We recorded attendance for 57 students in an introductory psychology class by having them sign in at each class meeting. For the remaining 57 students, we counted the number of students attending, but kept no record of individual attendance. Students who signed in attended classes more often (absenteeism decreased by one third), and their grades on weekly multiple-choice quizzes were higher, even on questions based on material covered in the text but not in lectures. Thus, simply recording attendance (without awarding course credit for attendance) increased both attendance and overall academic performance.

A common assumption in higher education is that attendance substantially contributes to course grades. The assumption is at least in part self-serving; instructors would like to believe that attendance is a major contributor to academic performance. In fact, instructors often ensure that the assumption is justified by basing some test questions on material presented in class.

If attendance is important, what can instructors do to increase attendance rates? Does attendance have an impact that extends beyond whether students can answer questions based on material covered in class?

A major determinant of attendance appears to be the contingency between attendance and grades; that is, the extent to which attendance has an impact on grades. The contingent relation between grades and attendance may be direct (some credit toward the final grade is based on attendance; e.g., Hansen, 1990) or indirect (exam questions are based on material covered solely in lectures, so that only students who attend can earn the points; e.g., Lloyd et al., 1972). In the absence of such contingencies (i.e., if material covered during class will not appear on exams), attendance is generally low (e.g., Keller, 1968; Lloyd et al., 1972). Several studies have examined procedures for increasing attendance. For example, Hovell, Williams, and Semb (1979) reported that attendance could be increased by making grades contingent on attendance. Lloyd et al. (1972) found that attendance was high either when there was a direct contingency on attendance or when lectures included material that was to be presented on quizzes, but that attendance was low when there were no such contingencies.

If there are ways of increasing attendance, is there any compelling reason to do so? This is the question of whether attendance improves academic performance, and the empirical data addressing this issue are almost all correlational (e.g., Chappell, 1930; Hancock, 1994; Schuman, Walsh, Olson, & Etheridge, 1985; van Blerkom, 1992) and thus cannot bear directly on the question of causality (for a correlational analysis suggesting that absenteeism was causally related to grades, see Jones, 1984).

There have been two experimental studies of the relation between attendance and academic performance. Baum and Youngblood (1975) found that a direct contingency between grades and attendance (students received points for attendance) increased attendance in an accounting class, but had no impact on student satisfaction. Exam grades were higher when there was a contingency between grades and attendance, but the effect was relatively modest (giving points for attendance increased mean exam scores from 58 to 61); the contingency had less impact on exam grades than did the time of day that the class met. Hancock (1994) found that exam grades in a statistics course were substantially higher when the instructor imposed a penalty (points deducted from the final grade) for unexcused absences than in matched sections in which there was no penalty.

Unfortunately, neither Baum and Youngblood (1975) nor Hancock (1994) indicated the extent to which the exam questions included material covered in class. If (as is often the case) exam questions reflected lecture material, the finding that students who attended class did better is not especially surprising.

This study extends previous findings in two ways. First, it examined the effects of merely recording attendance in a class in which material presented in class was covered in quizzes. Second, it examined quiz scores on questions that were based only on the textbook.

Method

Participants

The participants were 114 of 132 undergraduates who had registered for a section of an introductory psychology course at the University of Maryland, Baltimore County.

Procedures

The class, taught by one of the authors and a teaching assistant, was a large lecture section that met for two 2-hr sessions per week. The lecturer had extensive experience
teaching the course, and his lectures were generally well received. On an end-of-semester, university-administered course evaluation, 72 of 85 students in the class rated his overall teaching effectiveness as much better than most or one of the best they had ever had.

There were 12 noncumulative quizzes administered during the semester; each quiz consisted of 20 or 21 multiple-choice questions. We constructed quizzes by randomly selecting 10 to 20 items from the question set that accompanied the text (Wade & Tavris, 1998) and additional questions based on material presented in lectures, on interactive computer exercises (Psychology On A Disk, 1998), and such miscellaneous material as the course syllabus. Final letter grades were based on the best 10 (of the 12) quizzes, completion of the computer exercises, and several additional points for participation in research conducted by faculty members and graduate students. There was no final exam.

After the first quiz, we told the students that seating would be assigned for the remainder of the semester. We sequentially numbered the students on the class roster and assigned students with even numbers to the left side of the lecture hall and students with even numbers to the right side.

In the next lecture (which focused in part on experimental design), we told students that they were participating in an experiment on the role of recording attendance on quiz performance. We recorded attendance for half the students using a sign-up sheet circulated during the lecture (with a teaching assistant ensuring that students signed only their own names). For the other half of the class, we counted the number of students attending, but there was no record of individual attendance. We assured the students that attendance would not enter into the grading system and that the instructor would in any event not see attendance data until after submitting course grades to the registrar. We invited any students who chose not to participate to inform the teaching assistant; any such students could sit on either side of the lecture hall, and their data would not enter into the analysis.

On the 10th quiz, we asked students to rate the effect on their attendance that attendance recording had (if they were in the group for which attendance was recorded) or would have had (if they were in the group for which attendance was not recorded).

Results

All 132 students chose to participate. We excluded data for 1 student in the group whose attendance was not recorded, who chose to sit with those students whose attendance was recorded, claiming (inaccurately) that the instructor had granted him permission, and for 17 students (8 from the group whose attendance was recorded and 9 from among those whose attendance was not recorded) who did not complete the course, leaving 75 students in each group.

Attendance

We assessed the effects of recording attendance by examining the percentage of students attending the 18 class meetings from the first lecture after the groups were established until the last 2 weeks of the semester. (We excluded data from the last 2 weeks of the semester from the analysis because only the best 10 quizzes entered into the calculation of course grades, and students who did well on the first 10 quizzes did not have to take the last 2 quizzes.) The mean attendance rate for students whose attendance was recorded was 85.61% ($SD = 9.66$); mean attendance rate for students whose attendance was not monitored was 78.50% ($SD = 11.35$). This difference was statistically significant, $t(17) = 2.82, p = .01, r^2 = .24$. When the same course was taught in a subsequent semester without any attendance recording, typical attendance rates were about 75%, about the same rate as seen in this study among students whose attendance was not recorded. These data suggest that recording attendance increased attendance for the attendance-recorded students and did not decrease attendance among students whose attendance was not recorded. Thus, recording attendance decreased absenteeism by one third, from 21.5% for students whose attendance was not recorded to 14.4% for those whose attendance was recorded.

Student Ratings

Did the students believe recording attendance had an effect on the likelihood of their attendance? Of the students whose attendance was recorded, 79.3% indicated that recording attendance had little or no effect on their attendance; 80.3% of the students whose attendance was not recorded responded similarly. Thus, although there were statistically significant differences in attendance between the two groups, students in both groups believed that recording attendance had (or would have had) no impact on their attendance. In other words, recording attendance increased attendance rates although there were no direct contingencies relating grades to attendance (in the sense that attendance records did not enter into the grading policy) and although most students believed that recording attendance would not have an impact on their behavior.

Quiz Performance

The difference in scores on the first quiz, administered before the groups were established, was not statistically significant, $t(104) = 0.14, p = .89$.

To examine the impact of recording attendance on quiz grades, we looked at students’ scores for 9 quizzes (eliminating the first quiz, administered before the groups were established, and the last 2 quizzes, not taken by students who did well on the first 10 quizzes). Because the course structure allowed students to drop their 2 lowest quizzes, many students had missed 1 or 2 of those 9 quizzes; therefore we limited the data analysis to only the 7 highest quiz scores for each student. The seven quizzes had 144 questions. The mean number of correct answers was 111.33 for students whose attendance was recorded and 105.12 for those whose attendance was not recorded; this difference was statistically significant, $t(112) = 2.21, p = .03, \eta^2 = .04$. Thus, recording students’ attendance increased mean percentage correct from 73% to 77%. Although the difference seems modest, a
10% difference corresponds to a letter-grade difference in the traditional grading system. The 6-point difference in grades attributable to recording attendance would have increased letter grades for 27 of the 57 students whose attendance was not recorded. Figure 1 shows the final grade distributions for the two groups of students; whose attendance was recorded earned substantially higher grades than did students whose attendance was not recorded. Note that the difference between the two groups was most dramatic for the B and C students, consistent with Graham’s (1999) finding for the effects of unannounced quizzes.

Many of the quiz questions reflected material covered in lectures, so it is not surprising to find that recording attendance had an impact on quiz grades. We examined the effect of recording attendance on quiz questions based on the textbook but not on the lectures. On the seven quizzes that are the focus of the analysis, 76 questions were from the textbook’s test bank; on these questions, the mean number correct for students whose attendance was recorded was 61.91 (SD = 6.4), compared to a mean of 58.58 (SD = 9.0) correct for students whose attendance was not recorded. This difference was statistically significant, \( t(112) = 2.29, p = .02, \eta^2 = .04 \). Thus, recording attendance increased the percentage correct from 77.1% to 81.5%.

Of the remaining questions, 56 reflected material presented only in lectures. The mean numbers correct for the attendance-recorded and the attendance-not-recorded groups were 43.96 (78.5%; SD = 8.1) and 40.88 (73%; SD = 8.1), respectively. This difference was statistically significant, \( t(112) = 2.04, p = .04, \eta^2 = .04 \).

In addition to the text-based and the lecture-based questions, there were also 12 questions based on other material (e.g., the syllabus, Psychology On A Disk exercises, etc.). The mean numbers correct for the attendance-recorded and the attendance-not-recorded groups were 5.46 (45.5%; SD = 3.2) and 5.67 (47.3%; SD = 2.9), respectively. This difference was not statistically significant, \( t(112) = 0.37, p = .72 \).

Thus, recording attendance significantly increased scores on text-based and on lecture-based questions, but not on other questions.

**Attendance and Grades**

For the 57 students whose attendance was recorded (and therefore the only ones for whom such a calculation was possible), the number of classes attended was positively correlated with overall quiz performance, \( r(57) = .61, p < .01 \), with performance on the text-based questions, \( r(57) = .44, p = .01 \), with performance on lecture-based questions, \( r(57) = .61, p < .01 \), and with performance on the miscellaneous questions, \( r(57) = .26, p = .05 \).

**Discussion**

This study addressed two issues: (a) whether simply recording attendance would increase attendance and (b) whether any such increases in attendance would result in improved academic performance. Simply recording attendance increased attendance. The effect was not only statistically significant, but was also dramatic: Absenteeism decreased by one third (from 21.5% to 14.4%). It is unlikely that the decrease in absenteeism reflected students’ concerns that the instructor might take attendance into account; the instructor assured the students that he would not see the attendance records until after submitting final grades, and the objective grading system in any event left no room for instructor bias.

The second finding of the study was that quiz performance was significantly better for students whose attendance was recorded than for students whose attendance was not recorded. Furthermore, students whose attendance was recorded did better not only on lecture-based material, but even on material that appeared only in the text.

There are several possible reasons for this attendance-related improvement in academic performance. One is that the lectures increased students’ understanding of the textbook material, which served as a foundation for material presented later. This account would certainly apply to such highly structured and hierarchical course material as mathematics, where lecture-based explanations of fundamental phenomena are prerequisites for more advanced understanding. It is not at all certain that the material covered in a standard introductory psychology course is so clearly structured.

Alternatively, the lectures may have had some motivational value, such that students who attended lectures were more interested in the subject matter and therefore studied more extensively. If so, the generality of these data would be limited to lectures that had these motivational effects.

Yet another possibility is that of participant reactivity: Performance may have been affected by the fact that students knew they were in an experiment. There is, however, no a priori reason to assume that mere recording of attendance would have improved performance for one group more than for the other.

Instructors may find these data satisfying; we can indeed increase attendance, and increased attendance does indeed improve academic performance. In terms of practical implications, it is worth noting that the labor-intensive recording of attendance may not be necessary. Instructors may want to consider the possibility that intermittent recording of atten-
dance (e.g., checking the attendance of a randomly selected 10% of the students) might be equally effective.

References


Notes

1. We thank Pearl Friedman, the course's undergraduate teaching assistant, for help in data collection and analysis.

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