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ABSTRACT

An experiment using two undergraduate psychology classes was conducted to see if encouraging comments from the instructor, which were e-mailed to the students, would have an effect on student's test performance. No statistical difference was found between the grades of the class that received encouraging comments from the instructor and the class that did not (at an alpha level of .15). This failure to replicate the self-fulfilling prophecy effects of Rosenthal's 1968 "Pygmalion in the Classroom" study once again raises doubts about generalizability of the historic study. Student apathy to the instructor's opinion is suggested as the primary explanation for the surprising results of this study. Suggestions for further research are made. Contains 18 references and a table of data. Appendixes contain raw data; graphs of test scores with normal curve overlay; descriptive statistics and paired sample correlations; and an informed consent form. (Author/RS)

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THE EFFECTIVENESS OF ELECTRONICALLY COMMUNICATED ENCOURAGEMENT ON STUDENT PERFORMANCE

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May, 2001

Abstract

An experiment using 2 undergraduate psychology classes was conducted to see if encouraging comments from the instructor, which were e-mailed to the students, would have an effect on student's test performance. No statistical difference was found between the grades of the class that received encouraging comments from the instructor and the class that did not at an alpha level of .o5. This failure to replicate the self-fulfilling prophesy effects of Rosenthal's 1968 Pygmalion in the Classroom study once again raises doubts about the generalizability of the historic study. Student apathy to the instructor's opinion is suggested as the primary explanation for the surprising results of this study. Suggestions for further research are made.

Introduction

Alfred Adler introduced the concept of discouragement to explain human behavior over one hundred years ago. According to Adler, (1959, 1964) individuals with emotional or mental problems were not sick, rather they were discouraged because they experienced feelings of inferiority when they compared themselves to others. Adler maintained that when individuals respond to normal feelings of inferiority and then begin to act *as if* they were inferior to others, they become discouraged. These individuals are generally less healthy, less productive, more likely to suffer burnout, and perform poorer at school, in sports, and in the work place. The behavior that discouraged individuals exhibit would be identified as pathological by the medical model (Mosak, 1995). Adler agreed with his colleague Sigmund Freud that personality development begins very early in life with a great deal of one's personality being established before the age of five. It is understandable how a young child, who is busy comparing himself or herself to others from birth to five years of age, could easily feel inferior and become discouraged. Everyone in a young child's phenomenal field is going to be quicker, smarter, and generally more capable than a preschooler. As the first social psychologist, Adler maintained that, to be understood, human behavior must be studied in the social context. Adler's early hypothesis, that we are constantly defining ourselves in terms of how we rate when compared to others, continues to be tested and modified today. Modern researchers look at self-efficacy (Bandura, 1977), downward comparisons (Aspinwall & Taylor, 1992), and attributional errors (Feather, 1969; Swann & Snyder, 1980; Baumeister, Hamilton, & Tice, 1984), and, although the terms and jargon are different, the underlying issues reflect the same question, "How do I fair when compared to you?" As Adler pointed out, it is what we believe and how we act upon those beliefs, that determine much of human

behavior and can lead to psychopathology. The therapeutic task of an Adlerian psychologist is to encourage the discouraged person (Mosak, 1995). However, this is easier said than done. Researchers have found that encouragement means different things to different people. In one respect this is a positive thing because the forms that encouragement can take are only as limited as the encourager's imagination. In another respect, the operational definitions that are truly representative of the concept of encouragement have been illusive, inconsistent, and difficult to test and replicate. The context in which encouragement is given and received and the source of encouragement are also factors that are highly variable (Baumeister, Hamilton, & Tice, 1984).

Statement of the Problem

The majority of the research dealing with encouragement in an educational arena has centered on its use as a motivating tool in elementary schools (Brophy, 1981). Little research has been done on types of encouragement other than verbal praise (Dawson, 2000; Emmer, 1988). Furthermore, the college population has largely been ignored when it comes to the study of the effects of encouragement. The purpose of the study that I conducted was to investigate the effect of electronically communicated (e-mailed) encouragement on the grades of college students enrolled in Introduction to Psychology classes.

Review of Related Literature

If one embraces the Adlerian hypothesis that feelings of inferiority lead to discouraged individuals and that discouraged individuals engage in more psychopathological behavior than non-discouraged individuals, the logical next step is to study how to encourage

individuals so that they do not become discouraged and thereby stop them from engaging in behavior that is unhealthy or unproductive.

A review of the literature shows that this is a very complicated issue to study. There are as many operational definitions of encouragement as there are researchers and even more ways of measuring the effects of encouragement. Meyer, (1982) found that encouragement is highly subject to interpretation, situation, and source. What may be intended as praise can, in some situations, be perceived as blame. The literature also reveals that encouragement in either the classroom or other types of performance situations has been difficult to consistently define. A great deal of research has been done on encouragement as a motivational tool in the classroom. Most of this research has focused on grades K through 12 and has dealt more with behavioral issues (Burden, 1995; Brophy, 1981) than academic ones (Emmer, 1988; Brophy, 1986).

Brophy (1981) studied the effect of praise as encouragement with some very surprising results. He concluded that there are many situational variables as well as multiple interpretive factors involved that can cause encouragement to backfire and produce the opposite effect than intended. Brophy (1981) points out that teachers must be very clear in their own minds as to their motivation for offering praise or encouragement. If a teacher is praising a student for desirable behavior because he or she wants to manipulate other students into copying such behavior, the praise is very likely to backfire. In this situation the praised student, fearing the wrath or teasing of his or her peers, may stop engaging in appropriate behavior as readily in the future for fear of having attention called to that behavior. Students are very adept at sensing teachers' motives for praising them and are more likely to respond positively to the teachers' sincere belief in the student's ability

(Emmer, 1988; Rosenthal, 1968; Swann & Snyder, 1980) or student's effort to perform up to level of capability (McColskey, & Leary, 1988).

Wilson and Linville (1982) showed that there were long term (lower drop out rates) as well as short term gains (improved grades) when students were encouraged regarding their performance their freshman year in college. Students who did not do as well as they would like to have done found encouragement from hearing from others who had been in similar situations. In their studies Wilson and Linville discovered that when students are able to attribute less then a stellar performance to conditions outside of their personal control, as well as realizing that those conditions were unstable (going to change), the students were able to get past their discouragement, return to school the following semester, and perform better. The remarkable statistical difference in dropout rates, 25% in the control group who did not receive encouragement vs. 5% in the experimental group who did receive encouragement from upperclassmen, was one of the most striking aspects of this experiment. Also noteworthy was the three grade point increase achieved the following semester by the experimental group over the control group.

It is interesting to note that in the Wilson and Linville (1982) study the students were encouraged even though the encouragement was not given in a one on one manner. The participants in these studies saw only videos with upperclassmen that related having been in similar situations when they were freshmen. The freshmen found hope and encouragement just by knowing that others had succeeded after similar failures. The point here being that encouragement can be given using a variety of mediums.

Encouragement can be of a public, as well as, of a private nature. Hancock (2000) studied the impact of verbal praises on college student's time spent on homework and found

that those students who received publicly administered verbal encouragement from their instructor, (comments of, "Good job," "Very good," or "Great work") when their study logs indicated 60 minutes or more of studying time increased the time they spent in class preparation. The students in Hancock's study also showed a slight improvement on test scores over students who did not receive verbal encouragement. Hancock's research showed that students who were exposed to verbal praise by a professor spent significantly more time doing homework than did students who received no verbal praise (Hancock, 2000). Although the increased achievement was not statistically significant, the direction of the means is note worthy.

What is meant to be encouragement can also be perceived as an expectation and actually lower subsequent performance. Baumeister, Hamilton, and Tice (1984) found that in some cases, high expectations by others actually lowered performance, but in other situations, as when the expectation was held strongly enough to convince the performer that success was likely, performance was enhanced. In other experiments an instructor's belief in a student's ability was enough to convince a pupil that they had performed well even in the face of a poor performance because they accurately estimated the instructor's confidence in them (Swann & Snyder, 1980). Some students respond positively to time spent focused on them as encouragement to perform better (Meyer, 1982). Other studies have revealed that the reference point has a significant impact on students' response to teacher praise. Students responded more positively to self-referenced feedback (comparing the individual's performance to their own past performance) than they do to norm-referenced feedback (comparing the individual's performance to others) (McColskey, & Leary, 1985).

No literature review on the subject of classroom motivation or teacher expectations would be complete without acknowledging the contribution of Rosenthal and Jacobson's (1968) work in the area of self-fulfilling prophesy. In this famous study students' performance was commiserate with their teacher's expectations. In several studies Rosenthal and Jacobson observed that, "by how and when she said it, by her facial expressions, postures, and perhaps touch, the teacher may have communicated to the children of the experimental group that she expected improved intellectual performance" (as quoted in Rosenthal & Jacobson, 1968, p 180). Rosenthal and Jacobson recognized the multiplicity and subtleties of ways in which encouragement could be communicated.

Statement of the Hypothesis

If, as Adler proposed over one hundred years ago, people behave poorly due to discouragement, then it stands to reason that an encouraged individual will do well. In the experiment that I conducted, I examined the effects of encouragement on student behavior. It was hypothesized that college students who receive an encouragement from their instructor will score higher on the test following the encouragement than students who do not receive encouragement from their instructor.

Method

Participants

Subjects were 70 undergraduate students in two Introduction to Psychology classes, taught by the same instructor, on the same days of the week, and which are only one hour apart. Participants were volunteers and received extra credit for their participation. All

participants received and signed an Informed Consent Form and were told very explicitly that their agreeing to participate in this study meant that they were giving their permission for the researcher to have access to their test grades.

Instrument

Test scores were used as the method for comparison for this experiment. The first test scores of the students were used as a baseline score and to determine the encouraging comment from their instructor. The scores from the second and third tests of the control group and the experimental group were compared for statistical significance.

Experimental Design

This was a double blind experiment as neither the class nor the instructor knew which was the experimental group and which was the control group, nor did the students know that encouragement from the instructor was the independent variable being manipulated. The students were led to believe that they were participating in a study on the effects of receiving an electronically communicated study guide on their test scores compared to classes that do not receive electronically communicated study guides. This ruse was important to maintain the integrity of the study.

Both Introduction to Psychology classes were introduced to the researcher by the instructor, Michelle Ducote. The classes were told that I was a graduate student conducting research and that they would be given the opportunity to participate if they choose. I then explained, rather ambiguously, that I was conducting research that had to do with the effects

of study guides being sent to students' e-mail addresses. Students were told that those who chose to participate would receive a study guide e-mailed to them approximately four days prior to their next two exams. It was explained that this would be an additional study guide, that would pertain to bonus point questions. Students were informed that they would all still get the study guide that their instructor handed out in class. The students were assured that their instructor would create the study guide and the bonus questions on the test.

I explained to the students that I was conducting an experiment and that I would be comparing test scores. Students were told several times that their agreeing to participate in the study was giving me permission to verify their test scores with their instructor. Students were also assured that no reference would be made to individuals or their scores in any printed manner. Students were assured that their identities, their test scores, and their e-mail addresses would be kept strictly confidential and used for no other purpose than this study. Informed consent forms were then handed out (Appendix 4). The students were given time to read the consent form, complete the information requested, and then handed them directly to the researcher. Of the students in attendance only two students declined to participate, one in each class.

For the purpose of this study encouragement was defined as a comment of an encouraging nature that made it clear that the student's optimal performance was valued and which most students would regard as either implying approval of exerted effort (Emmer, 1988) or as an expression of confidence in the student's ability. The encouraging comment was attached to a study guide that was e-mailed to each participant's private e-mail address, which the students provided. In all cases the encouraging comment preceded the study guide in the text of the communiqué. The encouraging comments were signed with the

instructor's first initial and last name (M. Ducote). All e-mails originated from an e-mail address that resembled the instructor's name (PsyMDucote@aol.com).

The first encouraging comments were based upon the students' grade on the first test. Students who scored an 80 or higher received a comment similar to, "I hope you keep up the good work. I would like to see you make an "A" in this class. I believe you can!" Students who scored between 70 and 79 on their first test received a comment similar to, "I would like to see you make higher than a "C" in this class. I believe that you can." Those students who scored below 70 on the first exam received a comment similar to, "I hope you score much higher on this exam. I hope to see you do much better in this class. I believe that you can!" Students received similar encouraging comments prior to the third test. The subsequent encouraging comment was based on the student's average grade from the first two tests.

The comments were linked with the study guides to maximize the likelihood that the students would actually read the comments from their instructor. The students were mailed the electronically communicated encouragement the Monday or Tuesday before their Friday examinations. The instructor was informed of my intention to subdivide the experimental group into those with an average of A, B, C, D, and F. She saw and approved each comment that was sent and gave her permission to use her name in the communiqué.

In an effort to control as many variables as possible both classes have the same instructor, cover the same material, receive the same study guide, lectures, and tests, and meet on the same days of the week, one at noon and the other at one o'clock. Students are allowed to attend either class. By random selection, the noon class was designated as the experimental group (N=36). The one o'clock class was designated as the control group, (N=37) which received no encouraging comment from the instructor, but did receive the

same study guide prior to the test. The instructor had no knowledge of which was the experimental group and which was the control group.

Following the third test the researcher returned to the classes to debrief them, to explain the true nature of the experiment, the necessity for the duplicity, share the results, and answer any questions the students had.

Results

The first step to analyzing the data that was generated by this experiment was to determine if the test scores of the students represented a normal distribution by analyzing the descriptive statistics (Appendix 3) and histograms of grade distribution with normal curve overlays (Appendix 2). The control group had a class average of 84.4 on their second test, while the experimental group had a class average of 84.6. On the third test the control group's average grade was 89.1, and the experimental group was 89.5. The experimental group scored higher on both tests, but not by a very large margin. A t-test for paired samples (a=.05) was used to compare the means for test 2 and test 3 of the experimental group and the control group. This statistical technique was utilized because it was believed that assumptions required for use of a parametric test were met, e.g., classes were randomly assigned to the experimental group or the control group based on luck of the draw. It was found that the means of the two groups did not differ significantly on either of the tests following the encouraging comments t (34) =-.076, $p < .05$ for the second test, and t (33) = -.138, $p < .05$ for the third test. The critical t value of 2.04 was not achieved. It was concluded that the original hypothesis that students' grades would improve following encouraging comments from their instructor was not supported.

Table 1

Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	Upper			
Pair 1	COTEST2 - EXTEST2	-.1765	13.5075	2.3165	-4.8895	4.5365	-.076	33	.940
Pair 2	COTEST3 - EXTEST3	-.3939	16.3591	2.8478	-6.1946	5.4068	-.138	32	.891

COTEST=Control Group Test
EXTEST=Experimental Group Test

Discussion

The results of this experiment do not support the original hypothesis that students test grades would improve following electronically communicated encouraging comments from their instructor. There could be many explanations for this finding. College students may not have significant relationships with instructors that lead them to place value on their opinions. It could also be that the students did not feel the encouraging comments were personal, or sincere. Based on observation of both student groups when in the classroom to gather informed consent, when sharing the findings of the study, and on another occasion just to observe their interaction with the instructor, student apathy was noticeable. No formal measure was made of student attitude, but it was unavoidable to draw the conclusion that apathy towards the class, the subject matter, or the speakers was a major factor in this study. Many students were observed with their heads on their desks, and others had the trance-like stares or the uninvolved. Discussions were left to a small number of students, some who were engaged in the conversation, others who seemed to be involved for personal reasons, like to hear them selves speak, as their comments bore little relevance to the subject being discussed. Follow-up discussion with the students supported this conclusion. Some

students observed that they did not pay a great deal of attention to the encouraging comments that were e-mailed to them because they felt that their instructor was the type of person that would routinely send encouraging comments to all her students. Several said that had the same comment come from a professor that was usually "mean" that it would have had more impact. One student did say that the comment meant a great deal to her, and motivated her to study harder, and that she brought her second test grade up over 20 points higher than her first test grade. On a personal note, this researcher thinks that one student is very significant.

The students in both groups showed marked improvement during the experimental period, it must be concluded that the improvement was not due to encouragement but to some other factor, such as the study guide, familiarity with the instructor's testing style, or, as they are maturing, the realization that in order to do well on tests, they must study more.

Electronic communication will need to be studied more as it becomes more familiar to people. It should be the focus of a great deal of future research as implications for its uses (and misuses) need to be explored. The findings from this experiment suggest that using electronic technology to augment classroom instruction is also an area that necessitates examination. As examinations of the effects of encouragement are continuing to be inconsistent, I trust that this will remain a "hot" area of research, and that we never stop looking for ways of communicating encouragement. Research that can follow-up with students to discover how they feel about encouragement from their instructor can provided helpful information. Unfortunately, it was beyond the time frame of this project to devote the time necessary to do more than the most superficial follow-up interviews with the students. Individual private interviews could have yielded valuable information. For example, did the

fact that the encouraging comments were worded as expectations have an influence on students? While teachers helped create the encouraging comments, it is possible that students did not perceive them as such. Future researchers may consider conducting a pilot study of the types of comments that college students find encouraging. This could be done by having college students use a Lichert scale to rank a list of comments from very encouraging to not very encouraging. It is noted that this is one area of the experiment that was not controlled.

Many other questions remain unanswered regarding encouragement. Does encouragement motivate? Obviously some students are more responsive to encouraging comments than others, but why? Do different personality types respond differently to encouragement? The entire issue of encouraging the college student must also be investigated further as well. This is an area that has received to little attention in the research. A similar study using graduate students, who are generally thought to be more highly motivated would yield interesting results when compared to the undergraduates in this study.

It cannot be overlooked in a discussion of this experiment that many students were unable to communicate their e-mail address. Although the university insures an e-mail address for each student, many wrote them down inaccurately, omitting parts or otherwise indicating their lack of familiarity with the system. It is possible that, although students agreed to participate in the study, they may not have even read the encouraging comments from their instructor. Future researchers will need a better way of getting students' addresses than simply relying on the students' ability to communicate it. Other students were unable to print clear enough to make their e-mail address legible. If teachers hope to

use electronic communication techniques to speed communication with their students a more efficient system will need to be utilized than relying on student's ability to provide the necessary information to establish contact, otherwise instructors are in for a long and laborious, chore that will be anything but a time saver.

Because of the apathy exhibited by the students generalizing the results of this study beyond this group of subjects should be done with caution. It would be premature to conclude that undergraduate students are immune to the effects of an encouraging comment, when so many other factors, like motivation are so clearly salient.

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Appendixes

Table of Contents

Appendix 1

Raw Data

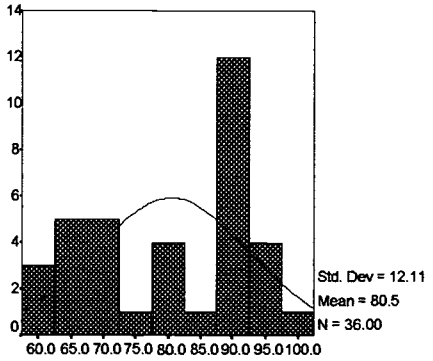
	Control			Experimental		
	Test 1	Test 2	Test 3	Test 1	Test 2	Test 3
1.	65.00	92.00	95.00	71.00	76.00	98.00
2.	90.00	91.00	93.00	67.00	92.00	89.00
3.	96.00	83.00	100.0	92.00	72.00	85.00
4.	80.00	75.00	77.00	82.00	.	71.00
5.	60.00	70.00	74.00	83.00	95.00	103.0
6.	65.00	99.00	.	71.00	71.00	68.00
7.	93.00	86.00	92.00	8.00	58.00	95.00
8.	78.00	86.00	97.00	61.00	65.00	58.00
9.	75.00	87.00	87.00	95.00	90.00	.
10.	86.00	95.00	90.00	98.00	98.00	83.00
11.	80.00	87.00	52.00	71.00	92.00	69.00
12.	85.00	100.0	105.0	89.00	96.00	105.0
13.	53.00	87.00	105.0	89.00	89.00	105.0
14.	65.00	70.00	84.00	66.00	81.00	101.0
15.	101.0	92.00	99.00	66.00	96.00	105.0
16.	80.00	87.00	96.00	89.00	84.00	102.0
17.	99.00	95.00	101.0	95.00	96.00	104.0
18.	41.00	71.00	86.00	79.00	93.00	88.00
19.	66.00	78.00	101.0	78.00	67.00	87.00
20.	93.00	91.00	95.00	64.00	97.00	99.00
21.	80.00	100.0	89.00	75.00	92.00	83.00
22.	83.00	78.00	93.00	88.00	93.00	98.00
23.	90.00	.	102.0	89.00	83.00	83.00
24.	96.00	99.00	85.00	91.00	93.00	101.0
25.	80.00	90.00	95.00	60.00	84.00	94.00
26.	80.00	90.00	101.0	.	.	.
27.	81.00	87.00	96.00	89.00	93.00	93.00
28.	78.00	79.00	51.00	71.00	88.00	64.00
29.	53.00	66.00	60.00	90.00	72.00	90.00
30.	67.00	66.00	.	80.00	94.00	93.00
31.	76.00	84.00	94.00	93.00	72.00	80.00
32.	95.00	100.0	84.00	90.00	97.00	105.0
33.	69.00	73.00	75.00	91.00	92.00	91.00
34.	59.00	65.00	92.00	66.00	66.00	87.00
35.	92.00	92.00	99.00	92.00	77.00	102.0
36.	54.00	83.00	62.00	.	.	.

37.	80.00 77.00 99.00	71.00 77.00 51.00
38.	80.00 67.00 85.00	97.00 78.00 85.00

Appendix 2

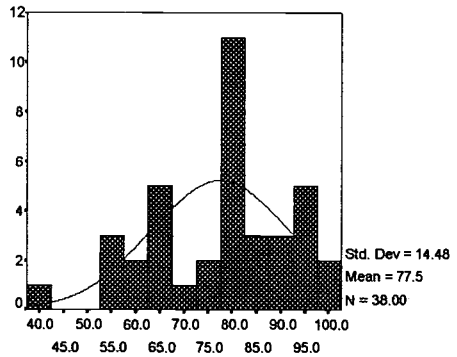
Histograms with Normal Curve Overlay

Experimental Group, Test 1



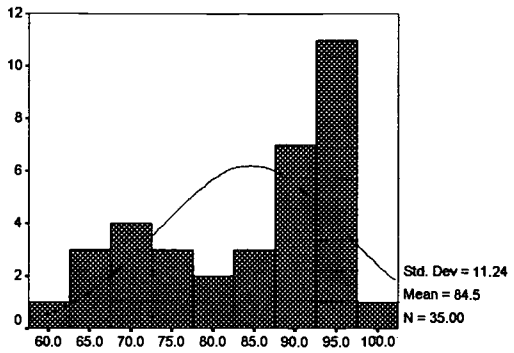
EXTEST1

Control Group, Test 1

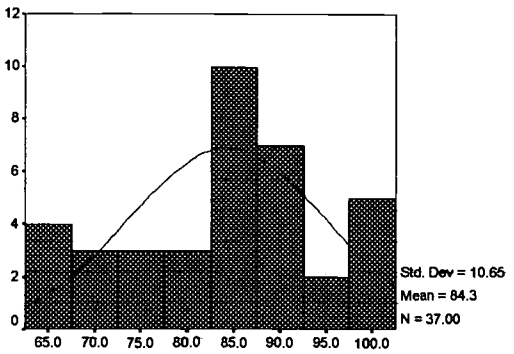


COTEST1

Experimental Group, Test 2



Control Group, Test 2



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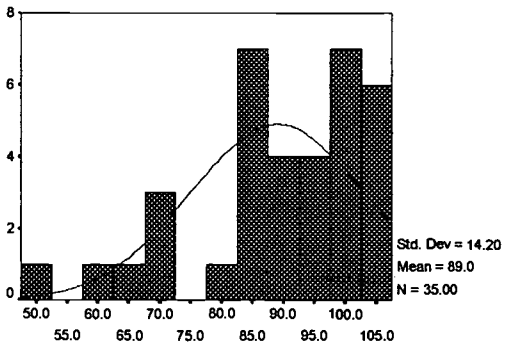
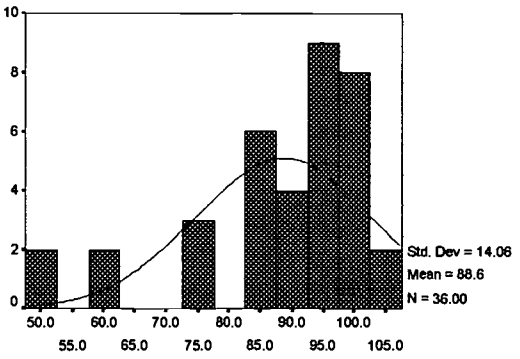


Control Group, Test 3



Appendix 3

Descriptive Statistics & Paired Samples Correlations

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	COTEST2	84.4118	34	10.9548	1.8787
	EXTEST2	84.5882	34	11.4021	1.9554
Pair 2	COTEST3	89.1212	33	13.7449	2.3927
	EXTEST3	89.5152	33	14.1314	2.4600

Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	COTEST2 & EXTEST2	34	.270	.122
Pair 2	COTEST3 & EXTEST3	33	.311	.078

Appendix 4

INFORMED CONSENT TO A RISK-FREE PROJECT

Dear student:

I will be conducting a research project to study the use of e-mailed study guides on the test scores of undergraduate Psychology students. I would appreciate your help. Participation in this research is strictly voluntary and there is no risk involved. If you are willing to participate in this study, please sign this informed consent and VERY CLEARLY print the e-mail address where you would like the study guide sent. All study guides will be e-mailed at the beginning of the weeks in which your next two (2) tests are scheduled. Your instructor will originate the study guide information, which will pertain to bonus questions on the test. Should you choose not to participate you will not lose any points. Consent to participate in this study indicates your permission to allow me to confirm your test grades with your instructor. **All information, both e-mail addresses and test scores, will be kept confidential.** Test scores will **ONLY** be used for statistical calculations. There will be no identification of individual student's test scores in written material.

Sincerely,

Ginger H. Rathert
Graduate Student
Department of Education Leadership & Counseling
Sam Houston State University

THIS PROJECT HAS BEEN REVIEWED BY THE SAM HOUSTON STATE UNIVERSITY COMMITTEE FOR THE PROTECTION OF HUMAN SUBJECTS, (phone: 936 294-3621)

Please indicate your willingness to participate in this study by completing this letter and returning it to your instructor.

Print your name here:_____

I **do not** wish to participate in this study:_____(signature)

I **do** wish to participate in this study and give my permission for the researcher to confirm my test scores with my

instructor:_____(signature)

My **e-mail address** is:_____(**Print CLEARLY**)

Numeric grade on first test:_____ (example: 74, 82, 100)

Numeric grade on second test:_____

What do you anticipate you next test score will be?_____

What do you anticipate your final grade in this class will be? _____

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