An Analysis of Classroom Environment: Researcher Dress vs. Test Performance

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In an attempt to increase student strengths while minimizing various weaknesses, respective levels of academia are constantly shaping teaching practices and standards. These efforts have ranged from those which pertain to physical classroom environment to those that have focused around individual teaching practices/styles. This research was conducted in an attempt to discern the implications of researcher dress on participant abilities to perform well on an achievement oriented questionnaire in the classroom. This study was based around the hypothesis that the success of individual participants completing an examination could be influenced as a result of the appearance of the researcher. This hypothesis assumes that participants will have higher levels of success in a classroom environment where the researcher is dressed formally (dress slacks / shirt and tie), while they will be more likely to achieve lower levels of success in a classroom environment where the researcher is dressed informally (jeans / t-shirt). Those who voluntarily participated were asked to complete a small 20-item questionnaire composed of ACT level math, English, reading and science based questions. They were also asked to complete a short demographic survey asking for their ethnicity, current student status, sex and whether or not they had previously completed the study. The results were then analyzed and correlated based upon the two conditions using an independent samples t-test.

In the United States, individual achievements throughout all of life's avenues are placed at a premium; this is no different in the academic world. As a service to our nation's students, various sources have continually tried to implement new techniques and variables into the

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classroom environment in an attempt to promulgate increased levels of achievement while dissolving various weaknesses. These endeavors have taken many forms and addressed many plateaus. At first glance, one may assume that the achievement of students in the classroom is based solely on the teacher and his/her techniques. While teaching technique may play a significant role in achievement, focusing on this variable alone allows environmental variables to seemingly drift out of the picture. These can range from how well lit the classroom is during studies, whether or not the student's desks are arranged in a uniform manner, or the overall appearance of the classroom (space between students, cleanliness, technology, and so on). The present study explores the question of whether a teacher's appearance has an influence on the academic performance of their pupils when test-taking.

Deciphering an adequate form of professorial dress which promotes increased levels of achievement amongst students can have significant implications on the overall successes of students in general. A surplus of government funding has been directed towards understanding what constitutes a proper classroom environment conducive to learning but there has been mixed results. A variety of scholars feel that increased lighting in classrooms can play a large role in the achievement of students (Butler & Roesel, 2010; Young, 2002). Although lighting is important, many lean towards the idea of uniform arrangements of desks as a catalyst for success amongst students (Freeburg, Hagler, Workman, & Anderson, 2008; Richmond, 2001; Young, 2002). Despite increased efforts there has yet to be a single variable identified as the source of achievement in the classroom; therefore, many scholars believe that it is a combination of several environmental classroom characteristics that play a role in student achievement, rather than it being dependant on just one variable.

In terms of the dress-code of teachers in the classroom, it can vary anywhere from very

formal to casual, ironically no uniform dress-code has been identified for teachers in our current academic settings. There is currently great variability among teachers in terms of how formal of informal they choose to compose themselves in the classroom setting. It is thought by many that establishing a dress-code for teachers across the world, will aid in defining the teacher as an authority figure to students, ideally leading to increased cooperation from students (Amazon, 2009; Doll, Spies, LeClaire, & Kurien, 2010). Identifying an adequate dress-code for teachers is a legitimate problem in the world of academia and without more research pertaining to this idea it will undoubtedly continue.

There has also been a variety of research conducted relating to dress-code and achievement in the workforce. A study previously conducted reveals evidence that your perceptions towards your own success can be positively related to your own physical appearance (Solomon, 1981). If this is true, then identifying an adequate dress-code for teachers could actually have beneficial implications towards the teacher's perceptions of themselves and their own abilities that could then be projected onto their students. Other related research has been conducted in relation to effective personal presentations when interviewing for possible employment. The findings suggested that job applicants can present themselves in positive and negative lights depending upon the clothing that they are wearing, as well as, the context of the situation (whether it be formal or informal). These representations can weigh heavily on the perceptions of those interviewing job candidates (Miles, 1981). This is also relative to the classroom, because if students view their teachers in a positive light then they will be inclined to listen to what they are teaching; therefore, learn more. Similarly, it is conceivable that teachers who dress more formally would be perceived more favorably by students, which could in turn affect student learning.

Should a positive correlation between student test taking ability and teachers' dress be found, this information could potentially be used to promote academic success when taking tests. By promoting increased levels of achievement in the classroom, this research will also shed light onto the underlying physical (Environmental/Dress-Code) ingredients necessary for an environment conducive to learning.

There has been previously conducted research which focused on the implications of teacher dress-codes and the varying levels of achievement from their students. Some researchers have suggested that a teacher's appearance can play a significant role in the establishment of a good relationship between themselves and their pupils (Perlmutter, 2005; Richmond, 2010). Other studies have suggested that roughly 55% of individual perceptions of teachers from students can be based largely on dress (Freeburg, et al., 2008). Positive interactions between students and teachers can be essential in promoting academic achievement throughout classrooms across western society. If there is positive correlation between the physical appearance and the ability to students to perform well on tests, then this may also promote strong interactions between students and teachers. It has also been found that African American teens in America tend to form their initial perceptions of teachers and peers as a result of their perceptions of their dress (Ellington, & Leslie, 2008).

The present study was conducted in an attempt to determine whether there are differences in test performance, based on the type of clothing worn by a researcher who was present at the time of the test. The hypothesis for this research stated that the varying levels of student success taking examinations can be predisposed to the influence of environmental variables found throughout the classroom in which they are given. The research will test whether or not individuals will have higher levels of achievement in environments which promote success

(formal dress), as opposed to decreased levels of success in environments which do not promote success (informal dress). This study drew from the earlier research findings, claiming that roughly 50% of individual perceptions of teachers are dictated by appearance alone, and discover whether there is any correlation between these variables. This study was completed by means of an independent-groups design.

Method

Participants

Included in this research were both male and female undergraduate students currently enrolled at Lindenwood University. In the event that a participant's age was under 18, a parent or guardian was to provide the informed consent needed for their participation. The total number of participants processed in this study was 49, 22 of which were in the informal condition while 27 were in the formal. Of all those that participated, 23 identified themselves as being freshman, 16 as sophomores and 10 as juniors. In terms of ethnicity, of the 49 documented participants 28 were Caucasian, 5 African American, 5 Hispanic, 3 Asian, 3 European, 3 African, 1 Hawaiian and 1 Aruban. In terms of sex, 24 males were recruited as opposed to 25 females.

The researcher recruited all participants ethically through the Lindenwood Psychology Department's Participant Pool. Those eligible for participation must have been current Lindenwood University undergraduate students whom are presently enrolled in (at least one of) several pre-approved courses. The researcher posted a sign-up sheet prior to the Lindenwood Participant Pool approved dates of research, allowing those willing to participate to do so at their own convenience. Both conditions of this experiment were held in classrooms composed of stadium seating desks which remained consistent throughout.

Materials

All who chose to participate were given two copies of the researcher's informed consent letter (see Appendix A) before any actual research was conducted. After participants completed these forms, they were then asked to fill out a demographic survey (see Appendix B) asking for their, sex, ethnicity, current student status (year) and whether or not they had previously completed the study. This information was obtained in an attempt to understand any possible trends based upon these variables. Upon completion of the demographic survey participants were then provided with a copy of the 20-item questionnaire pertaining to English, math, science and reading, which they were then asked to complete (see Appendix C). The items on the questionnaire were gathered from college ACT test practice questions. After completing the questionnaire each participant was then handed a feedback letter (see Appendix D) that contained the actual nature of the research and its possible benefit to society. The letter also contained contact information of the researcher and their supervisor. Before leaving the study participants were asked to completely fill out their receipts confirming their completion of the study. These receipts were then used as a means to receive extra credit through certain approved Lindenwood Participant Pool approved professors.

The researcher documented all of their participants on a "list of participants" which was then given to the Lindenwood Participant Pool office on a weekly basis. All of the researcher's conversations with the participants were scripted (see Appendix E) throughout the duration of the experiment in an attempt to ensure that individual performance of the participants could only be altered by the designed independent variable of the experiment, which was the physical appearance/dress of the researcher. The locations of the conducted research were in the Lindenwood University Science Building (Young Hall). The researcher used two comparable stadium seating classrooms with seating capacities of 30-45 students. The researcher dressed

informally (jeans and a t-shirt) in condition one of the experiment, while dressing formally (dress slack/shirt and tie) throughout condition two.

Procedure

As participants arrived at the elected classroom for research, they were each informed that they were about to participate in research that was intended to measure their knowledge of college ACT level English, math, science and reading questions. Before beginning the study participants were handed two copies of the expressed informed consent form, one of which they were to keep while the other remained with the researcher; upon their understanding of the research and their written agreement to participate they were allowed to begin the study. Each participant was then guaranteed that they were welcome to terminate their participation in the study at any time, should they become uneasy or distraught. All instructions dictated to participants by the researcher were scripted.

Throughout condition one of the study, each participant was administered a demographic survey followed by a 20-item questionnaire in the presence of the informally dressed researcher (jeans and a t-shirt). Participants were each allotted 20 minutes to adequately complete their questionnaires while there was no time limit for completion of the demographic survey. In the event that a participant could not complete their questionnaire within the time constraints, they were firmly instructed to disengage their efforts and those questions that were not completed were counted as incorrect while the completed portion was graded for accuracy. Subsequent to the conclusion of the experiment, participants were debriefed as to the purpose of the study and given a duplicate of the researcher's feedback letter. After debriefing was completed participants were then handed a participant receipt of which they were to accurately complete. Before exiting, they were then instructed to fill out the information required by experimenter's list of

participants in an attempt to document their presence. In condition two, the very same procedure was carried out with the only difference being the formality of the researcher's dress (dress slacks/dress shirt and tie).

Results

In order to analyze the results of both conditions, an independent samples t-test was used. The results showed a significance level of $p > .289$ between both the informal and formal conditions, demonstrating no significance. A t-score of $t(49) = -1.073$ also determined that there was no significance between the two conditions. There was a standard deviation from of 3.1 ($SD = 3.1$) in the informal condition, while it was only 2.9 ($SD = 2.9$) in the formal condition. In terms of differences between genders, the 24 men which participated had an average score of 13.1 while the 25 women that participated had an average score of 13.56, out of a possible 20 questions. Although there is a numerical difference between these two cohorts, there is not enough variation to indicate significance. No one received a perfect score on the questionnaire in either condition.

Discussion

Following the completion of a statistical analysis of the results it was found that there was no significance between the formal and informal conditions. Due to the relative consistency in scores between both males and females, as well as, between the formal and informal conditions, the researcher is confident that the questionnaire was adequately standardized. Despite the intentions of this research, it has become evident that throughout the proposed conditions, the dress of the researcher had little or no implications on a participant's ability to do well on a questionnaire, regardless of sex. Although there has been previous research which was concerned with other physical attributes of the classroom environment, the results of this study

imply that dress of researchers performing the role of a teacher will not influence a student's ability to perform well on achievement oriented examinations (Freeburg, et al. 2008; Young, 2002).

Although outlining an appropriate dress code for teachers may not influence a student's ability to perform well in the classroom, there has been evidence which promotes the idea that appearance can influence interactions between students and their teachers (Perlmutter, 2005; Solomon, 1981). Similar research has expanded on this idea and found that nearly half of all individual perceptions of others can be influenced by their appearance (dress); therefore, efforts to standardize an appropriate dress code for faculty members at all levels of academia could at the very least, lead to higher student morale and an impetus to perform well in the classroom through better interactions with their professors. (Freedburg, et al., 2008; Miles, 1981; Solomon, 1981).

While the researcher feels that the questionnaire itself was appropriately piloted and standardized for both males and females of varying ethnicity and student status, there are still a few sources of inconsistency which may have influence the results of the study. Although participation in this study implied that participants would exert their best efforts when completing the questionnaire, it is practical to believe that several did not. All of those that voluntarily chose to participate in the study were compensated with extra credit for their participation and had no implicit reason to do well. Keeping this in mind, it is conceivable to assume that some completed their questionnaire without exerting much effort. This may be the cause of such low overall results on questionnaire. While this may have influence the results, because of the consistency of scores between the two conditions the researcher feels that the questionnaire was piloted appropriately.

Another source of variance could have been the time of day in which the questionnaires were administered. Due to restrictions upon the researcher's ability to attain locations to conduct the study, all sessions were completed in the late afternoon. This time of day is typically when individuals enter into somewhat of a cognitive lull and are not willing to exert their full efforts. Many of those that participated in the study mentioned that they were rushing to various athletic practices while others had a look of distain as the meandered into the study location. This is a typical response from college students who have just spent the entire day in the classroom. This lack of enthusiasm and the pressures of later engagements may have influenced the results of the study.

A conclusion drawn from the results of the study which was not articulated in the statistical analysis was the tendency of participants to perform very poorly on the math section of the questionnaire. The majority of those that chose to participate in the study got nearly every math related question incorrect. While this occurrence could be the result of any number of interpersonal differences between participants such as overall intelligence, apparent difficulty or the implications of researcher dress, this occurrence was still unexpected. It would be very difficult to discern the actual source of the discrepancy between the mathematics sections of the questionnaire compared to the others respective sections; however, the prevalence of incorrect responses was very high nonetheless.

Validity was also a key shortcoming of this research. Although the standardization of the questions on the questionnaire and the allotted time for its completion were appropriate, the sheer lack of participants ($n = 49$) does not allow the results to translate well to the general public in western cultures. As a result of the consistency between the results of the formal and informal conditions, it is apparent that the research had a high level of internal validity. For future

research, increased numbers of participants would be paramount in an attempt to generalize the results and attain some level of external validity. This lack of external validity is a pronounced limitation of this study.

Despite the limitations of this study, the results can still be used to benefit various avenues of the academic world in our society. Due to the current social climate of our culture, the success of students in the classroom will continue to receive increased amounts of attention. Understanding the numerous variables that can influence a student's ability to perform well on achievement oriented examinations will remain at the forefront of academic research efforts and as a result of this study, light has been shed on the possible lack of influence that a researchers dress can have on the participants varying levels of test taking success in the classroom. Although the research had low levels of external validity, the premise of the study did not. Through the recruitment of more participants, the results of the research could be progressively more justifiable. This could lead to eventual solutions to some of our nation's shortcomings in the classroom and lead to increases in the education of our society's youth.

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Appendix A

Informed Consent Form

I, _____ (print name), understand that I will be taking part in a research project that requires me to complete a small demographic survey and a short questionnaire asking general ACT level questions pertaining to science, math, reading and English. I understand that I will be allotted 20 minutes for my completion of the questionnaire. I am aware that my participation in this study is strictly voluntary and that I may choose to withdraw from the study at any time without any penalty or prejudice. I should not incur any penalty or prejudice because I cannot complete the study. I understand that the information obtained from my responses will be analyzed only as part of aggregate data and that all identifying information will be absent from the data in order to ensure anonymity. I am also aware that my responses will be kept confidential and that data obtained from this study will only be available for research and educational purposes. I understand that any questions I may have regarding this study shall be answered by the researcher(s) involved to my satisfaction. Finally, I verify that I am at least 18 years of age and am legally able to give consent or that I am under the age of 18 but have on file with the LPP office, a completed parental consent form that allows me to give consent as a minor.

_____ Date: _____

(Signature of participant)

_____ Date: _____

(Signature of researcher obtaining consent)

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Appendix B

Demographic Survey

Participant ID:_____

Please fill in your responses to the following questions:

Sex (Male/Female):_____

Current Academic Standing (freshman, sophomore, junior, senior):_____

Ethnicity (Caucasian, Hispanic, African American, etc):_____

Have you previously participated in this study?_____

Appendix C

Participant ID: _____

Questionnaire

Please circle the correct answer.

1) For beginning climbers, that is any who have not already scaled several major mountains, Mount Everest seems too difficult to tackle.

What correction should be made to this sentence?

A) Change the spelling of several to sevaral
B) Change seems to seem
C) Insert a comma after is

D) No correction is necessary

2) Last Fall, Congressman Smith from Nebraska had five relatives arrive for Easter, with no notice.

What correction should be made to this sentence?
A) Change Fall to fall
B) Change Congressman to congressman
C) Change arrive to arrives
D) Change Easter to easter

3) Small companies offer a new employee more responsibility, and there health benefits are generous.

What correction should be made to this sentence?

A) Change companies to companys
B) Change responsibility to responsability
C) Change there to their
D) Change are to is

4) During a family crisis, it is often a member of the immediate family **WHOM** calls the Police Department.

Which one of the following is correct as it relates to the underlined word.

A) NO CHANGE
B) Who
C) Whoever
D) Whomever

5) Bob hopes that his car **WILL** last at least until the end of the month.

Which one of the following is correct as it relates to the underlined word

A) NO CHANGE
B) Would
C) Could
D) Shall

6) Sara has some oranges. She sold 40% more than she ate. If she sold 70 oranges, how many did she eat?

A) 25
B) 50
C) 75
D) 100

7) Peter's weight is 12 pounds more than twice Susan's weight. Find Peter's weight if together they weigh 150 pounds.

A) 84 lbs
B) 104 lbs
C) 120 lbs
D) 152 lbs

8) Mike received a 10% raise each month for 3 consecutive months. What was his salary after the three raises if his starting salary was $1000 per month?

A) $1300
B) $1331

C) $1248
D) $1500

9) 100 people will attend a dance if tickets cost $30 each. For each $5 increase in price, 10 fewer people will attend. What price will deliver the maximum dollar sales?

A) 30
B) 35
C) 40
D) 45

10) Which of the following could not be a solution to: 4 - 3x < -3?

A) 3
B) 2.5
C) 2
D) 4

11) Which one of the following is not in the insect family?

A) Mosquito
B) fly
C) Bee
D) Cardinal

12) Charles Darwin suggested that species evolve by means of…

A) Motivation
B) Selection
C) Mutation
D) Evolution

13) Photosynthesis in plants does not require the availability of…

A) Oxygen
B) Carbon Dioxide
C) Water

D) Light

14) pH is a measure of…

A) Acidity
B) Temperature
C) Air Pressure
D) Weight

15) What is mitosis?

A) Mitosis is a sexual process that combines cells for the purpose of growth.
B) Mitosis is a process in which cell division produces gametes for sexual reproduction.
C) Mitosis is the process to carry genetic code from the DNA.
D) Mitosis is an asexual process in which cells divide for the purpose of growth and repair.

Please read the following passage and respond to the questions accordingly.

It was a warm and sunny day. My friend and I had decided to go for a walk in the park and I was beginning to feel a little hungry. I knew I should have eaten before we left, but I was so busy that morning. I had to perform various chores around the house and by the time I had completed my duties, Matt had already arrived. As we walked to the park I began to wonder how I was ever going to finish my homework later that night. We had been given several Math equations to solve and I have never been very good in the subject to begin with. By now we had arrived at the park and it was beautiful. Matt and I walked to a nearby basketball court because we viewed some of our friends playing. I loved basketball myself, but Matt was not much of an athlete. He would have much rather preferred playing video games that afternoon, but I somehow coaxed him into leaving his basement to get some fresh air.

16) What is the relationship between the two main characters in this passage?

A) Strangers
B) Friends
C) Enemies
D) Brothers

17) Where are the two main characters going in the passage?

A) School
B) Work
C) The Park
D) Home

18) What sports is Matt “good” at?

A) Basketball
B) Football
C) Hockey
D) He is not athletic

19) What is the weather like outside?

A) Rainy
B) Windy
C) Overcast
D) Sunny

20) What did the main character have to do before they went to the park?

A) Homework
B) Chores
C) Shopping
D) Nothing

Appendix D

Feedback Letter

Thank you for participating. There were two conditions in my study. Condition one was conducted in a formal classroom setting in which the researcher was formally dressed (dress pants/shirt and tie), while condition two was conducted in an informal classroom setting in which the researcher was informally dressed (jeans/t-shirt). I believed that individual success of students taking achievement-oriented examinations could be influenced by the environment in which the examinations were administered (the appearance of their researcher). I thought that students would perform better in an environment conducive to achievement (formal dress); whereas, students would perform worse in an environment which did not promote achievement (informal dress). The results of the questionnaires will be used to determine the effect of classroom environment and the dress of instructors on student academic achievement. The results of this study are very valuable to the world of academics, because they can be used as a tool to promote higher academic achievement in the classroom.

Please note that I am not interested in your individual results; rather, I am only interested in the results of a large group of consumers, of which you are now a part of. No identifying information about you will be associated with any of the findings.

If you have any questions or concerns regarding any portion of this study, please do not hesitate to bring them up now or in the future. My contact information is found at the bottom of this letter. If you are interested in obtaining a summary of the findings of this study at a later date, please contact me and I will make it available to you at the completion of this project.

Thank you again for your valuable contribution to this study.
Sincerely,

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Appendix E

Script

- Welcome, thank you for choosing to participate in my study. Will you please read through the informed consent form, and if you agree to participate, please sign and date both copies.

- You are about to participate in a study that measures your knowledge of college freshman level English, math, science and literature. You will be given 20 minutes to complete the 20 item questionnaire and demographic survey. If you have any questions feel free to ask. If for any reason you feel uncomfortable or upset, you may leave the study without any penalty.