This paper is a critique of the Helm & Burkett (1989) research report written during the Spring 2000 semester. The student author wishes to remain anonymous but gives permission to share this document with future Y520 classes. During the Spring 2000 semester, students wrote a critique, we discussed the research report in class, the instructor “graded” student papers, and students rewrote their original critiques, incorporating feedback from the class discussion and instructor. Note that the student’s final conclusions about the value of the research are overly harsh.
Review of a Research Article: *Effects of Computer-Assisted Telecommunications on School Attendance*

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Introduction

In 1989, Carroll Helm and Charles Burkett published a study examining the effects of computer aided notification of absenteeism. The purpose of the study was to determine whether absentee students who received a phone recording about the absenteeism from the principal had, at the end of a year-long program, a better attendance record than those students who did not receive a phone recording. The authors identify four justifications for this study, and include a literature review.

Justifications

First, absenteeism acts as a “red flag” for dropping out of school. Managing absenteeism could therefore be a form of early intervention. Second, most public schools receive funding based on measures of average daily attendance. Improving attendance could therefore have a positive effect on school monies. Third, students arguably learn more with a regular school attendance pattern. Thus, improving attendance could positively impact academic performance. Finally, other absentee notification procedures are costly and time consuming. Computer aided absentee notification could prove to be a cost effective way of impacting absentee levels.

Literature Review

In addition to justifications for conducting the research, Helm and Burkett include a literature review of previously published relevant research. The authors observe that little attention has been given to the relationship between parental notification and subsequent attendance levels. The first cited study (Butler, 1925) was not re-visited until a telephone notification study was conducted some forty years later (Copeland, Brown, Axelrod, and Hall, 1972). All studies cited by the authors showed that parental notification could lower subsequent
absentee rates. One study (Bittle, 1976) included the added observation that while effective, individual telephone contacts could be an inefficient method. McDonald (1986) first explored utilization of a computerized dialing device and identified a strong positive relationship between parental notification and lowered absentee levels. At the conclusion of the literature review, Helm and Burkett posit that a computer dialing device could offer a cost effective mechanism for positively impacting absentee levels.

Method

Hypotheses

The authors make the following specific, central hypothesis: Students whose homes are called by a computer aided phoning device will have better attendance records than those students whose homes are not called. Within this context, the independent variable is a call to the home of an absentee student and the dependent variable is daily absentee counts.

Sample

To perform the study, Helm and Burkett chose a total of three hundred students from three schools within a single county in Tennessee. Two of the schools were high schools and one was a middle school. The article suggests that one hundred and fifty students, fifty each from the three schools, were chosen using a “random sampling technique” first to be in the control group. The selection process was then repeated to produce an experimental group of one hundred and fifty students. Parents were given the option of not participating in the study.

The published description sample and population leave several questions unanswered. First, it can only be presumed that the authors insured that all participants had ongoing access to working phones. Additionally, the impact and management of answering machines was not explored. Second, a literal reading of the published article suggests that the sampling groups
were built sequentially (i.e., the control group was built first, and then the experimental group). If this were the case, it is unclear what impact, if any, a tiered approach might have had on random sampling. Third, it is unclear how many parents elected not to participate, or whether the declining parents were replaced with other randomly selected students. Fourth, it is unclear whether the control group received any absentee notification. Presumably, district policy requires parental notification in some form regarding student absentee rates. We don’t know whether all students (control and experimental) continued to receive “standard” notification mechanisms while the experimental group enjoyed an additional notification mechanism, or whether the control group was relieved of all notification mechanisms for the duration of the study, etc.

Finally, the authors limit generalization of all findings to geographic areas similar to those of the three schools. However, the article did not supply demographic compositions of the population, or match demographics in the sample construction. Until we know more about the sample population, it is difficult to assess generalization. For all these reasons, it is impossible to evaluate the population and subject management of the Helm and Burkett article without further information.

**Procedure**

Helm and Burkett utilize a “computer-assisted telecommunications device,” along with a “computer attendance software package.” It is unclear exactly how the “computer-assisted telecommunications device” worked, or how it differed from the “computer dialing device” utilized by McDonald in 1986. What we do know about the Helm and Burkett tool is that secretaries and student workers keyed in the names of absentee students, and the computer-assisted telecommunications device self-activated at 6:00 p.m. and continued dialing until the home of each student on the absentee list was reached. Once reached, a prerecorded message
from the principal would be played. The device generated a daily list of who was called and who was reached or not reached. While the article states that an absentee student would be called over and over until someone answered, it is unclear whether this list was reset each day, or whether a student remained on the list indefinitely until someone was reached. We do know that the computer devices were tested before being put into operation, but we do not know what testing was conducted, or how the keyboard entry workers were trained.

Along with some ambiguity about how the computer-assisted telecommunications device operated, we also know very little about how the computer attendance software package operated. Presumably, workers from each school - perhaps the same workers who provided data entry to the telecommunications device - input absentee information at each school to produce a state wide daily attendance roster. (Of course, this information could be mailed or phoned in from each school to a state headquarters.) At any rate, it is unclear what additional benefit the authors gained from utilizing the computer attendance software package over using absentee lists produced at each local school. By using the state attendance software package, the study introduces additional confounding - we do not have any measure of the reliability of the statewide data. The authors should add integrity checks between the phone lists and the register program, or add an additional caveat given the tool set used: they are examining the relationship between computer assisted phone notification of absenteeism and state reported absentee rates.

Data Collection

At the end of the eighth month, records from the two tools (the computer-assisted telecommunications device and the software attendance register) were generated. Data was collected to compare attendance rates (days missed) of those students whose homes were called with the computer device to the attendance rates of those students whose homes were not called
with the computer device. What is not unclear in the Helm and Burkett study is how unreached counts were managed. That is, the authors differentiated between called and reached homes, but it is unclear how results from this differentiation were managed in the data collection and subsequent analysis.

**Data Analysis**

The data were analyzed by comparing the mean absentee rates of those students who were called using the computer aided device to the mean absentee rates of those students who not called using the computer aided device. Statistical tests were used to determine the likelihood that the difference between means was a chance occurrence.

The authors tested the null hypothesis regarding attendance impact: There is no difference in attendance between the students whose homes are called with the computer device and students whose homes are not called. Presuming a minor editing issue with the reported $t$ value (3.0009), the authors report significant findings. In fact, the absentee rates for those students whose homes were not called with the computer aided device exhibited close to double the absentee rates of the students whose homes were called. Moreover, standard deviation of reported mean absent days for the students whose homes were not called is almost four times that for the students whose homes were called.

Along with the central null hypothesis, the authors performed additional statistical tests to determine whether absentee rates are influenced by race, sex, socioeconomic standing, and school attended. The authors report no impact by any influence. Examining the central hypothesis with the added granularity of impact by race, sex, socioeconomic standing, and school is certainly warranted. However, the lack of reported differences cannot be evaluated because no sample segmentation demographics were provided in the publication.
Discussion

Helm and Burkett summarize their study by concluding that in every examined case, the absentee rates for students whose homes were called with a computer dialing device had a better overall attendance record than those students whose homes were not called. They limit extensibility of their results to areas similar to those included in the study, and reiterate the importance of lowered absentee levels.

Before the discussion content can be supported, however, several key issues with the study need to be addressed. These issues fall into several categories: study focus, procedure, and analysis.

The Helm and Burkett study appears to have diffused focus. Is this a study to evaluate cost effectiveness of various absentee mechanisms (as the introduction and literature review sections might suggest), or a study to identify whether a (particular) computer aided telephone dialing approach has impact (as the method and results sections might suggest)? Along with a diffused focus, key procedural omissions exist. How, in detail, did the equipment work? How were called-but-not-reached students handled? How was the entire absentee envelope administered (i.e., was the control group, no phone call, called but not reached, no notification at all, or standard notification procedure?) Finally, perhaps the most serious issue lies with data analysis. Without necessary information about the sample and population - including demographic segmentation - it is impossible to evaluate the data analysis.

Overall, the key issues observed with the Helm and Burkett study relegate the research as unusable. Helm and Burkett need either to republish addressing key omissions; or, as necessary, to repeat the study addressing experimental flaws. The strongest part of the publication is the introduction. Helm and Burkett are correct in their identification of the importance of examining
absenteeism, and the impact this examination could have on school administration, funding, and perhaps most importantly, student learning. The topic is so important, in fact, that additional information might prove interesting.

Some of the additional information that might be interesting to produce when addressing the omissions and/or flaws of this study include: determining whether personal calls really produce less impact than recorded calls, whether time of day the call is placed matters, what impact the availability of answering machines has, whether most funding from absentee rates is lost to higher average rates or higher rates from chronic absenteeism, a look at potential variance across all school levels, particularly elementary school levels, etc. By looking at some or all of these additional lines of inquiry and addressing omissions and/or flaws, Helm and Burkett might be assured of having produced a significant piece of educational research.