

The Effects of Humor on Memory within an Educational Setting

Nikolas A. Carneglia

St. Francis College

### Abstract

The study was conducted to test the effects humor has on memory retrieval as well as discover the relationship between humor and relevancy. Through the use of sixty undergraduate students, participants were exposed to either humorous or non-humorous videos related to the lecture material presented. Participants were also provided to complete a survey and humor styles questionnaire post video and lecture material. When the results were collected, an independent measures ANOVA test was conducted. Results concluded that being exposed to humorous videos led to higher test scores, regardless of relevancy. Significantly higher results were uncovered leading to higher test scores when being exposed to videos that were relevant, regardless of humor. Thus, a Pearson correlation was conducted displaying there is a positive correlation between self-enhancing humor and test scores as well as a positive correlation between affiliative humor and test scores. However, when uncovering analysis of the positive humor styles associated with greater exam performance, there is no significant relationship with self-enhancing humor and test scores as well as affiliative humor and exam performance.

### The Effects of Humor on Memory within an Educational Setting

Humor effects are displayed throughout a variety of different environments, including academic environments. A majority of students portray signs of distress in relation to academic achievement due to a lack of interest and dense educational material. To test the effects of humor amongst all environments, researchers studied a variety of effects that humor has on individuals, regardless of the way it is formatted amongst individuals. However, in order to display the correct use of humor within an environment, humor must be displayed in an appropriate way, especially within an educational environment. Humor has been recognized as a way to positively impact students cognitive and affective learning for over 50 years.

Humor plays a significant role in regard to the connection of memory using humorous and non-humorous examples through the explicit use of conversation. Hilal and Khan (2012), attempted to investigate the impact of humorous or non-humorous versions of a conversation and its listener's mood on conversation memory. Through different versions of conversation, either humorous or non humorous, drugs were given to manipulate the moods of participants to place them in a related mood, depressed mood or neutral mood. Results displayed humor did not have an effect on conversation memory regardless of the mood participants were placed in. In order to study humorous effects of memory, researchers Lippman and Dunn (2000) investigated the significance puns have on memory retrieval either humorous or non-humorous puns. The researchers believed that perceived humor or cleverness could be enhanced by adding separate content to the alternative meanings of a pun. Through the use of special kind of pun as the research vehicle, a pun-word relationship could induce: arousal, more effort being required, and attentional resources for processing than noting a contextual connection. Through the conduction

of five studies, the overall conclusion resulted that a punning relationship was mainly responsible for the perceived humor and cleverness. With that, a pun's presence also enhanced memory strength as well as enhancing cleverness. Information obtained through a late night talk show/presentation in media display high levels of retention. Bemis (2018) conducted an experiment through the use of segments from a late-night talk show and a variety of television shows. Television shows or late-night talk shows that contain segments with both entertaining and informative content have increased students' political knowledge. Results claimed that the segments were useful in promoting retention of the course material and recalling of learned events. When humor is incorporated within media, it aids in increased retention as well as a significant increase of learned events. Through the use of humor portrayed throughout everyday life, humor displays significant relevance when exemplified in everyday life scenarios.

Humor plays a significant role on an individual's academic performance when it is positively applied within an educational setting. Cooper and Hendrix (2018) set out to investigate the effects humor has on education applied to a scientific course at a college level. The results displayed that students appreciate their professors' humor and reported that it changed the classroom "atmosphere" in a positive way. Humor tends to increase student attention to course content as well and offensive humor tends to decrease the professor's relatability and student sense of belonging. Finally, the researchers identified the subjects that males were more likely to find funny rather than females were more likely to find offensive if a college science professor were to joke about them. When applying humor in regard to sex education, sexuality and humor share a complicated relationship within academic environments, therefore humor productively used in sexual education is considered "risky." Allen (2014) explored the ways in which the role

of humor in sex education was displayed through observation. Adding to already existed literature emphasizes on students' use of humor in education, it also considers how educators might productively use humor in the classroom. By observing a year 9, New Zealand health class, findings revealed that humor serves an established purpose for students this includes relief of monotony, engaging with the needs of certain cultural student groups, reinforcing information already taught, and reducing apprehension around the "uncomfortable" topics taught. Another experiment related to sex education was performed with the topic of HIV/AIDS was conducted by Cooper and Dickinson (2013). Peer conversation is important for students to explore and understand sexual health knowledge. The study exemplified the use of humor assists part of the conversations had amongst peers, especially when discussing the seriousness of such topics. The evidence showed humor aids to fostering intimacy, familiarity, and camaraderie within peer interactions. (i.e. keeps conversations moving). However, humor could also limit communication by keeping conversations light or in the case of inappropriate humor, a closed conversation.

While education is humor has been previously portrayed as a positive tool in enhancing educational success, Zengin (2007) set out to investigate how humor would affect students in the subject of foreign language. Humorous similarities target grammar forms in English that were originally explored in the first language of the study group, which was Turkish. This shows the connection between the formation of the words from both languages as well as the meaning of the words. With that, this can connect in terms of form, meaning and form-meaning connections. The ratings from the students suggested that humor created out of both the target and Turkish language could benefit the recall of: grammar forms, making lessons more enjoyable, and include students to socialize directly in order to construct research in the classroom. This benefits

their learning, besides the already available literature. To investigate the ways in which one's ability to learn is increased through laughter, Seidman and Brown (2016) discussed the positive influence of the using humor in an adult-based learning environment on students including the benefits of humor in learning (i.e. reducing anxiety in the classroom), building trust between both the teacher and students, and an increase in regard to retention. Results displayed that the use of puns increased critical thinking in students and suggested that teachers to use brain teasers, riddles, and puns in the lessons to increase the ability to learn. Humor implemented within education shows significant effects in overall academic performance as well as an increase within student morale. Humor displayed within an educational setting display significant results, similarly mirroring the results through the use of lecture examples.

Through the display of humorous and non-humorous examples used in lecture materials, Kaplan and Pascoe (1977) investigated how if humorous and non-humorous lectures effect comprehension and retrieval. This study focused on Freud's personality theory that either contained the concept of humor relating to the concepts in the video or non-concept humor not being related to the concepts in the video. It also mixes both humor humorous and non-humorous concepts. The results concluded that a humorous lecture is easier understood than the non-humorous lectures. When humorous examples are placed into lectures presented to students, it aids in memory retrieval, which shows increasing signs in comprehension. This supports that the use of humor is significant in overall performance. When individuals are presented material that is deemed humorous and relevant, significant increases are presented when information is shown to be humorous as well as relevant to reality. Suzuki and Heath (2014) investigated the effects of humorous and relevant examples improves an individual's ability to recall and

recognize information compared to those that represented irrelevant and relevant examples. The researchers provided the participants with psychological subtopics such as: social and cultural norms, the bystander effect, altruistic/egoistic motivation, and empathy/guilt. The results showed that humorous examples show an increase in recognition rather than the examples with non-humorous examples. However, this experiment contained the demographics issue where participants were provided with psychological subtopics (i.e. the bystander effect). A conflict arose within the study because answers were unbiased due to the fact that participants were psychology students. The inclusion of humorous lecture examples within lectures presented to students show significant results as well as an increase in academic performance.

When discussing humor in regard to achievement, it has been investigated that humorous examples provide a significant increase in an individual's performance opposed to examples that do not contain humor. Studies have exemplified that humor provides assistance and increasing signs in academic growth. However, it is undetermined whether males or female shower higher levels of academic achievement. In response to humorous videos, the relationship between the positive humor styles and memory retrieval could be viewed as an additional component. Martin et al. (2003) discovered four humor styles. Affiliative humor is the inclination to share different humorous jokes with others. Self-enhancing humor is a self-directed humor style through which individuals implement a humorous point of view in response to a stressful situation. Aggressive humor involves a negative connotation in which an individual may be the object of one's ridicule and disparage. Self-defeating humor is a negative self-directed humor style through which one makes others laugh by ridiculing oneself. Therefore, using combinations of the affiliative and self-enhancing humor styles would make it easier while evaluating the relationship between both

humor and memory retrieval. However, this relationship between the two has not been tested previously in an educational environment. In regard to the positive humor styles, previous research studies have focused on its effects on stress and well-being specifically. These studies have indicated that affiliative and self-enhancing humor could decrease the negative effects of anxiety in a stressful situation (Cann & Etzel, 2008; Karou-ei, Doosti, Dehshiri, & Heidari, 2009). There is a strong correlation between the positive humor styles and lower levels of stress, this can be relevant in an educational environment considering students usually display feelings of anxiety while in a test situation.

Thus, there is not enough substantial information in order to determine that relevant humorous videos presented in a classroom setting, positively aid to memory retrieval. Humor can become relevant in an educational setting as a tool in order to facilitate learning. If it appears to be supported, many instructors could implement humorous videos into their lectures in order to create a more enjoyable learning experience in an educational classroom environment. The primary goal of this research study is to expose students to four different types of lecture videos: humorously relevant (HR), humorously irrelevant (HI), non-humorously relevant (NR), and non-humorously irrelevant (NI). It is predicted that students will recall a higher proportion of the information from the relevant humorous lecture videos. This study also explored the effects of positive humor styles (affiliative and self-enhancing) on one's ability in order to recall the lecture information given that this component has not been researched formerly.



## Method

### Participants

The participants of the study comprised of 60 ( $N=60$ ) undergraduate college students (25 male, 41.7%; 35 females, 58.3%). Participants were obtained through the St. Francis College SONA-System and credited one credit towards a spring psychology course for their participation. Demographic information obtained was: 5 Asians (8.35%), 3 Black or African Americans (5.0%), 51 White (85.0%), and 1 prefer not to say (1.7%). Participants age ranged from 18-54 years ( $M = 20.63$ ,  $SD = 4.55$ ). Obtained participants were randomly selected into one of four experimental conditions: 1) Humorous Relevant, 2) Humorous Irrelevant, 3) Non-humorous Relevant, and 4) Non-Humorous Irrelevant.

### Materials

Prior to the beginning of the experiment, participants were presented with a survey to assess demographic information. This survey included questions regarding gender, race, and age. Participants completed and signed a consent form that portrayed the purpose of the experiment as well as the overall design of the experiment. Likewise, the participants were aware this experiment was voluntary.

Materials of the study consisted of the same lecture presentation based off the historical context of the French Revolution and an additional video was presented and differed depending on the group. The lecture presentation was presented by the researchers of the study, which was co-created by a history professor from St. Francis College. One of the four different videos displayed was: 1) Humorous videos relevant to the lecture material (HR), a parody music video of Lady Gaga's "Bad Romance" song based upon the historical context of the French Revolution

being displayed in a catchy-humorous way. 2) Humorous videos irrelevant (HI) to the lecture material, this was a skit from Saturday Night Live about the American Revolution. 3)

Non-humorous videos relevant (NR) to the lecture material was from a news source about the French Revolution and 4) Non-humorous videos irrelevant (NI) to the lecture material was a video from “Schoolhouse Rock” about the American Revolution. Each lecture presentation as well as the additional video presented was approximately ten minutes long. The participants were tested through an electronic multiple-choice assessment on recognition after their lecture concluded. The test was created by the researchers specifically to retrieve significant results based off material shown. The electronic multiple-choice assessment included the same questions for each of the sixty participants divided into the four conditions in order to eliminate differences amongst the participants. Additionally, the humor styles questionnaire was presented electronically as well in order to indicate the specific humor styles that an individual participant possessed. The *Humor Styles Questionnaire* (Martin et al., 2003) contains 32 questions that measured the individual differences in humor styles; two are positive (affiliative and self-enhancing) and two are negative (aggressive and self-defeating). Participants were selected from four 8-item scales within each humor style. The responses were rated on a 7-point scale ranging from 1 (totally disagree) to 7 (totally agree). Each style gets a score, a high score revealed the specific humor style an individual identified with. Cronbach’s alpha ranges from .77 to .81, which demonstrates excellent internal consistencies.

### **Procedure**

The experiment consisted of identical topic-based lecture material for each group with an additional different video shown to test the effects humor and relevance have on academic

performance. Each group of participants were shown either a 1) Humorous videos relevant to the lecture material (HR), 2) Humorous videos irrelevant to the lecture material (HI), 3) Non-humorous videos relevant to the lecture material (NR), and 4) Non-humorous videos irrelevant to the lecture material (NI). In order to do so, researchers presented lecture material on the chosen topic as well as showing a 2-3-minute video relevant or irrelevant to the lecture material. The conclusion of the lecture videos led the participants to take a ten-question electronic multiple choice assessment in order to test and measure the effects humor and non-humor had on the participants' academic performance as well as completing the HSQ. Upon the completion of this experiment, the results were recorded via Google Forms, where it was then determined if humor or non-humorous lecture material such as the different videos shown had an effect on academic performance as well as determine if males or females had different recall levels in regard to the material presented.

## **Results**

### **Humor and Relevancy**

A 2(Humor: humorous, non-humorous)  $\times$  2(Relevancy: relevant, irrelevant) independent measures ANOVA was conducted with test scores as the dependent variable. There was no significant interaction between humor and relevance  $F(1,56) = .003, p = .95$ . There was a marginal main effect of Humor on test scores,  $F(1, 56) = 3.70, p = .06$ . Participants who watched humorous video clips scored higher ( $M = 6.63, SE = .40$ ) than those participants who watched non-humorous video-clips ( $M = 5.53, SE = .40$ ), regardless of relevancy to the lecture (see Figure 1).

There was a main effect of relevancy on test scores,  $F(1, 56) = 17.15, p < .001$ . There is participants who watched relevant video clips that scored significantly higher ( $M = 7.27, SE = .40$ ) than those participants who watched irrelevant video clips ( $M = 4.90, SE = .40$ ), regardless of the humorous level (see Figure 2).

### **Positive Humor Styles**

A Pearson correlation was conducted to test the relationship between the positive humor styles and exam performance separately based on what video participants had watched. There is a significant positive correlation between self-enhancing humor and test scores ( $r = .56, p = .001$ ) (see Figure 3). Individuals with self-enhancing humor were associated with greater exam performance. Likewise, the results demonstrated a significant positive correlation between affiliative humor and test scores ( $r = .41, p = .03$ ) (see Figure 4). Participants with affiliative humor were associated with higher exam scores.

In contrast, the analysis further demonstrates that the positive humor styles were not associated with greater exam performance in the non-humorous groups. The results are not statistically significant between self-enhancing humor and test scores ( $r = -.05, p = .79$ ) (see Figure 5). Similarly, there is no significant relationship between affiliative humor and exam performance ( $r = -.17, p = .38$ ) (see Figure 6).

### **Discussion**

This study was conducted to investigate students ability to recall higher levels of information from humorous educational videos. Through the presentation of either humorous or

non-humorous videos, the study demonstrated the effects of the positive humor styles (affiliative and self-enhancing) on one's ability to recall lecture information. Our study predicted that participants will recall higher levels of information when lecture material is both humorous and relevant. The results demonstrated that participants scored higher on tests when humorous videos were displayed. The results indicated that participants scored higher on tests when relevant videos were displayed. This led to the finding that there is no interaction between humor and relevance. The findings also concluded that there is a positive relationship between self-enhancing humor and test scores. The humor styles both self enhancing and affiliative humor supported the hypothesis because it was associated with greater exam performance. However, positive humor styles is not associated with greater exam performance within non-humorous groups. This demonstrated that there is no relationship between self-enhancing and test scores as well as no relationship between affiliative humor and exam performance, not supporting the hypothesis.

Our results indicate that there was an effect on humor and relevance in regard to test scores. However, there was no relationship between humor and relevancy. Thus, indicating that regardless the type of humorous video presented, relevancy does not correlate to one another in this particular case. The underlying factor implicated is that if the participants watch humorous videos, the overall test scores would increase because humor could improve one's academic performance, regardless of the videos relevancy. McMorris (1997) investigated the effects of humor on educational testing through test scores and self-reports. Results concluded that the perception of academic tests can affect the relationship between humor and relevancy. In this

current study, there was an effect of humor and relevancy, however, there was no relationship amongst the two factors. This demonstrates that although there was no relationship, the effect portrayed how both humor and relevancy enhanced participants' academic performance.

Limitations occurred throughout the study. When conducting the experiment, the limitation was that humor was only tested in the subject topic of history. While implementing humor into other subject topics, higher recall and retention from students could be obtained if humor was implemented in other subject topics related to everyday life. Another limitation that occurred was the age range of the participants of the study. If the age range of participants consisted of high school students, higher levels of recall information could be obtained based on how exposed the participants were to the information. This study was also limited by the ethnicity of participants. A majority of participants were white, therefore, a formation of bias could have potentially been created. Additionally, some of the participants could have consisted of French descent, influencing their answers on the provided scales.

To extend the study for future research, the use of humorous examples within subjects topics such as foreign language and health science could increase both participation of participants and as well as results. Implementing humor into the subject of foreign language, such as a funny rhyme/song can increase the participants ability to recall more information regarding the language. Incorporating humor into health science topics such as sex education can allow for both a more comfortable environment as well as making the lesson enjoyable and effective. Therefore, by implementing humor into an academic environment can allow for an increase in students' academic performance, which leads to an overall increase in students'

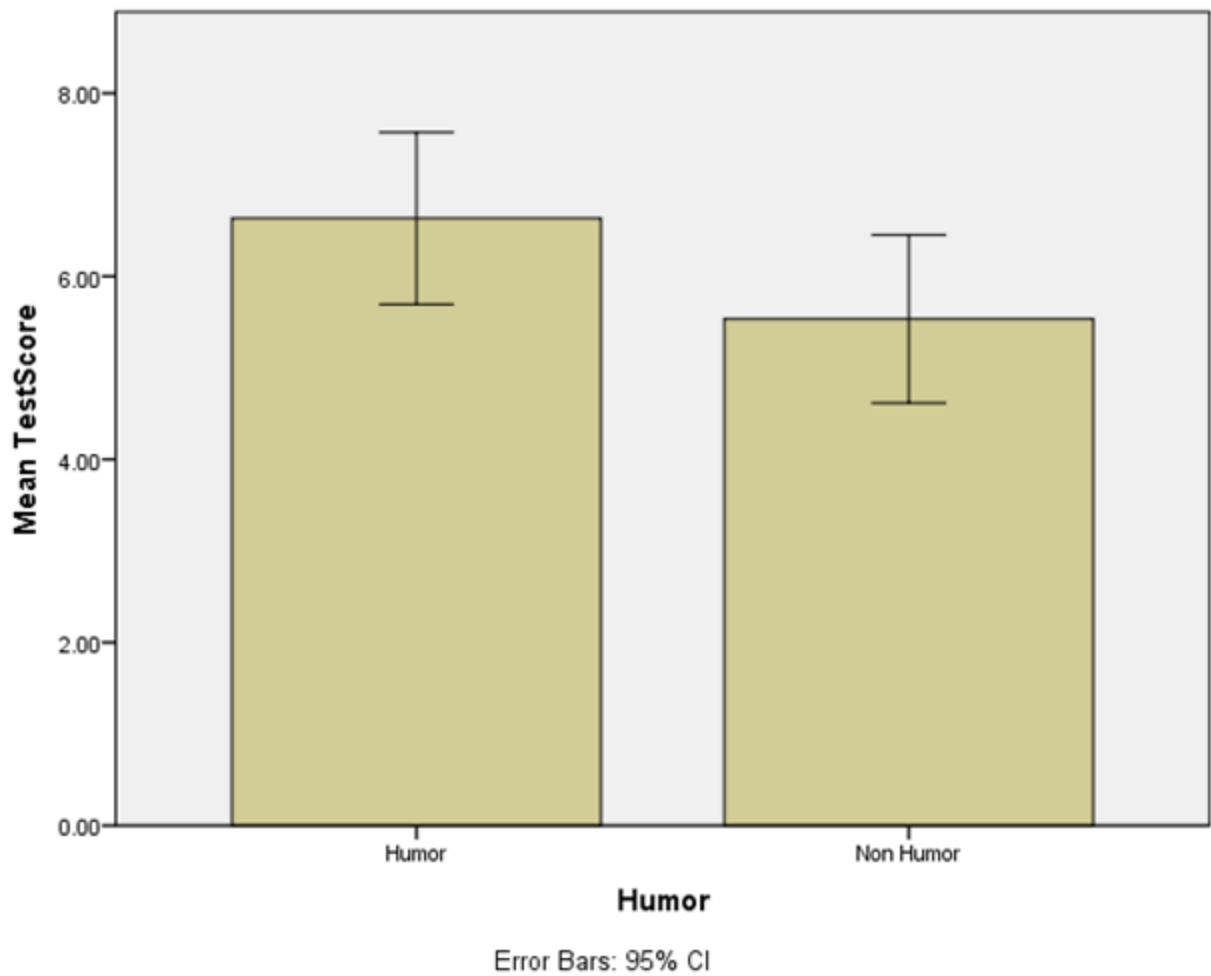
self-esteem and desire to learn. To follow up with the experiment, another study can be conducted where humor is incorporated into another subject topic such as Science. After obtaining the results from both the history test scores and science test scores, a correlation test can be conducted to compare the effects of how humor affects participants based on a subject topic. In order to understand how memory is retained there must be some level of high exposure before testing, Bemis (2018) investigated the effects of memory retention when it constructs of everyday life. He concluded that memory retention significantly increases when participants are presented with advertisements that are highly relevant to an individual. It may be conducive to test participants before the experiment and after the experiment in order to assess relevancy levels. Overall, humor and relevancy, in relation to memory retrieval, can lead to significant results. However, there is no positive correlation between the two positive humor styles (self-enhancing and affiliative humor) in regard to test scores and exam performance.

## References

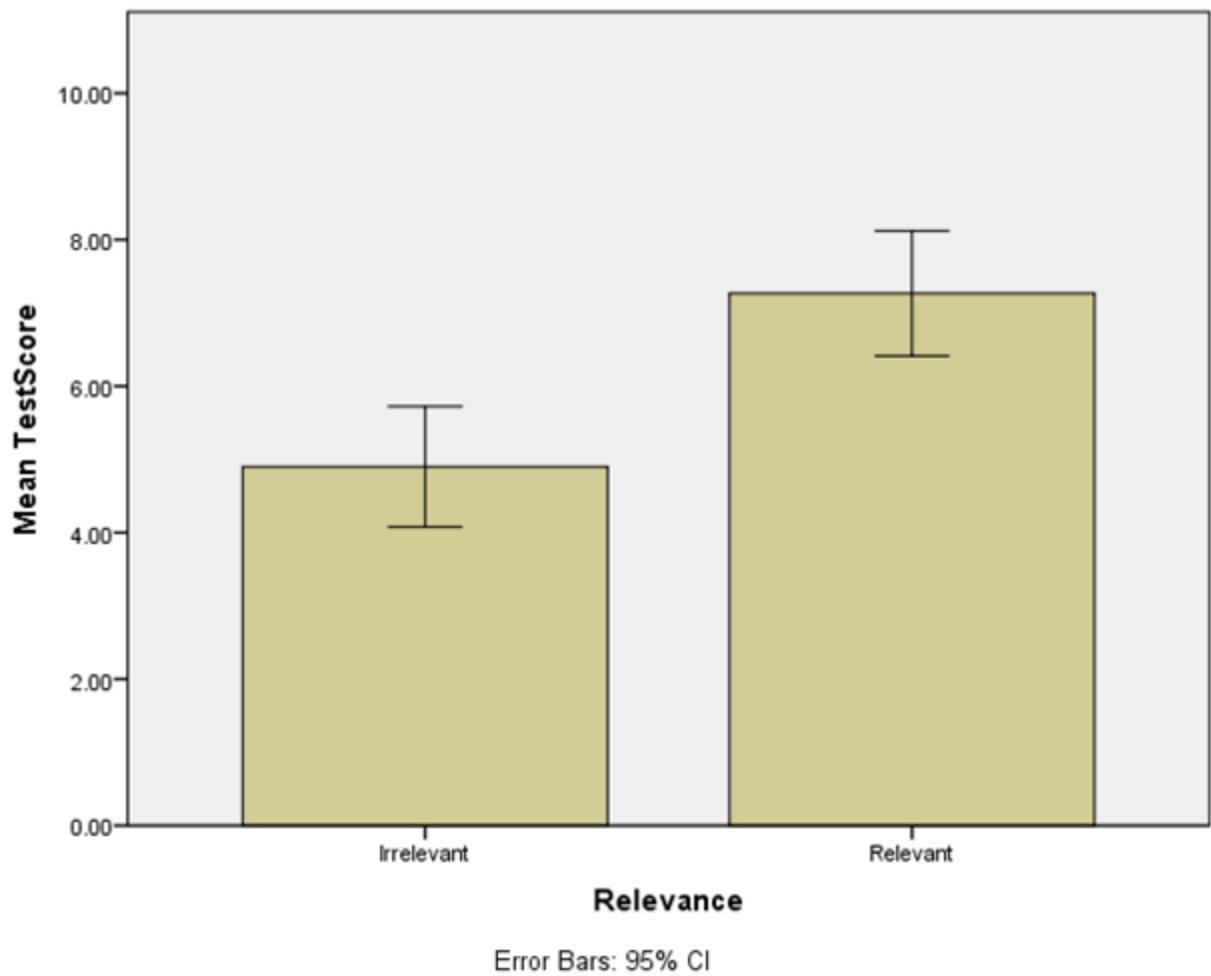
- Allen, L. (2014). Dont forget, Thursday is test[icle] time! The use of humour in sexuality education. *Sex Education, 14*(4), 387-399. doi: 10.1080/14681811.2014.918539
- Bemis, R. H. (2018). Repeating something familiar. *Teaching of Psychology, 45*(2), 183–188. doi: 10.1177/0098628318762927
- Cann, A., & Etzel, K.C. (2008). Remembering and anticipating stressors: Positive personality mediates the relationship with sense of humor. *Humor: International Journal of Humor Research, 21*(2), 157-178. doi:10.1515/HUMOR.2008.008
- Cooper, K. M., Hendrix, T., Stephens, M. D., Cala, J. M., Mahrer, K., Krieg, A., . . . Brownell, S. E. (2018). To be funny or not to be funny: Gender differences in student perceptions of instructor humor in college science courses. *Plos One, 13*(8). doi: 10.1371/journal.pone.0201258
- Cooper, S., & Dickinson, D. (2013). Just jokes! Icebreakers, innuendo, teasing and talking: The role of humour in HIV/AIDS peer education among university students. *African Journal of AIDS Research, 12*(4), 229-238. doi: 10.2989/16085906.2013.871568
- Hilal, H., Siddiqui, Z., Khan, J., & Hameed, S. (2012). Conversation memory in relation to humorous-nonhumorous version of conversation and listener's mood. *Social Science International, 28*(2), 275–292. Retrieved from <http://psycnet.apa.org/record/2012-28102-006>
- Kaplan, R. M., and Pascoe, G. C. (1977). Humorous lectures and humorous examples: Some effects upon comprehension and retention. *Journal of Educational Psychology, 69*, 61-65. Retrieved from <http://psycnet.apa.org/record/1977-26225-001>.



- Karou-ei, R.A., Doosti, Y.A., Dehshiri, G.R., & Heidari, M.H. (2009). Humor style subjective well-being, and emotional intelligence in college students. *Journal of Iranian Psychologists*, 5(18), 159-169. Retrieved from [https://www.researchgate.net/publication/285666826\\_Humor\\_styles\\_subjective\\_well-being\\_and\\_emotional\\_intelligence\\_in\\_college\\_students](https://www.researchgate.net/publication/285666826_Humor_styles_subjective_well-being_and_emotional_intelligence_in_college_students)
- Lippman, L. G., & Dunn, M. L. (2000). Contextual connections within puns: Effects on perceived humor and memory. *Journal of General Psychology*, 127(2), 185. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/10843261>
- Martin, R.A., Puhlik-Doris, P., Larsen, G., Grey, J., & Weir, K. (2003). Individual differences in uses of humor and their relation to psychological well-being: Development of the Humor Styles Questionnaire. *Journal of Research in Personality*, 37(1), 48-75.  
doi:10.1016/S0092-6566(02)00534-2
- McMorris, R. F., Boothroyd, R. A., & Pietrangelo, D. J. (1997). Humor in Educational Testing: A Review and Discussion. *Applied Measurement in Education*, 10(3), 269-297.  
doi:10.1207/s15324818ame1003\_5
- Seidman, A., & Brown, S. C. (2016). Laugh and learn. *Adult Learning*, 27(1), 41–43. doi: 10.1177/1045159515596160
- Suzuki, H., & Heath, L. (2014). Impacts of humor and relevance on the remembering of lecture details. *Humor*, 27(1). Retrieved from <https://doi.org/10.1515/humor-2013-0051>
- Zengin, B. (2007). Humorous link potential between L1 (Turkish and F1 (English) in foreign language teaching. *Ekev Academic Review*, 11(32), 153–166. Retrieved from <http://www.ekevakademi.org/eng/index.php>



*Figure 1.* The main effect of Humor on exam performance. Tests scores were higher for humorous conditions, as opposed to non-humorous conditions regardless of relevancy.



*Figure 2.* The main effect of Relevancy on exam performance. Test scores were higher for relevant conditions, as opposed to irrelevant conditions regardless of humor.

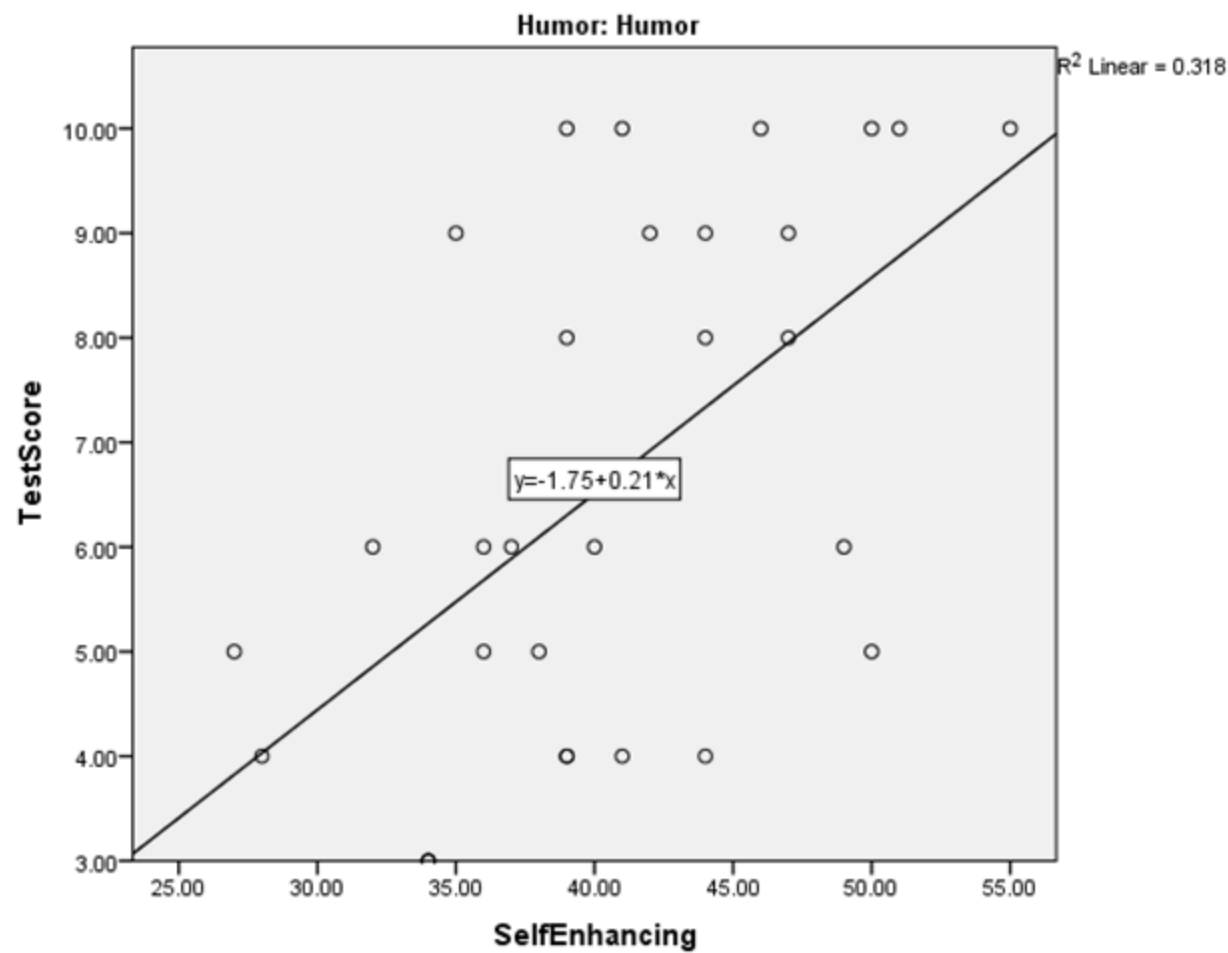
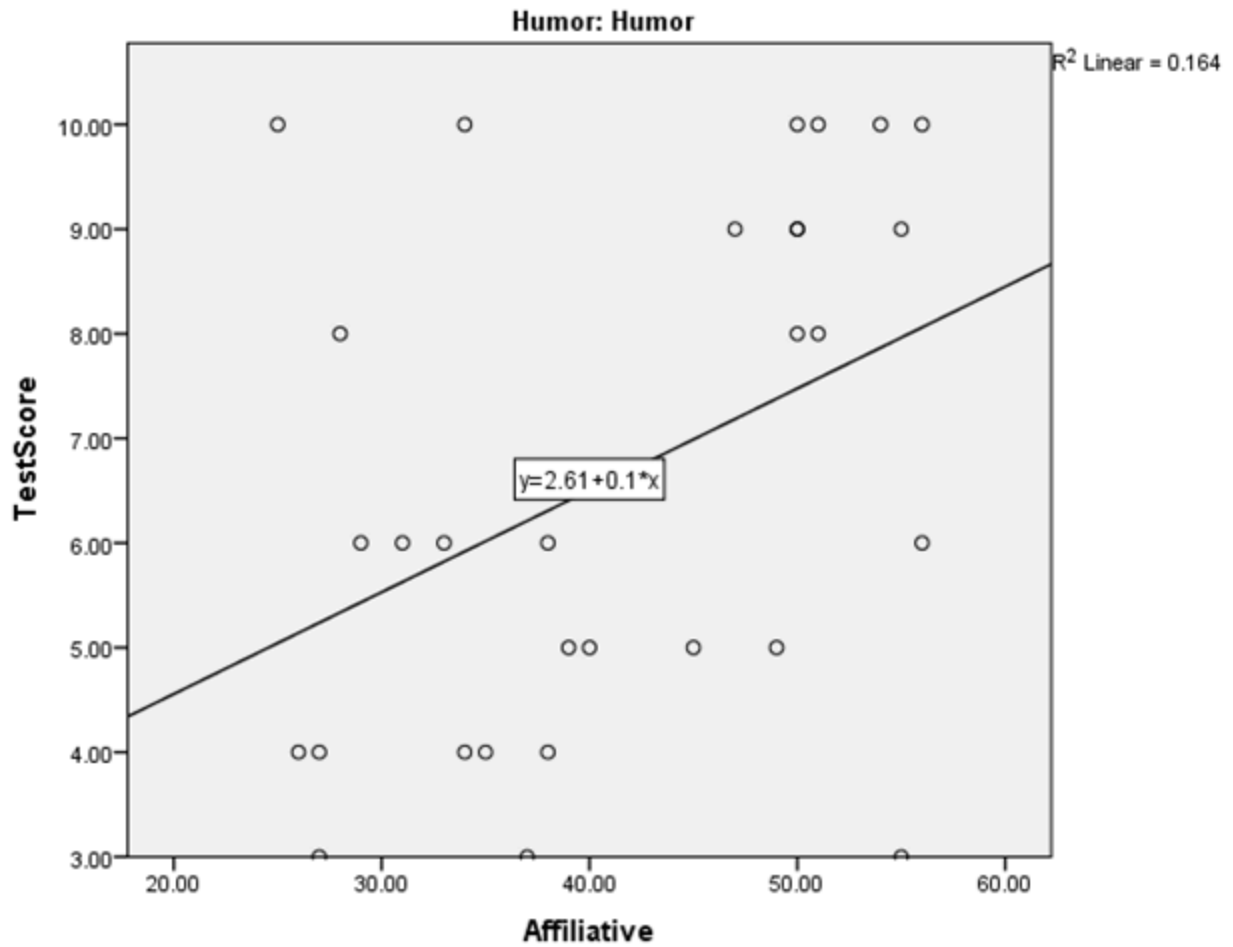
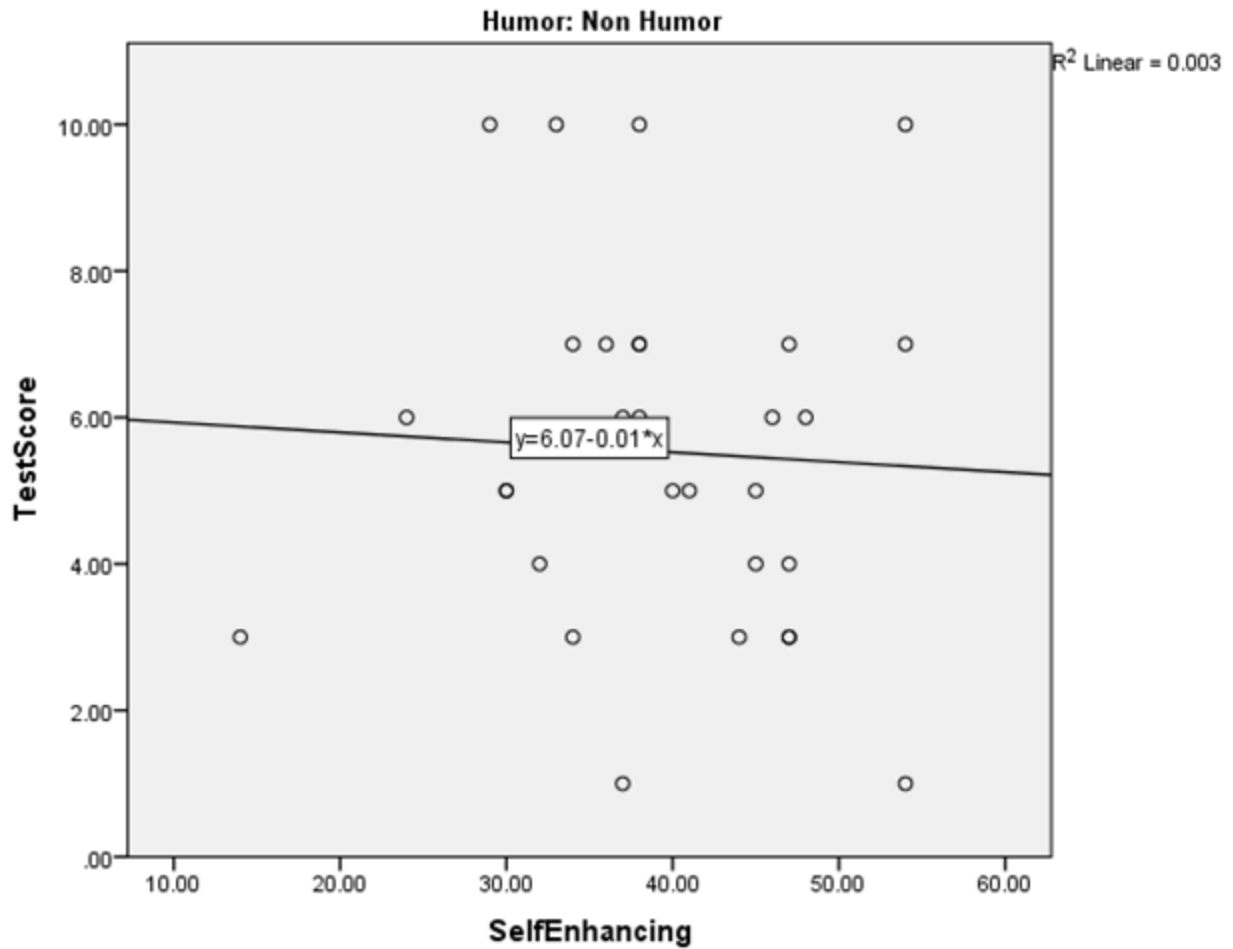


Figure 3. Positive correlation between self-enhancing humor and test scores in the humorous groups.



*Figure 4.* Positive correlation between affiliative humor and exam performance in the humorous groups.



*Figure 5.* No correlation between self-enhancing humor and exam performance in the non-humorous groups.

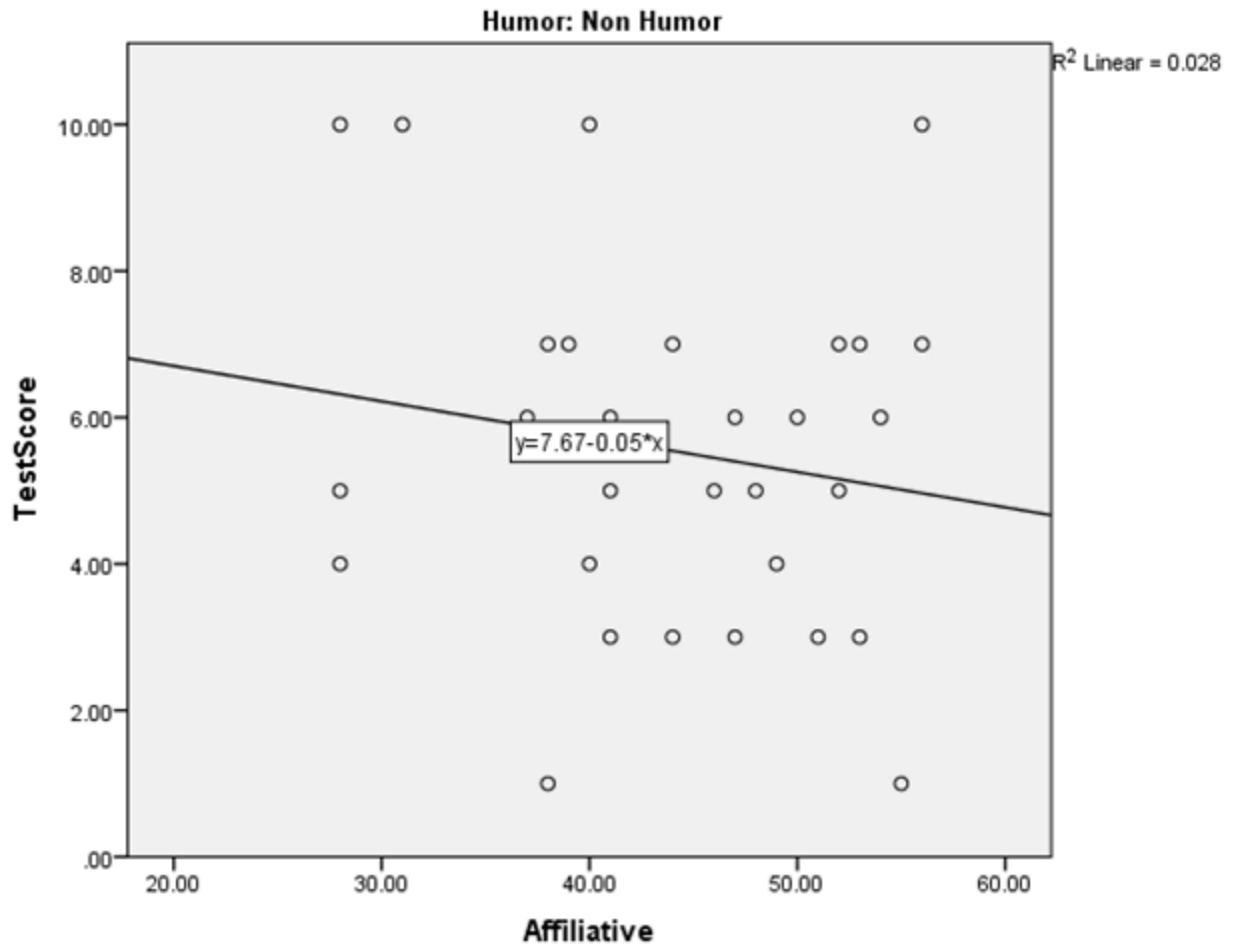


Figure 6. No correlation between affiliative humor and exam performance in the non-humorous groups.