) was not significantly different from no coverage, $F(1, 145) = 3.11, p < .08$. None of the three pedagogical methods differed from one another in effectiveness, $F_s < 1$.

Discussion

Counterattitudinal advocacy in the form of writing an essay supporting an accepted scientific position was shown to be effective in changing students' erroneous beliefs about psychological phenomena. Reading another student's persuasive essay was not as effective in overcoming erroneous beliefs. In fact, there was less change concerning issues on which students read someone else's essay than there was on issues that were simply covered in the course using ordinary pedagogical methods (i.e., lectures and/or textbook).

Why does writing a counterattitudinal essay change students' erroneous beliefs? One possible explanation is that

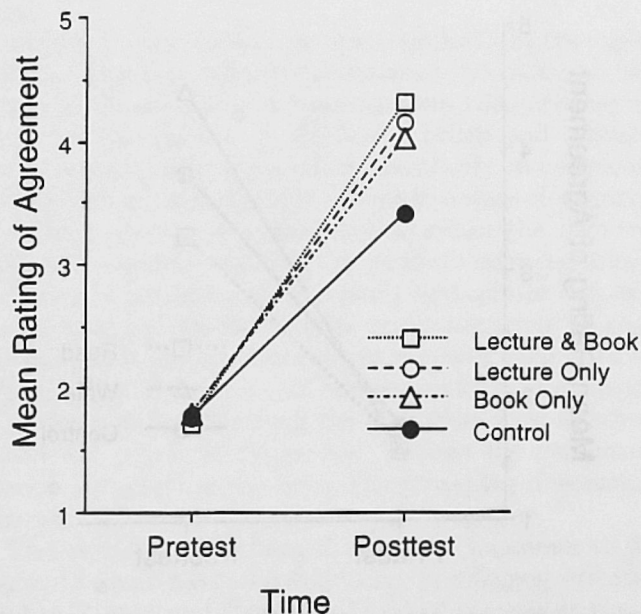


Figure 2. Extent to which participants agreed with the scientifically accepted position as a function of type of coverage and time of testing.

writing requires a certain amount of effort. However, the process of reading and grading another student's paper also requires some effort, but this proved to be considerably less effective in producing change. A second explanation is that arguments that individuals generate for themselves are the most convincing—at least to those individuals. As Greenwald (1968) pointed out, self-persuasion is more effective than listening to the arguments of others because it is more salient, more personally relevant, and more memorable.

Reading, which showed significantly less change in comparison to writing or even noncoverage of the topic, may lose effectiveness partly due to the lack of self-persuasion effects. In addition, readers may perceive the quality of arguments generated by another student in a single class period as particularly weak. Thus, students may reason that if this is the best case that can be made for renouncing their beliefs, then they are not convinced. Moreover, even in the case of a well-written essay, students may dismiss another student's arguments based on a judgment of source credibility without giving serious consideration to the content of the essay. At any rate, students demonstrated less change on the items they read about than on the items not even covered in the course. Reading arguments that can easily be dismissed may allow students to resist efforts to correct their erroneous beliefs and may run the additional danger of inoculating them against other change efforts.

Numerous studies concerned with changing students' erroneous beliefs have examined the effectiveness of taking a course in psychology (e.g., Gray, 1985; Tobacyk, 1983; Woods, 1984). An additional finding in our study was that exposure to psychological information through course work reduced students' erroneous beliefs, but the particular pedagogical technique used made little or no difference. Students were just as likely to accept the scientific position as a result of listening to a lecture, reading the textbook, or doing both, although simply reading the textbook was the least effective. Data reported in Figure 1 suggest that, to some extent, students discarded erroneous beliefs about psychological phenomena that were not covered in the course at all. This result may be due to some sort of transfer effect. However, this apparent change was more likely due to a regression artifact because all of the items used in the tests were, by selection criteria, ones on which students initially scored very low. Thus, the control group means could be best viewed as a baseline with which to compare the relative effectiveness of the different instructional techniques.

In summary, our results demonstrate that (a) students' attitudes and beliefs are frequently inconsistent with current scientifically supported positions and (b) writing an essay that argues for the counterattitudinal position (i.e., the current scientific position) produces greater change in students' erroneous beliefs than normally occurs during a regular college class. Future research should compare the relative importance of effort versus self-generation of arguments in producing counterattitudinal advocacy effects.

Use as a Classroom Technique

To make effective use of counterattitudinal advocacy as a classroom technique, one should ensure that several conditions are met. First, the instructor must maintain the ap-

pearance that the student has a degree of free choice in the assignment. This can be done by making the essay-writing task optional (e.g., done for extra credit) or by allowing students to choose freely from the many topics about which they have erroneous beliefs. Second, the advocacy task should be one in which the student is clearly responsible for the arguments he or she generates. Therefore, group assignments are not recommended. Third, the greater the amount of effort expended in the advocacy task, the greater the amount of change one may expect. However, overexposure to counterattitudinal messages should be avoided, given Cacioppo and Petty's (1979) finding that maximum change occurred with three exposures to a counterattitudinal message but that five exposures reduced the amount of change.

Finally, note that we applied the advocacy technique toward the end of the course after students had been introduced to the scientific method, critical thinking, and relevant content. Our assessment of their essays indicated that the students' arguments reflected this grounding in the scientific literature. Thus, the timing of this exercise may be important in ensuring meaningful change. Also, within the constraints listed earlier, advocacy tasks are not limited to essay writing but could include debates, oral presentations, or other activities that provide a forum for self-persuasion.

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Notes

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