8-1974

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THE EFFECTS OF AN ABSENCE POLICY
ON ATTENDANCE AND GRADES

by

Judith A. Adelman

A Thesis
Submitted to the
Faculty of The Graduate College
in partial fulfillment
of the
Degree of Master of Arts

Western Michigan University
Kalamazoo, Michigan
August 1974

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ACKNOWLEDGEMENTS

I wish to express my gratitude to Professors Richard W. Mallott, John Michael, and Paul T. Mountjoy. Their suggestions and advice were of the greatest value. As a result of both my experience as a student and my experiences as an assistant my stay at Western Michigan University will always be treasured.

Judith A. Adelman
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Masters Thesis

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Western Michigan University, M.A., 1974
Psychology, experimental

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The experimental analysis of contingency management in higher education has recently attracted increased interest. Researchers have examined several relevant variables affecting academic performance. One variable which could be expected to affect academic performance is attendance. Malott and Svinicki (1969) hypothesized that frequent quizzing would maintain a greater amount of study behavior. This gained some indirect support by Janczarek (1971), Hubbard (1971), and Hesse (1971). They found that frequent quizzing resulted in better performance on final exams. Having a large number of absences would tend to interfere with this process. In support of this statement, it was noted that students with A's and B's tended to have fewer absences (four or less) than those students with C's or D's. Also, since course material is usually cumulative, with frequent absences, there is a lower probability of mastery (Malott and Louissell, 1972).

Mawhinney et al. (1971) produced data supportive of these hypotheses. They found that daily testing resulted in regular attendance and a consistent duration of study time. Conversely, weekly or tri-weekly testing resulted in sporadic bursts of studying and less frequent attendance. Another relevant observation was that students with lower final grades start working later than students with higher grades (Lloyd and Knutzen, 1969).

It is also important to consider data obtained from those courses utilizing interview techniques for instruction. Often attendance is one of the contingencies which must be met in order to obtain the desired grade (Johnson and O'Neill, 1973). In other procedures...
contingencies are indirectly applied to attendance. For instance, in Johnston and Pennypacker (1971), the grades for the interviewers were contingent upon the performance of their pupils. This meant that they were required to see that appointments for interviews were made and kept. It also meant that when necessary, special arrangements would be made. For example, interviewers would be expected to conduct interviews with students who were in the hospital. A third finding is that when no contingencies are in effect, which specify a rate of progress, it appears that most students do their work at the end of the semester (Green, 1973). This suggests that with no contingencies on attendance, most students would miss class and prefer to make up for absences at a later date.

Lloyd et al. (1972) investigated several variables affecting attendance. They concluded that attendance was high when a quiz was presented or when material relevant to a quiz was presented. Attendance was also high when course credit was awarded for attendance. However, the opposite was true when attendance to lectures was made contingent upon completion of past assignments.

Although Ferster (1968) did not explicitly attempt to control attendance, he noted that there were a large number of absences on Fridays while the fewest number of absences occurred on Tuesdays. Clark (1972) observed that by punishing absences while reinforcing attendance, attendance increases.

Some of the research on behavior technology in college teaching has been criticized (Wodarski and Buckholdt, 1972; Hohn, 1973). Experimental design has been one of the prime sources of their
objections. They stated that studies often lacked control groups or the control groups were inadequate, i.e. assignment to experimental conditions was not on a random basis. Another common problem they described has been that it is usually difficult, if not impossible, to determine which variables contributed to the results. This is due to the fact that it is common practice to manipulate several variables at once. They cited Born et al. (1972), for instance, as using Verbal and Math scores on SAT to assign students to experimental groups, yet these scores may not be relevant for control purposes. They did not use a pre-test, only a post-test. Wodarski et al. (1972) praised their procedures on two accounts. Their grades were "blind," they did not know which students belonged to the experimental group and which belonged to the control group. Secondly, they did attempt to isolate his variables.

Wodarski et al. (1972) also mentioned Shepherd and McDermot (1970) as making an attempt to isolate an important variable. They had a system which allowed for random assignment, but, they were criticized because one professor taught both the experimental and control groups.

Finally, Wodarski et al. (1972) criticized Cooper and Greiner (1971) and Whitehurst (1972) for using self-selected control groups while they praised Dustin (1971) for manipulating only one variable frequency in testing.

The present study attempted to determine if it is necessary to punish absences in a college level course. Would absences increase if no contingencies were in effect? If absences do increase, will
they have a detrimental effect on grades? This was accomplished by randomly assigning students to one of two groups. The first group, the absence-penalty group, was subject to a contingency in which their grade would drop if they had more than a given number of absences. The second group, the no-absence-penalty group, were allowed any number of absences without penalty.
METHOD

Subjects

The participants in this study were 213 undergraduates enrolled in an introductory psychology course at Western Michigan University. The classes were composed primarily of freshmen (67%), sophomores (24%), juniors (6%), and seniors (4%). The ages of the students ranged from 17 to 23 years. Their majors were: Business (38%), Biology (6%), General Arts (6%), Psychology (5%), and Special Education (5%). The remaining 50% of the students had a wide variety of majors, none of which involved more than 4% of the population.

Setting

This study took place in four classrooms designed specifically for the course. Each room could accommodate a maximum of 24 students, with facilities for 12 elementary operant rat chambers. The front of each room served as a distribution and collection point for rats and materials. There was also a closed-circuit television which was utilized once a week for presenting films relevant to course content.

Textbooks for the course were: My Behaviordelic Friend (Psychology 150 Staff, 1973), An Introduction to Behavior Modification (Malott, 1973), "The Rat Lab Manual" (Psychology 150 Staff, 1972), Walden Two (Skinner, 1934). The teaching apprentice used "Psy 150 TA Manual" (Psychology 150 Staff, 1972).

The teaching apprentice (TA) was a student who had previously
completed the course with a grade of "A." He or she was chosen as a TA on the basis of previous performance. His duties included: record keeping, quizzing, correcting assignments, monitoring the rat laboratory, and answering the students' questions. The TA was monitored by an advanced teaching apprentice (ATA). He (the ATA) had previously served as a TA and functioned primarily as a source of feedback for the TA. Both the TA's and the ATA's received course credit for their activities.

The guidelines presented in My Behaviordelic Friend and "The Psy 150 TA Manual" outlined course structure, contingencies, and management systems. The course had originally been designed such that students would be allowed four unexcused absences or 15 excused absences. An excused absence was described as illness, death in the student's immediate family, participating in official sports events, etc. Unexcused absences were defined as such instances as sleeping in, missing a bus, and arriving later than one minute past the hour.

Absence petitions had to be submitted either before the absence or within 24 hours of return to class in order to be considered. These petitions were to be submitted with verification (for example, a doctor's certificate would be acceptable while a note from a friend or relative would not). The student was then required to deposit the petition in a box designated for this purpose. All petitions were then judged by an undergraduate assistant and, if accepted, would be considered excused.

If a student accumulated more than 4 unexcused absences, his
grade would drop by one letter grade. Or if a student accumulated more than 15 excused absences his grade would also drop by one letter grade. Or if a student accumulated any combination of 15, excused and unexcused, absences his grade would drop one letter grade. Starting with the fifth unexcused absence and for every 4 absences thereafter, points would be lost for any television lectures which were missed or, 8 points would be deducted from their laboratory report, depending on which activity had been missed. For the first 4 absences, television quizzes would be pro-rated and no points were deducted from the laboratory reports.

Procedure:

This experiment took place during the winter semester of 1974. Classes were held one hour daily, Monday through Thursday. Classes began on the hour from 10 a.m. to 1 p.m.

The absence policy was explained to the students as it had been presented in the course outline, and they were then asked to volunteer for a program in which the absence policy was varied. The alternative system would allow students to miss classes without penalty. This group will be called the no-absence-penalty group. They were told that only half of the volunteers would be assigned to the new system, assignments would be random, and those who were not chosen would be subject to the established contingencies which had been previously described. This group will be called the absence-penalty group. Before the students were assigned to their groups it was explained that those who were in the group with no conseuated
absences would still have to fulfill all other course requirements. This meant, for instance, for both groups that make-up tests had to be completed within two weeks of the absence; also, rat laboratory reports were to be handed in when due, i.e., one day after completion or on the date specified. Thirdly, arriving later than one minute past the hour still constituted an absence and students would not be allowed to write the daily quiz. Finally, 40 bonus points were available for attending weekly lectures, an additional 8 points were available for assisting the TA. For the absence-penalty group only, television quizzes would be pro-rated for all days missed, and laboratory points would only be lost if the written report was handed in late. This condition was an oversight. These stipulations were also outlined in a newsletter for those involved. The remaining students received newsletters explaining to them that the regular course contingencies would still apply in their case. These provisions guaranteed that for the no-absence-penalty group, grades would not suffer as a direct result of absences.

One additional variation in the procedure involved the assignment of rat laboratory partners. Ordinarily, students were allowed to choose partners from within their class. However, in this situation those students in the regular group were allowed to choose partners only from within their group. This was instituted in order to eliminate the contingencies which operate when one partner is subject to one set of absence contingencies while the other is not.

TA's kept records of absences and test scores in a gradebook and on a hall sheet. Each TA had a list of those students involved
in the no-absence-penalty situation as well as a copy of the state-
ment describing the applicable contingencies.

Since testing was on a daily basis, a TA could determine a
student's presence or absence by whether he (the TA) had a test form
filled in by the student for that student on the day in question.

Test scores were recorded on a daily basis both in the gradebook
and on sheets posted in the hall. An ATA would circle the score
regardless of reliability between the gradebook and the hall sheets.
But, if the scores disagreed, necessary changes would be made and the
TA would be appropriately consequated.

If the answer sheet indicated an absence, an "ABS" would be
recorded. In this case, "ABS" would be circled by the ATA when
scores were monitored. After the student had made up the test at
a later date, his score would be recorded alongside the "ABS."
Again, any errors would be corrected.

Finally, E (the experimenter) monitored absences and test scores.
She would compare all recorded absences with the test forms on a
weekly basis; that is, she would check the gradebook as well as the
hall sheets to determine if there was a blank test for each absence
recorded and to determine if each blank test had an equivalent "ABS."
She also compared the accuracy of recording for a random number of
test scores and she could arrange for consequation if errors occurred.
RESULTS AND DISCUSSION

Figure 1 represents the cumulative absences for the two experimental groups as a function of weeks. The mean number of absences for the no-absence-penalty group (3.65) was significantly greater than the number of absences for the absence-penalty group (2.17) \( (p = \leq 0.01) \). There were no significant differences between sections, that is, between students attending at different hours of the day. A 2x4 Anova was used for the comparisons. This finding was expected. In any situation where some behavior, in this case, absences, is subject to a response-cost contingency, its frequency tends to decrease.

Figure 2 represents the frequency of absences. Although one cannot infer it from the graph, the absence-penalty group had a larger percent of students with no absences, 29% as opposed to 18%. And 32% of the no-contingency group compared to 22% of the absence-penalty group were absent five or more times. This is consistent with the data presented in Figure 1. In this situation, the contingency is very subtle - having 4 or less absences has no effect on the student's grade, except that he has fewer absences available before his grade gets lowered. Consequently, you would expect the greatest differences in frequency to occur for 4 or more absences. This is, of course, true.

Figure 3 is a frequency distribution of the percent of students who achieved each grade level. The curves are almost identical. \( t \)-tests were used to compare final total scores and the cumulative
Figure 1 represents cumulative absences as a function of weeks.
Figure 2 represents the percentage of students as a function of the number of absences.
Figure 3 represents the percent of students at each grade level.
quiz scores. These were not significantly different. The final scores were 735.7 and 743.8 and the cumulative quiz scores were 327.2 and 329.4 for the no-absence-penalty and the absence-penalty groups, respectively.

One would predict that with less frequent testing, students would master less of the material. Hence, those students who had been absent frequently should not have done as well in the course as students who were not frequently absent; i.e., the no-absence-penalty group should receive poorer grades.

A further analysis of scores partially substantiated this hypothesis. For both groups, t-tests indicated that the scores received on daily quizzes were significantly higher than the scores received on make-up quizzes, i.e., quizzes which were written following absences (p = .01).

Mean quiz scores were computed by using the daily score immediately preceding absences. If a student was also absent on the preceding day, the daily score which was closest in time was utilized. There was always a daily score to match with each make-up score and vice versa. If for the make-up, the student did not attend, he was assigned a zero. The average quiz scores were 8.4 for the absence-penalty group. Their make-up scores were 5.8. The no-absence-penalty group had quiz and make-up scores of 8.5 and 7.1, respectively. t-tests also indicated that there were no significant differences between the absence-penalty and the no-absence-penalty groups.

Cumulative quiz scores and final totals were not significantly
different. Since make-up quizzes were significantly lower than regular quizzes, and since bonus points were not significantly different, mean bonus points were 28.3 for the absence-penalty group and 28.1 for the no-absence-penalty group one can only postulate that the number of absences in the no-absence-penalty group was not of a large enough magnitude to affect either cumulative quiz scores or final totals.

In noting the average quiz and make-up scores it becomes evident that although the average scores were very similar for regular quizzes, on make-up quizzes the performance of the no-absence-penalty group was superior. There are two probable reasons. First, the students in the no-absence-penalty group had a larger number of absences, poor grades on make-up quizzes would have had a greater effect on their course grade; therefore, they may have studied more. Secondly, the penalty group contained more students with less than 4 absences, while the no-penalty group contained more students with five or more absences. No one in the absence-penalty group had more than 11 absences, 5 people in the no-penalty group did. Failure to take make-up quizzes would have less of an effect on the absence-penalty group than on the no-absence-penalty group.

Completing make-up quizzes was fairly aversive. In order to make up a quiz, a student was required to attend a make-up session late Friday afternoon. This time period is associated with a large number of reinforcers which are generally available only outside university grounds. Therefore, it is very likely that students would miss taking make-up quizzes a few times, but as the number of absences
increased, they would be less likely to miss a make-up session. The points which were available for the quizzes would accumulate and be forfeited as absences which had not been made-up increased.

This is confirmed, to some extent, in Figure 4, a representation of the percent of absences made-up as a function of the number of absences. Although it is not clear-cut, there is a slight trend for students to make-up more absences as absences increase. Additionally, in Figure 5, we have a distribution of absences as a function of the day of the week. In general, absences are distributed equally except for Mondays when there were slightly more absences. For the no-absence-penalty group 33% of the absences were on Monday. For the absence-penalty group 29% of the absences were on Monday. Since Monday is the beginning of the week, it is likely that students would be absent as a result of weekend activities; e.g., students probably preferred to sleep-in or else they may have decided to extend their weekends. This finding also provides some substantiation for the hypothesis that attending Friday make-ups would be aversive.

Figure 6 is a scattergram illustrating the final scores in relation to the number of absences. There is a slight negative correlation for both the absence-penalty group (ρ = -.43) and for the no-absence-penalty group (ρ = -.40). Both correlations are significant (p < .01). This finding suggests a contradiction.

If absences are correlated with grades, and if the number of absences are significantly different, one might expect the grades to be significantly different. However, the grades were not in fact, significantly different.
Figure 4 represents the percent of absences which were made-up as a function of the number of absences.
Figure 5 is a distribution of absences as a function of the day of the week.
Figure 6 illustrates the frequency of scores as a function of the number of absences.
One possible explanation is simply that the obtained correlations were low and so they accounted for only 16% of the variability. For this reason even though there was a significant difference between absences, it would not necessarily indicate that there would be a significant difference between grades. The other possibility is that even though absences and grades were correlated, one cannot assume causality or even interaction. By manipulating one, you may not affect the other.

A correlation was also observed between quiz points and absences. For the absence-penalty group, this correlation was -.40, while for the no-absence-penalty group it was -.32. Both are significant (p <.01), both correlations are lower than the correlations between total points and absences.

This again, is contrary to expectation. Since make-up scores were significantly lower than regular quiz scores, one would expect that with a large number of absences, quiz totals would be lowered. And, since final scores consisted of quiz scores as well as lab scores and bonus points, one would have also expected that these would have correlated with absences to a lesser or equal degree than with quiz scores.

However, since both correlations, those between absences and quiz points and those between absences and final scores, were similar in value for the two groups, the discrepancy can probably be attributed to variability.

Another finding was that completion of the rat laboratory did not appear to affect attendance, i.e. although some students finished
all their laboratory assignments before the end of the semester they continued to attend. The mean number of absences was .31 before completion and .25 after completion. t-tests revealed that these differences were not significant (p = .05). Possibly this was because the students already had fairly well-established histories of attendance or non-attendance at the time they finished the laboratories. The discriminative stimuli and the reinforcers which were available were already in operation. An alternative explanation may be that the aversiveness of attending make-up sessions may have also been maintaining attendance.

Figure 7 illustrates the percent of absences as a function of consecutive absences. For both groups, most absences occurred singly. For the absence-penalty group 75% of the absences occurred singly, for the no-absence-penalty group 65% of the absences occurred singly. In general, as consecutive absences increased, the percentage of absences decreased.

In conclusion, it would appear that, in this instance, although the number of absences increased while the average make-up scores suffered, the effects were not sufficient to affect final grades.

Since grades are not affected by a large number of absences, it would seem reasonable not to require attendance. However, there are some complicating factors. One is that students do significantly worse on make-up tests following absences. The answer is a difficult one. Students may have learned the material at a later date, although we have no data to support this suggestion. Since make-up scores were generally poor, it may indicate that there was very little studying following absences.
Figure 7 represents the percent of absences as a function of consecutive absences.
Furthermore, this course involves a great deal of built-in review. Such review may be a very important variable in determining final grades. Given these two factors together, it is likely that final grades would not suffer. Thirdly, the final exam may not allow for a fine discrimination between students. Although it covers a major part of the curriculum, most of the questions are only of medium difficulty. A fourth factor is that students have to eventually make contact with the material if they are absent, i.e., they encounter it in review. These characteristics are not evident in all courses.

Besides grades, the effects of absence policy on the rest of the system also has to be considered. Do a large number of absences result in a strain on the system? It does create more work for the TA's. Since scores are posted on a weekly basis, if a student has any absences, his score cannot be posted and must be calculated at a later date. This also interferes with the feedback system. If a student has 1 or more absences per week for several weeks, he gets little or no feedback to indicate his standing in the course.

There is also a minor problem dealing with the rat laboratory. An instance can develop in which one partner frequently does not attend the laboratory and the other does all the work. This is extremely rare, but it does happen and, the system is designed so that if both partners hand in a report, they both receive credit even if only one did the work.

In summary then, it would appear that a large number of
absences does not appear to affect student performance for this particular course although it does appear to cause a minor strain on the system. If the system can be altered so as to eliminate the strain, then it would also be possible to alter the absence policy.
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APPENDIX

One of the main problems in utilizing an absence policy is the negative attitude which is aroused in the students. Therefore, if alteration or elimination of the absence policy can improve student attitudes without hurting their performance, it should be considered. This remains to be tested because it may also be that elimination of the absence policy will also result in negative attitudes. For example, since there would be an increase in absences, more students would be going to Friday make-ups. Friday make-ups are aversive. So, students might experience unpleasant feelings as a result of having to attend.

For this reason, attitude is one dependent variable which should be more closely examined. An independent variable which be considered is the degree to which the absence policy is eliminated or retained. It may be that a more lenient absence policy is the solution to the attitude problem. Eight absences, for example, are not unreasonable in a 40 class day term. The absence policy seems to be necessary for only about 5% of the population.

Another independent variable to consider is the unit size of the material. For classes in which there are fewer meetings and in which unit sizes are larger e.g. one week absences would probably have a more critical effect on the student's grades, i.e. the student with a couple of absences would have to remediate a much larger assignment.
The format of the course is also important. Absences from lecture courses might result in a definite deficit in the student's repertoire. Another related independent variable is the complexity of the material. In the present course, the content was fairly simple, if a student were absent, it would be unlikely that he would miss a great deal of clarification. Whereas if the material were more complex, a student could experience deficits which he might not attempt to correct on his own initiative following an absence.

Another alternative to consider, if Friday make-ups do result in negative attitudes, is to allow make-ups at other times. Possibly, a room could be opened at specified times during the day. In these ways students could go to make-ups at their convenience.

Finally, reinforcement should be considered as an important variable. Maybe, students could be awarded bonus points for consecutive days of attendance.

Using these suggestions as starting points, it is evident that the effects of an absence policy require further study before any definite conclusions or generalizations can be drawn.