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Interest and Motivation in Learning with Application for College Education

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INTEREST AND MOTIVATION IN LEARNING WITH APPLICATION FOR COLLEGE EDUCATION

A THESIS

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Dedication

This thesis is dedicated to my loving and supportive family and friends, specifically my mother and children. I would never have been able to complete this project without them.

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Abstract

This study examined the role that interest plays in the motivation to learn. The study consisted of three phases. In the first phase participants completed an online survey to determine their interest in either sports or superheroes. Next participants were randomly assigned to view either a PowerPoint presentation with a sports theme or a heroes theme. Based on the match or mismatch of their indicated interest and the PowerPoint they viewed, participants were considered to be in the congruent group, incongruent group, or neutral group (those who rated a theme neither high or low). Results showed that interest increased motivation to study. The neutral group scored higher than the incongruent group on application questions, indicating deeper understanding of the material. However, these unexpected results indicated that further research into the possible role of seductive details, and interest as a whole, in motivation and retention is needed.

Keywords: learning, interest, motivation, student success, study time

Interest and Motivation in Learning with Application for College Education

How to increase student learning, motivation, and retention is a continuing question in the education system, especially in a University setting. Because college attrition rates are high (i.e., 40% of college students do not earn a degree), it is important to understand the factors involved in retention (Daly & Bateman, 1978; Matley, 1979; Reed, 1981; Tinto, 1987). Research on the reasons students leave college indicates that some of the responses like emotional, social, and academic factors play a part in attrition rates, but the past research also indicates that many students leave over academic issues such as grades and conflict with instructors (Gerdes & Mallinckrodt, 1994). In addition, even when students are retained, they often withdraw from individual courses. According to the National Center for Education Statistics (2012), from 2003 to 2009, 53% of first-time college students have withdrawn from at least one course, and the average number of course withdrawals per student was 3.4 over their academic career. Higher withdrawal rates can greatly affect certain types of courses, such as general education courses or introductory courses that tend to have higher drop, fail, withdraw (DFW) rates than other courses.

Past studies that investigate students' reasons for withdrawing from a course have listed a lack of interest or motivation, perception of academic difficulty, and negative impression of the instructor as the main reasons (Daly & Bateman, 1978; Matley, 1979; Reed, 1981). Because perception of academic difficulty is a factor in withdrawals, it is important to note that research has shown perception of difficulty is decreased when interest is increased (Renninger, Ewen, & Lasher, 2002). In addition, when instructors are more invested, students become more invested and perceive the instructor and the course

as better than when they are not invested (Paswan & Young, 2002). The self-reference effect, which is heightened activation to things that are personally relevant (Hartlep & Forsyth, 2000), shows that interest leads to heightened activation and motivation for behaviors linked to that interest (or investment). Extending this effect, if an instructor is able to teach a course with an interest-based theme that is personally enjoyable, then the instructor will be more invested, creating a reciprocal cycle with student and instructor investment continually increasing.

Interest is a necessary component for motivation as seen by Keller's ARCS (1987) motivational model. Keller proposed that there are four major conditions for motivation: Attention, Relevance, Confidence, and Satisfaction. In his model, he stated that interest in a subject causes a heightened state of attention. Relevance, by his description, is applied personal importance and examples that heighten interest. How a student perceives their ability to understand the information is confidence, and Satisfaction is their level of reward (intrinsic vs. extrinsic). The existing literature shows Keller did not use empirical studies to identify specifically the role of interest in his motivational model but did identify that it was an important factor.

Later research on the role of interest found that if interest is present, students are more inclined to focus their attention on the stimuli. Once perceived as interesting, the stimuli become personally relevant and are remembered better (Hartlep & Forsyth, 2000). This is supported by research showing that the increase in positive feelings that occurs with interest both increases dopamine levels in the brain and generates action patterns that create motivation to increase knowledge of the target of interest (Hidi, 2006). Taken together, stimuli perceived as interesting activates the self-reference effect, which has

two results: 1) it heightens both interest and recall at later dates (Hartlep & Forsyth, 2000), and 2) it activates the same reward systems that increase dopamine levels and motivate students to increase knowledge (Northoff & Hayes, 2011). Thus, it is evident that attention and relevance are intertwined in both their activation by interest and their resulting behaviors.

When looking at the interaction of interest with confidence and satisfaction, both seem to be affected by interest, since research has shown that interest can decrease a student's perception of difficulty (Renninger et al., 2002), help them to better apply course concepts efficiently, and to retain the knowledge they are learning (Catt, Miller, & Schallenkamp, 2007; Rotgans, 2014). In addition, interest can make students perception of the outcomes of the course different (Paswan & Young, 2002), in that students perceive themselves to be more successful in a course when they are interested, even when they do not receive the letter grade they desired. This may be related to a change in performance versus mastery goals (Luo, Paris, Hogan, & Luo, 2011), so that the student who is interested becomes less focused on the performance goal of a specific grade and more interested in the mastery goal of the information. This body of work shows that interest is a primary factor in Keller's ARCS model.

In addition, student perception of the instructor's investment in the course also appears to be an aspect of this construct that was not included by Keller in his ARCS model. As noted previously, student perception of instructor affects the student's investment in the course (Paswan & Young, 2002). Taking that a step further, when students can tell the instructor is interested in the material they are teaching, they also become more involved and interested in the course (Frisby, 2008). Combined, this lends

credence to the idea that the construct of perception should include confidence, satisfaction, as well as the new addition of perception of the instructor.

Since students' motivation is a necessary, but not a sufficient condition to explain successful learning, it is important to also consider other known factors that have been shown to impact learning. Cognitive views on learning are focused on understanding the mental processes involved in learning and approach it as an active process, being more concerned with understanding how people learn than what they know (Yilmaz, 2011). For instance, when students relate new information to existing schemas and mental processes they learn more effectively (van Kesteren, et. al., 2014).

Interest-based themes essentially build upon students' existing knowledge bases or schemas, which in turn, allows more ways for students to pair new information to prior knowledge increasing the chance of recall. This reasoning is built upon Hebb's cell assembly theory (Morris, 1999), and elaborative encoding. Which are centered around the idea that we have different networks of information within the brain, and that when new concepts are linked to existing ones they become easier to remember (Cherry, Park, Frieske, & Rowley, 1993; Craik & Tulving, 1975). Additionally, the elaborative encoding theory states that when the association is stronger and more meaningful it is better remembered than a weaker association (Craik, 2002; Hunt, 2013). So, relating a new concept to a random word you know that rhymes, works better than just repeating the word until you can recall it, but the best way to remember it is to relate it to other similar already known things. Hebb's cell networks are another way of describing schemas (organized bodies of knowledge). This means that if students can organize new concepts and connect them to their existing knowledge bases (i.e., sports, music, movies,

etc.) then their ability to recall the information is greatly increased (Mandler, 2011), since they have expanded the network.

Knowledge bases (or schemas) related to a student's interest can be used to increase depth of processing as well. Depth of processing theory (Lockhart & Craik, 1990) states that the deeper something is processed the better we remember it. Deep processing involves semantic processing (encoding meaning of words and relating them to other words) as well as elaborative rehearsal, which is analysis of meaning, making associations, and linking to previous knowledge (Craik & Lockhart, 1972; Hunt, 2013). Elaborative encoding creates many associations in order to form a stronger association, whereas depth of processing deals more with how application of meaning can make better connections. In other words, its important to connect to many things (elaborative encoding) and that those connections have meaning. Depth of processing likely drives the effects found by researchers that the more interested a student is, the more they retain knowledge, and the better they are able to apply course concepts efficiently (Catt et. al., 2007; Rotgans, 2014). Additionally, it is an explanation for why using examples that relate to a student's existing knowledge bases and interests, makes the information easier for students to understand. In this way, applying students' interest heightens both understanding and the self-reference effect, resulting in a perception of an easier course.

By applying existing research on interest, researchers expected that there would be an improvement in student test scores, and completion, thus increasing success rates for students. The aforementioned combined knowledge about a modified motivational model of learning (interest and perception as defined above) indicates that part of the solution in translational educational science is to find ways to increase student interest.

This study proposed that the way to do that is to first look at how interest increases motivation to learn. One way to do so is by teaching a concept via an interest-based theme we can increase the motivation to learn, and the actual knowledge retained.

Specifically, this study proposed that participants whose study materials aligned with their self-reported interests would self-report higher amount of time spent studying the material and would have higher scores on the test of knowledge than participants in the incongruent group.

The two research hypotheses for this study were:

H1. When a student studied with a theme that matched (i.e., was congruent with) his or her own interests would demonstrate more complete learning of concepts taught with that theme than a student who rated the interest topic low, and one who rated it neutrally (neither high or low).

H2. (a) When a student studied with a theme that matched his or her own interests the student would be more likely to dedicate time to study materials than a student who rated the interest topic low, and one who rated it neutrally (neither high or low).

(b) When a student studied with a theme that matched his or her own interests the student would be more likely to complete the study successfully (mimicking successful course completion) than a student who rated the interest topic low, and one who rated it neutrally (neither high or low).

Operational Definitions

The current study investigated whether using student interest-based themes to teach introduction to psychology courses was an effective way to improve test scores and student success. It used methods that mimic the classroom (lecture via PowerPoint

presentation, time at home studying, and testing for recall and comprehension), as well as self-report methods to measure student interest in both theme and course materials (measured before and after exposure to themes). These methods potentially allow generalization of the results and justify further studies in this area.

Throughout the study, the term *interest-based theme* was used to refer to themes based upon an interest topic, (i.e. music, sports, comic books) that were used as images and examples to teach an academically themed course (Introduction to Psychology). These themes were used to experimentally manipulate the application of new knowledge to existing schemas and using student interest to increase motivation to learn.

Self-reported interest was the participant's ranking on a scale from 0 to 100 of their personal interest in the target theme (sports, or superheros). If the participant ranked the target theme 70 or higher, they were recorded as having a self-reported interest in the target theme. In this study, *Congruent* referred to conditions where the participants self-reported interest matched the interest-based theme incorporated into the psychology PWPT they viewed. *Incongruent* referred to conditions where the participants self-reported interest did not match the interest-based theme incorporated into the psychology PWPT they viewed. In the *Neutral* conditions the participants self-reported interest level was neither high or low, but instead indicated no preference or dislike for either theme incorporated into the psychology PWPT they viewed.

One way to determine successful understanding of information is to design tests that incorporate different levels of learning. These levels of learning can be defined as Bloom (1956) explains, as differing levels of understanding, which appear to line up with depth of processing. In Bloom's Taxonomy there are six levels of understanding that each

require a deeper level of processing, and these levels are intended to be incorporated into testing and teaching processes in order to best assess learning. Bloom's first level was knowledge, which he described as knowledge gained directly from the lesson, concerned primarily with main points. The second level was comprehension and includes a basic understanding of the information presented in a lesson. The third level was concerned with application of learned knowledge to solve problems or in novel situations. These first three levels are most applicable to the current research as the tests used in the study were designed to assess these three. The *definition subtest* was designed to focus on knowledge questions, to assess information gained directly from the presentations. The *application subtest* was designed to focus on both comprehension and application questions, to assess understanding and ability to apply the knowledge in novel ways.

Method

Participants

At the University of Central Oklahoma (UCO), 402 undergraduate students completed an anonymous online survey assessing interest level in one of two themes (Sports or Superheros). Of those, 144 Participants (36 males, 108 females, mean age: 21) who indicated interest in continuing were invited to complete the rest of the study. Participants were recruited via UCO's SONA systems and consisted of students in general psychology courses. Participants were randomly assigned to view one of two presentations, and then based response to survey and viewed presentation were considered to be congruent, incongruent, or neutral. In Phase Two 115 participants completed the phase, of which 34 were in the congruent group, 30 were in the incongruent, and 51 were in the neutral group. During Phase Three 75 participants

completed the phase, of which 23 were congruent, 23 were incongruent, and 29 were neutral.

Materials

Phase One materials consisted of an Online Interest Survey, which was created to assess interest in one of two topic themes: superheroes or sports (see Appendix A).

Phase Two materials consisted of a consent form (see Appendix B), PowerPoint presentations (see Appendices D, F), a study packet (see Appendices C, E, G), a demographic survey (see Appendix H), a follow up survey (see Appendix I), and a debriefing script (see Appendix J). The PowerPoint presentations were created by selecting several concepts from a social psychology chapter of a general psychology textbook and then either creating a PWPT using superheros examples (see Appendix D) or sports examples (see Appendix F). The study packet contained transcripts of each PWPT (see Appendices C, E) and a study log (see Appendix G). The PWPT presentations were approximately 15 minutes in length and participants were provided with pen and paper if they wanted to take notes. A demographic survey (see Appendix H) and a follow up survey (see Appendix I) that assessed reason for withdrawal as well as interest in social psychology and themed courses. A debriefing script was used in both Phase Two and Phase Three (see Appendix J).

Phase Three materials consisted of a final quiz (see Appendix K) which was used to assess retention and learning. In order to differentiate participants understanding of the material the quiz consisted of two subtests based on Bloom's Taxonomy (Bloom, 1956) as described previously. One subtest consisted of surface level definition style questions that simply asked students to repeat information directly stated in the PWPT. The other subtest consisted of deeper level application questions that required a student to have an

understanding of the concepts in order to accurately apply the knowledge. All test questions were selected from two test banks (Bickford, Gibson, & Smallman, 2016; Fiest & Rosenburg, 2015). A final survey that asked how much time the student spent studying for the quiz before returning and asked the student to rate interest in social psychology and themed courses (see Appendix L) and the debriefing script (see Appendix J) were used.

Procedure

The study consisted of three phases. In Phase One, the participants completed an online interest survey (see Appendix A). Researchers randomly assigned each participant to one of two conditions: Social Psychology PWPT with a Sports theme (see Appendix F) or a Heroes theme (see Appendix D). Once randomly assigned to a group, participants received an email inviting them to participate in Phase Two.

When the participant arrived for Phase Two they completed a consent form (see Appendix B) and then watched a themed PWPT. After watching the presentation, the participants filled out a demographic survey (see Appendix H). Next, they were asked if they would like to participate in phase three of the study. If they declined to continue, they completed a follow-up survey (see Appendix I). If they took notes during the presentation the notes were collected and included in the participant file and they were debriefed (see Appendix J).

If participants continued to Phase Three they received a study packet (see Appendices C, E, G) and scheduled a time to come back one week after Phase Two. Researchers instructed the participants to bring the packet with them when they returned for Phase Three as well as any notes they may have taken during the presentation.

Researchers informed participants that upon return they would be asked to take a quiz on the information presented and to try to study the material before returning.

If Participants returned to complete Phase Three, they turned in the study packet and any personal notes from the presentation. Then Participants completed a 20-minute timed quiz (see Appendix K). Followed by a final survey (see Appendix L) indicating how much they studied. Participants who scheduled for Phase Three but failed to return to participate were contacted by email and asked to complete the follow-up survey (see Appendix I), none of them complied.

Results

Included below are the analyses directly related to the research hypothesis and resulting questions. Additional analyses are reported in Appendix M. To investigate hypothesis one, a one-way between-subjects Analysis of Variance (ANOVA) was conducted to explore whether presentation congruence (interest-based theme: congruent, incongruent, neutral) impacted learning, measured by scores on the application subtest. There was a marginally significant effect of presentation congruence, $F(2, 113) = 2.80$, $p = .06$. A partial eta-squared of .05 indicated a small to moderate effect size. Tukey HSD post-hoc comparisons indicated that the mean application score for the neutral group ($M = 7.56$, $SD = 2.52$) was significantly higher than the incongruent group ($M = 6.30$, $SD = 2.42$), $p = .02$ (see appendix N for Figure 1). The congruent group ($M = 7.21$, $SD = 1.90$) did not differ significantly from either the neutral ($p = 0.50$) or incongruent group ($p = 0.12$).

The second hypothesis had two parts. The first part suggested that when a student's interest matched (i.e., was congruent with) the PowerPoint presentation's theme

the more likely the student was to dedicate time to study materials than a student who studied with a PowerPoint theme incongruent with their interests, and one who studied with a theme they rated neutrally. A one-way between-subjects ANOVA was conducted to explore whether presentation congruence (interest-based theme: congruent, incongruent, neutral) impacted motivation to learn, measured by the reported amount of time spent studying. There was a significant difference in reported study time for the three groups: $F(2, 112) = 3.160$, $p = .046$ (see appendix O for Figure 2). A partial eta-squared of .05 indicated a small to moderate effect size. Tukey HSD post-hoc comparisons indicated that the average amount of time studying for the congruent group ($M = 6.85$, $SD = 2.26$) was significantly higher than the neutral group ($M = 6.58$, $SD = 2.43$), $p = .04$. The incongruent group ($M = 6.30$, $SD = 2.38$) did not differ significantly from either the neutral ($p = 0.70$) or congruent groups ($p = 0.25$).

The second part of hypothesis two was that when a student's interest matched (i.e., was congruent with) the PowerPoint presentation's theme the student would be more likely to complete the study successfully than a student who studied with a PowerPoint theme incongruent with their interests, and one who studied with a theme they rated neutrally. To test if there was a relationship between presentation congruence (interest-based theme: congruent, incongruent, neutral) and motivation to complete, measured as number of phases completed, a Kruskal-Wallis analysis was performed. There was not a statistically significant difference in number of phases completed for the three groups: $H(2) = .04$, $p = .98$, with a mean rank of 71.68 for the congruent group, of 72.89 for the incongruent group, and 72.74 for the neutral group.

Discussion

The purpose of this study was to investigate the role of interest in increasing motivation to study, expanding depth of knowledge, and improving retention. This study focused on the use of interest-based themes to build upon students' existing knowledge bases, allowing more ways for students to pair new information to prior knowledge and therefore increasing the chance of recall. Results from this study indicated participants in the neutral condition scored significantly higher on the applied questions than participants in the incongruent condition, but all participants scored similarly on definition questions. The congruent group did not score significantly better on either type of questions, although not significant, the trend suggested that they did score higher than the incongruent group on the applied questions.

This result is in contrast to the Mandler (2011) finding that if students can organize new concepts to connect to both their existing academic knowledge base and their existing knowledge bases for various interests (i.e., sports, music, movies, etc.), then student ability to recall the information is greatly increased. It also contradicts the previous research that shows that when students relate new information to existing schemas and mental processes, they learn more effectively (van Kesteren, et. al., 2014).

Depth of processing likely drives the role of interest in retention and learning. Since researchers have found that the more interested a student is the more they retain knowledge and the better they are able to apply course concepts efficiently (Catt et al., 2007; Cherry, Park, Frieske, & Rowley, 1993; Craik & Tulving, 1975; Rotgans, 2014), if students do better on the application subtest, it implies more depth of processing. This

indicates that the participants in the neutral condition are achieving more depth of processing. Sometimes the seductive details involved in interesting examples can be distracting (Abercrombie, 2013; Harp &Mayer, 1998), therefore it is possible that the better scores on the application subtest indicate that the neutral group may be less distracted by seductive details than those in the congruent group. Abercrombie found when looking at the effects of seductive details that recall of surface information or verbatim facts was equal with and without seductive details, but that applied transfer of knowledge was worse when seductive details are present.

This may not be the complete story, since results from this study also show that the Congruent group reported significantly longer amounts of time spent studying the information than the neutral group. This seems contradictory, but research on student note taking shows that students generally only write down about half of the key concepts from a lecture, and generally write down verbatim what is said, or rote copy the presentation (Bretzing & Kulhavy, 1981; Kiewra, 1985; Kiewra; 1987; Rickards & McCormick, 1988) rather than a conceptualization of main ideas, or integration of old information with the new. This indicates that the larger amount of time spent studying by the congruent group would only have impacted the definition subtest, and not the application subtest, since their notes were likely surface level notes.

The larger amount of time studying does support the self-reference effect research (Hartlep & Forsyth, 2000) which indicates that interest leads to heightened activation and motivation for behaviors linked to that interest and can motivate students to increase knowledge (Northoff & Hayes, 2011). Although interest in the topic increased study time (motivation to study), it appears that no deeper learning occurred for the congruent group.

These results seem to be driven by the combination of this group focusing more on potentially irrelevant seductive details, and the lack of application information students typically include in notes (Lambiotte, Skaggs, & Dansereau, 1993).

One possible way to counter this is to use both interest-based examples and more typical or concrete examples immediately afterwards, in order to help students identify which details are more relevant to pay attention to. Another option would be to give students access to instructor notes after the lecture to help guide their studying, as supported by research showing that instructor notes can be more beneficial since they contain better information (Kiewra, 1985). Then, perhaps the tendency to relate new information to existing schemas and mental processes can be used more effectively and will support previous research showing that students who do so learn more effectively (van Kesteren, et.al., 2014).

It is clear that interest plays a part in motivation and student success in learning, however many factors are still entwined. In addition, some small issues in the design of the study may also have made it less clear what interest's role is in retention. Specifically, gender and interest, in that the topic themes the researchers chose are typically associated with the male gender, and most participants in the study identified as female. In addition, the researchers assumed that interest equated to knowledge on the topic theme, so examples picked in the PWPT were more specific, and perhaps caused confusion.

Future research is needed to correct the aforementioned issues, and to further clarify the role of interest. This could be accomplished by picking more gender and culturally-neutral themes, and by using more generalized examples in the instruction, or providing instructor notes, so as to maximize learning and make use of the motivational

factor that interest appears to foster. In addition, a longitudinal study, and perhaps one in an actual course, would better help to define the role interest plays in student learning and success. Additionally, if research in this area is conducted in a course setting then further investigation into the instructor investment aspect could be completed, further clarifying the role interest may play.

Overall it is important to note that interest does appear to increase motivation to study and learn material, thus increasing student investment, and potentially instructor investment as well. If it is possible to increase investment and motivation, while also increasing depth of processing for a more concrete and applicable understanding of information, then it is important to identify the best ways to do so, and to apply them in the college setting. This is supported by Roediger (2013) who notes the need for "translational educational science" to apply existing knowledge in controlled field trials, and then apply them across all of education, as they prove successful.

References

Abercrombie, S. (2013). Transfer effects of adding seductive details to case-based instruction. *Contemporary Educational Psychology, 38,* 149-157.

Bickford, J., Gibson, L., & Smallman, R. (2016) Test Bank. In j. Bickford, L. Gibson, & R. Smallman, *Psychology in Your Life, Second Edition* (pp. 287-305). New York, NY: W.W. Norton & Company.

Bretzing, B., & Kulhavy, R. (1981). Note-taking and passage style. *Journal of Education Psychology, 73,* 242-250.

Catt, S., Miller, D., & Schallenkamp, K. (2007). You are the key: Communicate for learning effectiveness. *Education, 127,* 369-377.

Cherry, K., Park, D., Frieske, D., & Rowley, R. (1993). The effect of verbal elaborations on memory in young and older adults. *Memory and Cognition,, 21,* 725-738.

Craik, F. (2002). Levels of processing: Past, present, and future? *Memory, 10,* 305. doi:10.1080/09658210244000135

Craik, F., & Lockhart, R. (1972). Levels of processing: A framework for memory research. *Journal of Verbal Learning and Verbal Behavior, 11,* 671-684.

Craik, F., & Tulving, E. (1975). Depth of processing and the retention of words in episodic memory. *Journal of Experimental Psychology: General., 104,* 268-294.

Daly, R. P., & Bateman, H. H. (1978). The grade W: Why students drop their classes. *Community/Junior College Research Quarterly, 2,* 353-366.

Fiest, G., & Rosenburg, E. (2015). Test Bank Chapter 14. In G. Fiest, & E. Rosenburg, *Psychology Perspectives and Connections, Fourth Edition* (pp. 526-565). New York, NY: McGraw-Hill Education.

Frisby, B., & Scott, A. (2008). The relationship among percieved instructor rapport, student participation, and student learning outcomes. *Texas Speech Communication Journal, 33,* 27-34.

Gerdes, H., & Mallinckrodt, B. (1994). Emotional, social, and academic adjustment of college students: A longitudinal study of retention. *Journal of Counseling and Development, 72,* 281-288.

Hartlep, K. L., & Forsyth, G. A. (2000). The effect of self-reference on learning and retention. *Teaching of Psychology, 27,* 269-271.

Hidi, S. (2006). Interest: A unique motivational variable. *Educational Research Review, 1,* 69-82.

Hunt, R. (2013). Precision in memory through distinctive processing. *Current Directions in Psychological Science, 22,* 10-15.

Keller, J. M. (1987). Development and Use of the ARCS Model of Instructional Design. *Journal of Instructional Development, 10,* 2-10.

Kiewra, K. (1985). Investigating notetaking and review: A depth of processing alternative. *Educational Psychologist, 20,* 23-32.

Kiewra, K. (1985). Students' note-taking behaviors anf the efficacy of providing the instructor's notes for review. *Contemporary Educational Psychology, 10,* 378-386.

Kiewra, K. (1987). Notetaking and review: The research and its implications. *Instructional Science, 16,* 233-249.

Lambiotte, J., Skaggs, L., & Dansereau, D. (1993). Learning from lectures: Effects of knowledge maps and cooperative review strategies. *Applied Cognitive Psychology, 7,* 483-497.

Lockhart, R., & Craik, F. (1990). Levels of processing: A retrospective commentaty on a framework for memory research. *Canadian Journal of Psychology, 44,* 87-112.

Luo, W., Paris, S. G., Hogan, D., & Luo, Z. (2011). Do performance goals promote learning? A pattern analysis of Singapore students' achievement goals. *Contemporary Educational Psychology, 36,* 165-176.

Mandler, G. (2011). From association to organization. *Current Directions in Psychological Science, 20,* 232-235.

Marsh, E., Meade, M., & Roediger, H. (2003). Learning facts from fiction. *Journal of Memory and Language, 49,* 519-536.

Matley, B. G. (1979). Relationship between grade upon and time of withdrawal for the withdrawer category of continuing students. *The Journal of Educational Research, 70,* 155-159.

National Center for Education Statistics. (2012). *An overview of classes taken and credits earned by begining postsecondary students.* U.S. Department of Education. Web Report: Institute of Education Sciences. Retrieved from https://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2013151rev

Northoff, G., & Hayes, D. (2011). Is our self nothing but reward? *Biological Psychiatry, 69,* 1019-1025.

Paswan, A., & Young, J. (2002). Student evaluation of instructor: A nomological investigation using structural equation modeling. *Journal of Marketing Education, 24,* 193-202.

Reed, J. G. (1981). Dropping a college course: Factors influencing students' withdrawal decisions. *Journal of Educational Psychology, 73,* 376-385.

Renninger, K., Ewen, L., & Lasher, A. (2002). Individual interest as context in expository text and mathematical word problems. *Learning and Instruction, 12,* 467-491.

Rickards, J., & McCormick, C. (1988). Effects of interspersed conceptual prequestions on note-taking in listening comprehension. *Journal of Education Psychology, 80,* 592-594.

Roediger, H. L. (2013). Applying cognitive psychology to education: Translational education science. *Psychological Science in the Public Interest, 14,* 1-3.

Rotgans, J., & H.G. (2014). Situational interest and learning: Thirst for knowledge. *Learning and Instruction, 32,* 37-50.

Tinto, V. (1987). *Leaving college.* Chicago, IL: University of Chicago Press.

van Kesteren, M., Rijpkema, M., Ruiter, D., Morris, R., & Fernandez, G. (2014). Building on prior knowledge: Schema-dependent encoding processes relate to academic performance. *Journal of Cognitive Neuroscience, 26,* 2250-2261.

Yilmaz, K. (2011). The cognitive perspective on learning: Its theoretical underpinnings and implications for classroom practices. *The Clearing House, 84,* 204-212.

Interest and Subtest Score

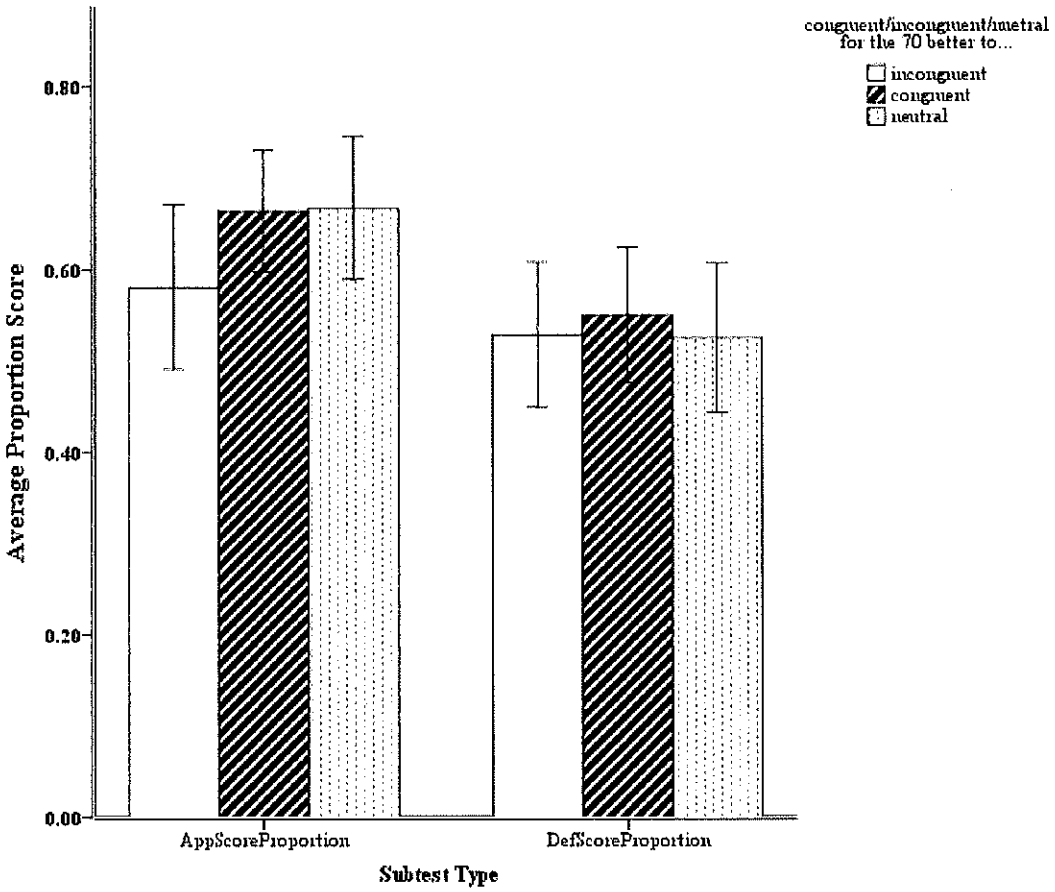


Figure 1. Interest and scores on subtests. Error bars depict 2 standard errors.

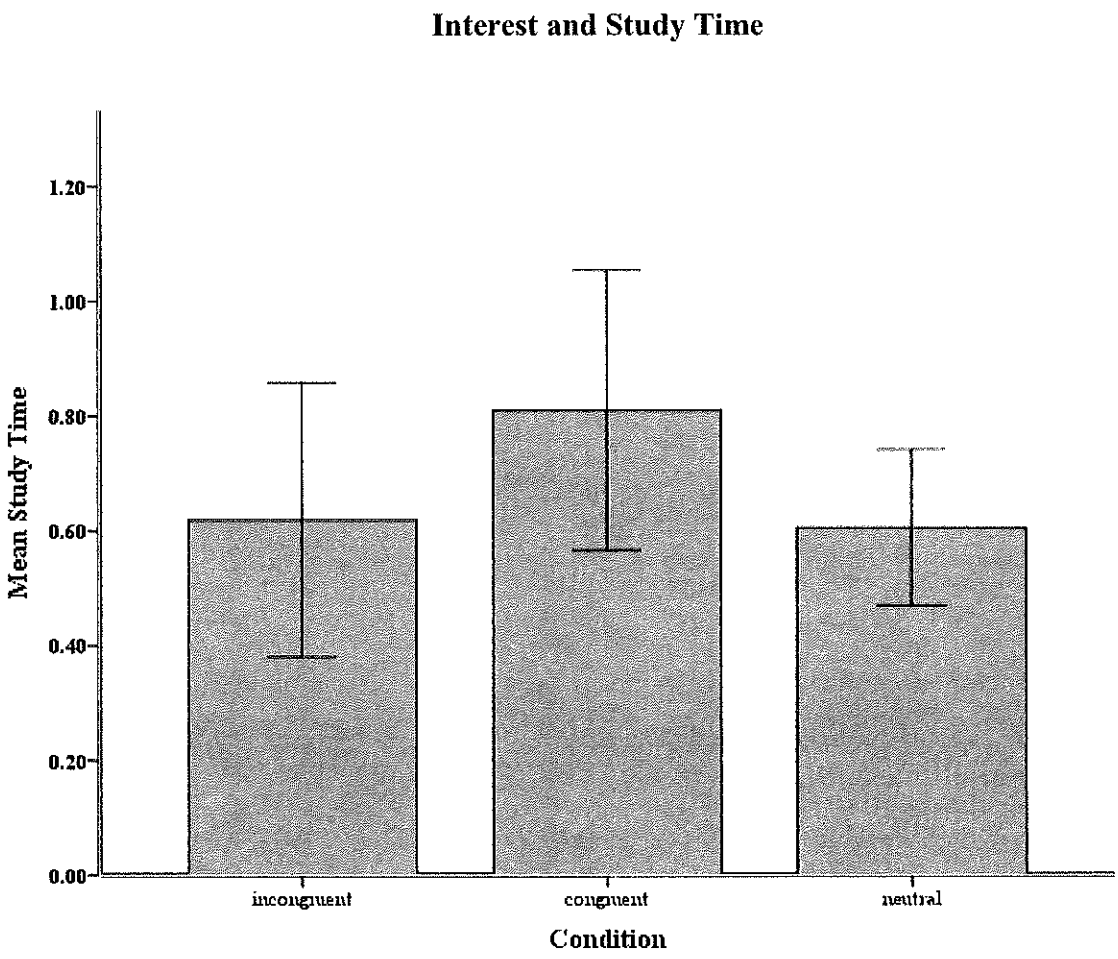
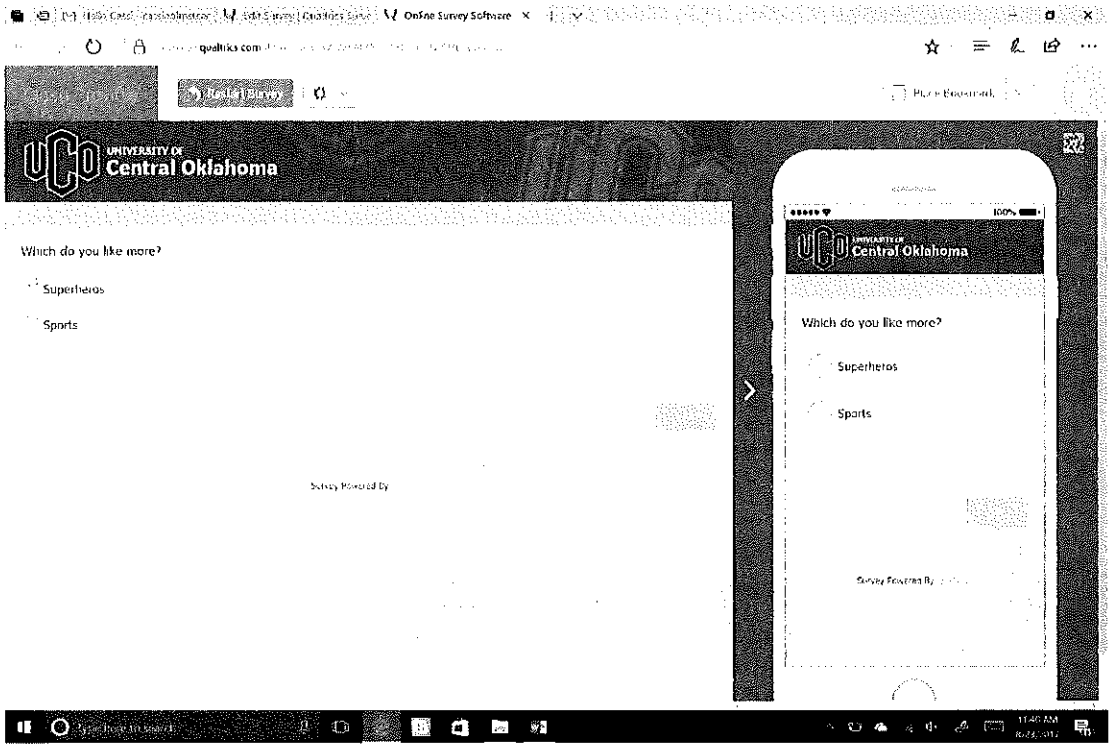
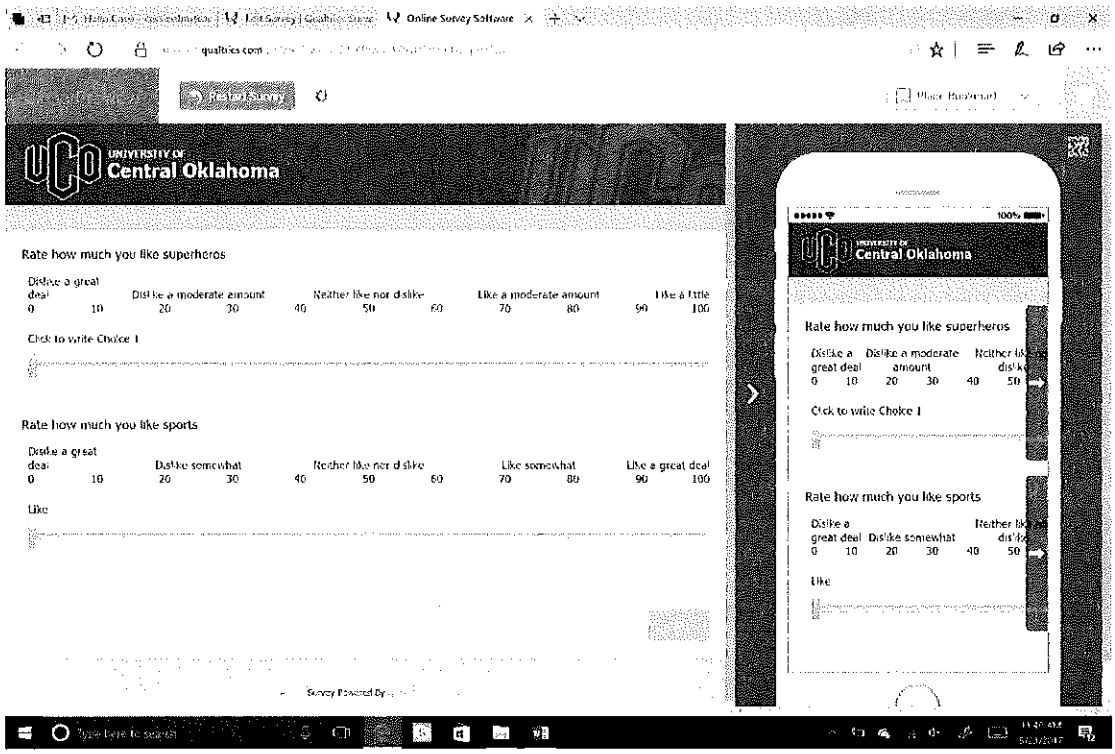


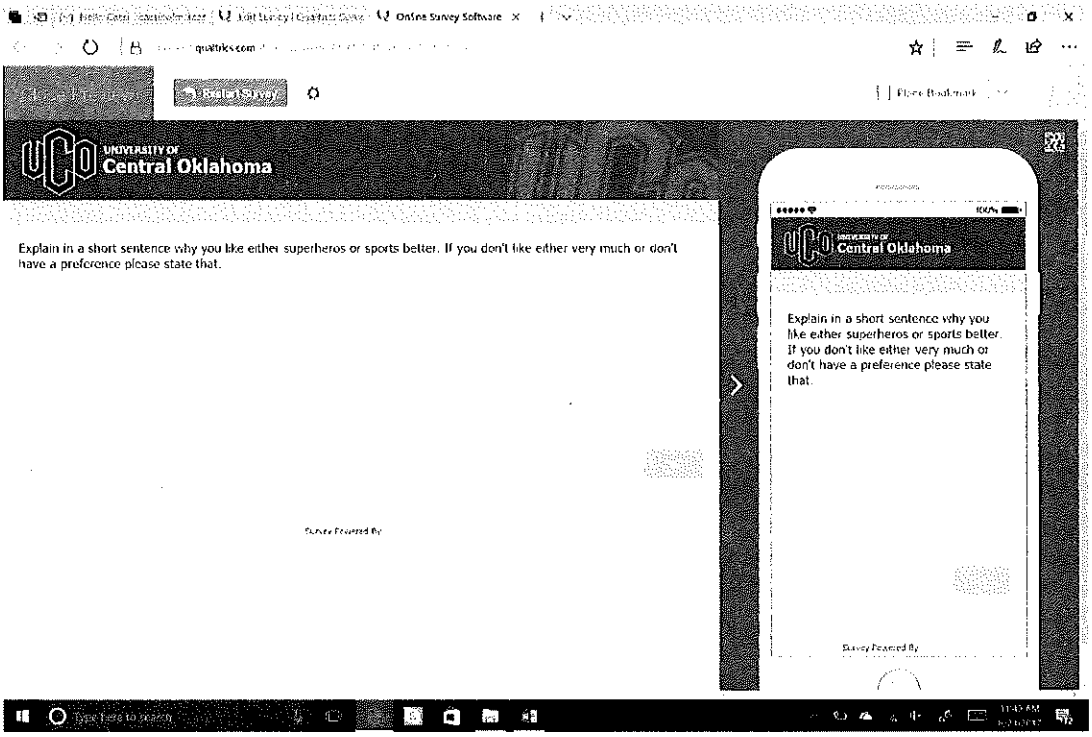
Figure 2. Interest and time spent studying. Error bars depict two standard errors.

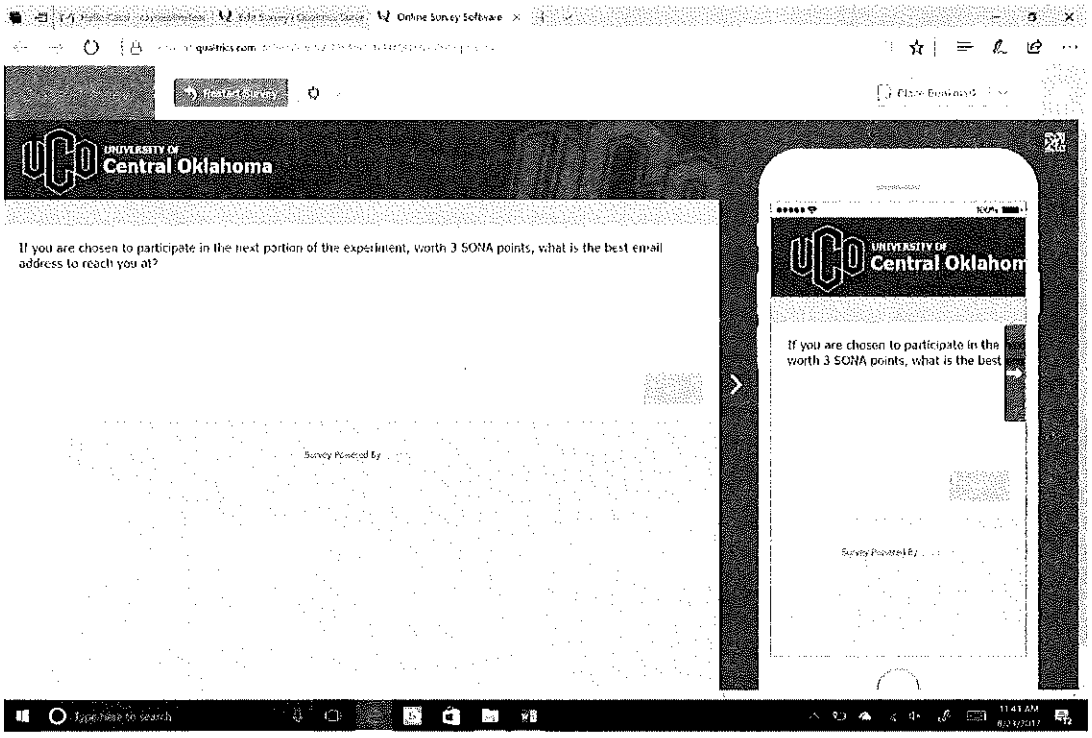
Appendix A

Qualtrics Survey






Online Survey Software
qualtrics.com
Restart Survey
UNIVERSITY OF
Central Oklahoma
Explain in a short sentence why you like either superheros or sports better. If you don't like either very much or don't have a preference please state that.
Survey Powered By
Explain in a short sentence why you like either superheros or sports better. If you don't like either very much or don't have a preference please state that.
Survey Powered By


Online Survey Software
qualtrics.com
Restart Survey
UNIVERSITY OF
Central Oklahoma
If you are chosen to participate in the next portion of the experiment, worth 3 SONA points, what is the best email address to reach you at?
Survey Powered By
If you are chosen to participate in the
worth 3 SONA points, what is the best
Survey Powered By

Appendix B

Consent Form

I, _____, agree to participate in the research entitled, "Interest & Learning" which is being conducted by Cassandra Olmstead and supervised by Dr. Thomas Hancock (Phone 405-974-5450). I understand that my participation is entirely voluntary; I can withdraw from the experiment at any time and have the results of the participation, to the extent that it is identifiable as mine, returned to me, removed from the experimental record, or destroyed. My part in this study will last for approximately 1 hour over the course of two different days.

The following points have been explained to me:

1). I understand that I will be asked to watch a PowerPoint presentation lasting approx. 17 minutes and will be asked to answer some questions regarding the information presented.

2). I will benefit from understanding how the research process is conducted. Also, society will benefit by having a better understanding of interest and learning.

3). Risks are considered minimal. Fatigue and negative emotional reactions are possible, but unlikely. In the event of any negative reaction during or after the study, which is related to participation, the researcher is available at: 405-520-7314, e-mail: cburt3@uco.edu. If I would like to visit with someone regarding sensitive or special concerns, I may contact the UCO Student Counseling Center by phone, at (405) 974-2215 (or may visit the website, at http://www.uco.edu/student_counseling).

4). The results of this participation will be confidential and will not be released in any individually identifiable form without my prior consent unless required by law.

5). The researcher will answer any further questions about the research, now or during the course of the project, and can reached by telephone at: 405-520-7314 or e-mail: cburt3@uco.edu.

6). I understand that my participation is entirely voluntary; I can withdraw from the experiment at any time.

7). I understand that grouped data from this study may be used in future presentations and/or publications. Such data will contain no way to identify data to any individual participant and is thus anonymous. All data from my participation will be destroyed (in accordance with the policies of the American Psychological Association) five years following publication of the results.

I hereby voluntarily agree to participate in the above listed research project and further understand the above listed explanations and descriptions of the research project. I also understand that there is no penalty for refusal to participate, and that I am free to withdraw my consent and participation in the project at any time without penalty. I acknowledge that I am at least 18 years old. I have read and fully understand this Informed Consent Form. I sign it freely and voluntarily. I acknowledge that a copy of this Informed Consent Form has been given to me to keep.

_____	_____	_____
Signature of Participant	Signature of Investigator	Date

For questions or problems you may contact the Research Administrator by phone at (405) 974-5707, or by e-mail, at experimentrak@uco.edu. If you have any questions about your rights as a research participant, You may contact the Chair of the UCO Institutional Review Board by phone, at (405) 974-5497.

Appendix C

Superheros Transcript of PowerPoint Presentation (Appendix D)

Slide 1- intro music

Slide 2- How do we attach meaning to our behavior and other people's behavior? Fitz Heider proposed Attribution Theory in 1958 to explain this. He believed that people were naïve psychologists, trying to make sense of the social world. People tend to assume cause and effect in behavior even when there is none! He proposed that people usually attribute their own and others' behavior either to internal dispositions or to external situations

Slide 3- **Internal Attribution**: The process of assigning the cause of behavior to some internal characteristic, rather than to outside forces. For example, we attribute the behavior of a person or ourselves to their/our personality, motives or beliefs. **External Attribution**: The process of assigning the cause of behavior to some situation or event outside a person's control rather than to some internal characteristic.

Slide 4- **Example of Internal Attribution**: When Deadshot saves John Diggle (Spartan) you assume it is because he is actually a good guy. **Example of external attribution**: When Supergirl turns on the city, you assume it is because of the red kryptonite.

Slide 5- Fundamental Attribution Error is the tendency to overestimate the influence of personality, and underestimate the influence of the situation. We are more likely to succumb to the fundamental attribution error when looking at other people's behavior than our own. We understand that our behavior is situational and not that we are always a certain way, but we assume other people are always the way we perceive them. For

example, when I am grumpy and overreact, perhaps breaking something I assume it is because I am having a bad day, and not because I am evil (if I am giving myself an external attribution). However, when the Joker overreacts, perhaps blowing up a building, I assume it is because he is evil and not just having a bad day (if I am giving him an internal attribution)

Slide 6- An experiment by David Napolitan and George Goethals (1979) illustrated the phenomenon. They had Williams College students talk, one at a time, with a young woman who acted either aloof and critical or warm and friendly. Beforehand, they told half the students that the woman's behavior would be spontaneous. They told the other half the truth—that she had been instructed to act friendly (or unfriendly). What do you suppose was the effect of being told the truth? There was no effect. The students disregarded the information. If the woman acted friendly, they inferred she really was a warm person. If she acted unfriendly, they inferred she really was a cold person. In other words, they attributed her behavior to her personal disposition even when told that her behavior was situational—that she was merely acting that way for the purposes of the experiment.

Slide 7- How do roles in society affect behavior? In 1971, the psychologist Philip Zimbardo tried to show that prison guards and convicts would tend to slip into predefined roles, behaving in a way that they thought was required, rather than using their own judgment and morals. To conduct the Stanford Prison Experiment, Zimbardo constructed a mock correctional facility in the basement of Stanford University. Mainly middle class and white, the participants were divided into two groups randomly, of 12 prisoners and

12 guards. Zimbardo, who acted as the warden for the duration of the experiment, informed the guards that the only rule was that no physical punishment was allowed. Other than that, the guards were to run the prison as they saw fit, and would be divided into regular working shifts and patterns. Prisoners, by contrast, were dressed in cheap smocks and were allowed no underwear. They were to be addressed by, and answer to, identity numbers only. They also had a small chain around one ankle to remind them that they were inmates in a correctional facility.

Slide 8- show video clip, then state: The previous clip was a movie representation of the experiment. In the real experiment, Zimbardo believed that the experiment showed how the individual personalities of people could be swamped when they were given positions of authority. Social and ideological factors also determined how both groups behaved, with individuals acting in a way that they thought was required, rather than using their own judgment. The experiment appeared to show how subjects reacted to the specific needs of the situation rather than referring to their own internal morals or beliefs. The results of the experiment have been used in many high-profile court cases over the years, to try and show that a prison must have clear instructions and guidelines from higher level authorities, or prisoner abuse may occur.

Slide 9- Imagine this: As a child you and your whole family love DC Comics, but as a child your parents tell you to stay away from kids who like Marvel Comics because they are bad. So, you believe your parents, because you are a little kid and little kids trust their parents.

Slide 10- You eventually go to school, you run into kids who like Marvel, you talk to them, you play with them, you get to know them, and you realize that they really aren't that bad, in fact they are just like you are.

Slide 11- But you remember that your parents said that kids who like Marvel are bad. What you are experiencing is called cognitive dissonance, you have two different competing cognitions. One that tells you kids who like Marvel are bad, and one that tells you kids who like Marvel are not bad.

Slide 12- What do you do? You have a couple choices: You could change your behavior, meaning that you could start playing with kids who like Marvel and interacting with them more. Or, you can change your attitude, meaning you could give up the competing cognition and accept that kids who like Marvel are bad. Unfortunately, because people tend to change their beliefs and attitudes to match their behavior, and since you are a kid whose parents dictate that your behavior cannot change (You are not allowed to play with kids who like Marvel.) This means that you will change your attitude to believe that kids who like Marvel are somehow bad.

Slide 13- In 1959 Leon Festinger was at Stanford University and did a study to examine Cognitive Dissonance. He stated that whenever we chose to do something that conflicts with our prior beliefs, feelings or values, a state of cognitive dissonance occurs- a tension between what we think and what we do. This tension is uncomfortable, and therefore causes us to change either our behavior or our beliefs to reduce the tension. 71 students in an introductory course at Stanford University participated in Festinger's experiment which was advertised as dealing with "Measures of Performance" The participants

arrived for the experiment which consisted of tasks. They were told that since there would be some extra time after the tasks, they could use that time to give feedback on the tasks. The tasks were the most tedious the researchers could devise—putting spools on a tray then taking them off again then turning pegs a quarter turn clockwise. The purpose, not known to the participant, was to create a task so boring that it is almost guaranteed that the participant would form a negative opinion about it.

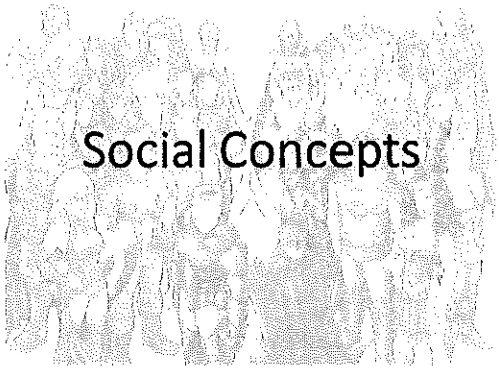
Slide 14- after the task, the researcher told the participant that the experiment consisted of two groups. In the other group, a student confederate prepared the participant by telling them how fun and exciting the tasks were. This is where the real experiment diverged into three groups. In the control group, the participants were simply sent to another room to complete a questionnaire asking about their level of enjoyment of the tasks. The other two groups, however, were asked a favor before filling out the task evaluation. The researcher told the remaining participants that he needed their help. The researcher said that the student confederate who was supposed to tell some of the participants that the task was fun and exciting did not show up, and asked the participant if he or she would be willing to play that role. The truth is, there was no student confederate. The remaining participants were told this and divided into two other groups or conditions: They were offered either one dollar or twenty dollars essentially to lie about how much they enjoyed the tasks to what they believed was another student. Participants were then paired with a real confederate student who asked the participant about the experiment. The participant said how great and enjoyable it was as instructed by the researcher. Afterwards, the participants filled out the same task evaluation form as the control group. Which group would report enjoying the tasks more and why? Most theories would suggest that the

group paid more money would like the tasks better. But, the group paid less money liked them better. Why? Because of cognitive dissonance. The group paid 20 dollars had enough external justification to be able to say, I didn't like the task, but I was willing to lie because I got paid enough. But the group paid 1 dollar didn't have that justification, so they instead changed their attitude to match their behavior. The behavior was lying about the dull task being enjoyable, which meant that they had to then match the behavior and actually believe the task was enjoyable. Saying things like it was soothing, stress relieving, cathartic, etc.

Slide 15- Exit music/Instructions

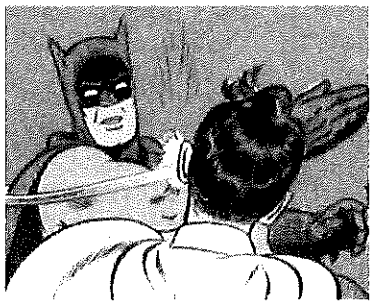
Appendix D

Superheroes PWPT

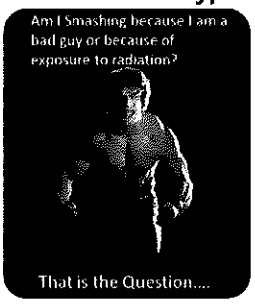


How do we attach meaning to our behavior and other people's behavior?

- Attribution Theory was proposed by Fitz Heider in 1958, to explain these concepts
- He proposed that people usually attribute their own and others' behavior either to internal dispositions or to external situations



Types of Attribution:



1. **Internal Attribution**: The process of assigning the cause of behavior to some internal characteristic, rather than to outside forces. For example, we attribute the behavior of a person or ourselves to their/our personality, motives or beliefs.

2. **External Attribution**: The process of assigning the cause of behavior to some situation or event outside a person's control rather than to some internal characteristic.

Example of Internal Attribution:
When Deadshot saves John Diggle (Spartan) you assume it is because he is actually a good guy.

Example of external attribution:
When Supergirl turns on the city, you assume it is because of the red kryptonite.

When I am grumpy and overreact, its because I had a bad day. When The Joker overreacts, its because he is evil!

Fundamental Attribution Error:

overestimating the influence of personality and underestimating the influence of situations.

David Napolitan and George Goethals (1979) Study at Williams College

Told half the participants they would be talking to a woman whose behavior was spontaneous, told the other half she would behave the way they had asked her to for the experiment.

Results: If she was friendly they decided she was a warm person. If she was unfriendly she was a cold person

How Do Roles in Society Affect Behavior?

Stanford Prison Experiment- Phillip Zimbardo 1971

Imagine this: As a child you and your whole family likes DC comics, and your parents who you trust, tell you that children who like Marvel Comics are bad.

When you get older, you go to school and there are kids who like Marvel at school. You spend some time around them and realize that maybe they are not bad.

?

Your Parents:

=Bad Kid

You:

= Not Bad Kid

What Do You Do?

You remember your parents said that kids who like Marvel are bad. You are experiencing two different competing cognitions. This is called **Cognitive Dissonance.**

In 1959 Leon Festinger did a study to examine Cognitive Dissonance.
He stated that whenever we chose to do something that conflicts with our prior beliefs, feelings or values a state of cognitive dissonance occurs- a tension between what we think and what we do.

Had Participants turn wooden pegs:
Group 1 was paid $1
Group 2 was paid $20

At this time, please notify Experimenter that you have finished the video and are ready to complete the session.
Thank you!

Appendix E

Sports PowerPoint Transcript (see Appendix F)

Slide 1- intro music

Slide 2- How do we attach meaning to our behavior and other people's behavior? Fitz Heider proposed Attribution Theory in 1958 to explain this. He believed that people were naïve psychologists, trying to make sense of the social world. People tend to assume cause and effect in behavior even when there is none! He proposed that people usually attribute their own and others' behavior either to internal dispositions or to external situations

Slide 3- **Internal Attribution**: The process of assigning the cause of behavior to some internal characteristic, rather than to outside forces. For example, we attribute the behavior of a person or ourselves to their/our personality, motives or beliefs. **External Attribution**: The process of assigning the cause of behavior to some situation or event outside a person's control rather than to some internal characteristic.

Slide 4- **Example of Internal Attribution**: If a player on a sports team donates to a charity they are a good person. **Example of external attribution**: If a player on a sports team donates to a charity they are just looking for a tax write-off/good publicity.

Slide 5- Fundamental Attribution Error is the tendency to overestimate the influence of personality, and underestimate the influence of the situation. We are more likely to succumb to the fundamental attribution error when looking at another people's behavior than our own. We understand that our behavior is situational and not that we are always a certain way, but we assume other people are always the way we perceive them. For example, we see our favorite sports team as an extension of yourself, so when a player on our team does something unsportsmanlike, or makes a mistake, we say they are having a bad day, or a bad game. However, when an opposing team's (especially a rival team) player does something unsportsmanlike, or makes a mistake they are a jerk/bad player/did it on purpose because they lack honor/sportsmanship/etc.

Slide 6- An experiment by David Napolitan and George Goethals (1979) illustrated the phenomenon. They had Williams College students talk, one at a time, with a young woman who acted either aloof and critical or warm and friendly. Beforehand, they told half the students that the woman's behavior would be spontaneous. They told the other half the truth—that she had been instructed to act friendly (or unfriendly). What do you suppose was the effect of being told the truth? There was no effect. The students disregarded the information. If the woman acted friendly, they inferred she really was a warm person. If she acted unfriendly, they inferred she really was a cold person. In other words, they attributed her behavior to her personal disposition even when told that her behavior was situational—that she was merely acting that way for the purposes of the experiment.

Slide 7- How do roles in society affect behavior? In 1971, the psychologist Philip Zimbardo tried to show that prison guards and convicts would tend to slip into predefined roles, behaving in a way that they thought was required, rather than using their own judgment and morals. To conduct the Stanford Prison Experiment, Zimbardo constructed a mock correctional facility in the basement of Stanford University. Mainly middle class and white, they were divided into two groups randomly, of 12 prisoners and 12 guards. Zimbardo, who acted as the warden for the duration of the experiment, informed the guards that the only rule was that no physical punishment was allowed. Other than that, the guards were to run the prison as they saw fit, and would be divided into regular working shifts and patterns. Prisoners, by contrast, were dressed in cheap smocks and were allowed no underwear. They were to be addressed by, and answer to, identity numbers only. They also had a small chain around one ankle to remind them that they were inmates in a correctional facility.

Slide 8- show video clip

Zimbardo believed that the experiment showed how the individual personalities of people could be swamped when they were given positions of authority. Social and ideological factors also determined how both groups behaved, with individuals acting in a way that they thought was required, rather than using their own judgment. The experiment appeared to show how subjects reacted to the specific needs of the situation rather than referring to their own internal morals or beliefs. The results of the experiment have been used in many high-profile court cases over the years, to try and show that a prison must have clear instructions and guidelines from higher level authorities, or prisoner abuse may occur.

Slide 9- Imagine this: As a child you and your whole family love Soccer, but as a child your parents tell you to stay away from kids who like Football because they are bad. So, you believe your parents, because you are a little kid and little kids trust their parents.

Slide 10- You eventually go to school, you run into kids who like Football, you talk to them, you play with them, you get to know them, and you realize that they really aren't that bad, in fact they are just like you are.

Slide 11- But you remember that your parents said that kids who like Football are bad. What you are

experiencing is called cognitive dissonance, you have two different competing cognitions. One that tells you kids who like Football are bad, and one that tells you kids who like Football are not bad.

Slide 12- What do you do? You have a couple choices: You could change your behavior, meaning that you could start playing with kids who like Football and interacting with them more. Or, you can change your attitude, meaning you could give up the competing cognition and accept that kids who like Football are bad. Unfortunately, because people tend to change their beliefs and attitudes to match their behavior, and since you are a kid whose parents dictate that your behavior cannot change (You are not allowed to play with kids who like Football.) This means that you will change your attitude to believe that kids who like Football are somehow bad.

Slide 13- In 1959 Leon Festinger was at Stanford University and did a study to examine Cognitive Dissonance. He stated that whenever we chose to do something that conflicts with our prior beliefs, feelings or values, a state of cognitive dissonance occurs- a tension between what we think and what we do. This tension causes us to change either our behavior or our beliefs to reduce the tension. 71 students in an introductory course at Stanford University participated in Festinger's experiment which was advertised as dealing with "Measures of Performance" The participants arrived for the experiment which consisted of tasks. They were told that since there would be some extra time after the tasks, they could use that time to give feedback on the tasks. The tasks were the most tedious the researchers could devise—putting spools on a tray then taking them off again then turning pegs a quarter turn clockwise. The purpose, not known to the participant, was to create a task so boring that it is almost guaranteed that the participant would form a negative opinion about it.

Slide 14- after the task, the researcher told the participant that the experiment consisted of two groups. In the other group, a student confederate prepared the participant by telling them how fun and exciting the tasks were. This is where the real experiment diverged into three groups. In the control group, the participants were simply sent to another room to complete a questionnaire asking about their level of enjoyment of the tasks. The other two groups, however, were asked a favor before filling out the task evaluation. The researcher told the remaining participants that he needed their help. The researcher said that the student confederate who was supposed to tell some of the participants that the task was fun and exciting did not show up, and asked the participant if he or she would be willing to play that role. The truth is, there was no student confederate. The remaining

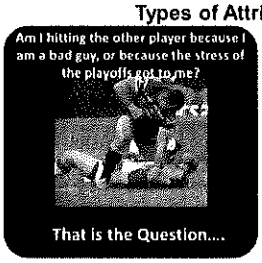
participants were told this and divided into two other groups or conditions: They were offered either one dollar or twenty dollars essentially to lie about how much they enjoyed the tasks to what they believed was another student. Participants were then paired with a real confederate student who asked the participant about the experiment. The participant said how great and enjoyable it was as instructed by the researcher. Afterwards, the participants filled out the same task evaluation form as the control group. Which group would report enjoying the tasks more and why? Other Theories might predict that the participant who is paid most would have the highest motivation for enthusing over the dull task, and would be most sold on it themselves. Cognitive Dissonance theory, leads to an exactly opposite prediction. The participant who is paid 20 dollars knows that the task is dull, but they also know that they have sufficient justification for saying that it wasn't. The participant who is paid 1 dollar knows the task is dull, but they also know that they do not have sufficient justification for saying that it wasn't. For them there is dissonance. Time after time, we have seen what follows. They reduce the dissonance by changing their opinion about the dullness of the task and deciding that they liked it.

Slide 15- Exit music/Instructions

Appendix F

Sports PWPT

Types of Attribution:



1. **Internal Attribution**: The process of assigning the cause of behavior to some internal characteristic, rather than to outside forces. For example, we attribute the behavior of a person or ourselves to their/our personality, motives or beliefs
2. **External Attribution**: The process of assigning the cause of behavior to some situation or event outside a person's control rather than to some internal characteristic

Example of internal Attribution: If a player on a sports team donates to a charity they are a good person.

Example of external attribution: If a player on a sports team donates to a charity they are just looking for a tax write-off/good publicity.

Fundamental Attribution Error:

overestimating the influence of personality and underestimating the influence of situations.

Rival Team= Bad person

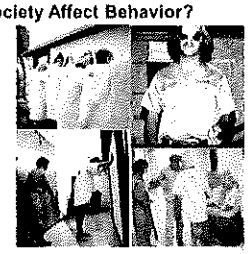
MY Team= Bad game

David Napolitan and George Goethals (1979) Study at Williams College
Told half the parbcipants they would be talking to a woman whose behavior was spontaneous, told the other half she would behave the way they had asked her to for the experiment

Results: If she was friendly they decided she was a warm person. If she was unfriendly she was a cold person

How Do Roles in Society Affect Behavior?

Stanford Prison Experiment- Phillip Zimbardo 1971



Imagine this: As a child, you and your whole family like soccer, and your parents who you trust, tell you that children who like football are bad.

When you get older, you go to school and there are kids who like football at school. You spend some time around them and realize that maybe they are not bad.

?

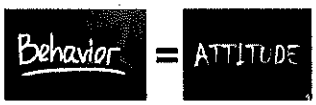
Your Parents:

= Bad Kid

YOU:

= Not Bad Kid

What Do You Do?



You remember you're parents said that kids who like football are bad. You are experiencing two different, competing, cognitions. The is called **Cognitive Dissonance**.

In 1959, Leon Festinger did a study to examine Cognitive Dissonance.
He stated that whenever we choose to do something that conflicts with our prior beliefs, feelings, or values, a state of cognitive dissonance occurs – a tension between what we think and what we do.

Had Participants turn wooden pegs:
Group 1 was paid $1
Group 2 was paid $20

At this time, please notify Experimenter that you have finished the video and are ready to complete the session.
Thank you!

Appendix G

Study Log

Please log how long you study each day:

Day 1_____

Day 2_____

Day 3_____

Day 4_____

Day 5_____

Day 6_____

Day 7_____

Appendix H

Demographic Survey

Gender:

Male__ Female __ Prefer not to say___

Age____

Education:

Freshman__

Sophomore__

Junior__

Senior__

Graduate Student__

Completed Masters___

Completed PhD____

Ethnicity:

Hispanic or Latino ____

Not Hispanic or Latino ___

Race:

American Indian or Alaska Native ____

Asian___

Black or African American____

Native Hawaiian or Other Pacific Islander___

White or Caucasian__

Other___

How much interest would you rate yourself as having in Psychology:

Dislike a great deal		Dislike a moderate amount			Neither like nor dislike		Like a Moderate amount			Like a great deal
0	10	20	30	40	50	60	70	80	90	100

Appendix I

Follow Up Survey

Reason for withdrawal from the study: (*please explain why you do not wish to continue to the final phase, if you are simply uncomfortable write that.)*

_____

_____

_____

_____

_____

_____

_____

_____

_____

On a scale of 0 to 4 where 0 is not interested and 4 is very interested, how interested are you in Social Psychology Concepts like those you were shown in the PowerPoint Presentation? (*please circle your answer)*

0-Not Interested 1-Slightly Interested 2-Interested 3-Mostly Interested 4- Very Interested

On a scale of 0 to 4 where 0 is Not likely and 4 is Very likely, how likely are you to take an interest based course for a general education requirement such as Psychology?

0-Not Likely 1-Slightly Likely 2- Neutrally Likely 3-Mostly Likely 4- Very Likely

Appendix J

Debriefing

Thank you for your participation in the study. Now I would like to explain the purpose of the study. We are attempting to ascertain if application of student interest to introductory courses will increase student motivation to study, and increase learning. Most introductory courses have high drop/fail/withdrawal rates, and we are suggesting that is because no interest in the information results in a lack of motivation on the student's part. Therefore, by offering courses that include themes based on general interests, (such as sports, comic books, video games, movies, music, etc.) perhaps it will increase motivation to learn and to complete the course.

If you experienced any anxiety during the study, you may contact the UCO Counseling Clinic, by phone, at (405) 974-2215 (or may visit the website, at http://www.uco.edu/student_counseling). This information is also provided on your copy of the consent form you signed prior to the study.

Thank you again for your participation. The researcher will answer any further questions about the research, now or during the course of the project, and can reached by telephone at: 405-520-7314 or e-mail: cburt3@uco.edu.

Appendix K

Quiz

Correct Answer Bolded, Subtest type listed below question.

1. In psychological research, a confederate is:

A) an experimenter who has prior knowledge that conditions unaccounted for in the study's design will affect the study's outcome.

B) someone who pretends to be a participant in a research experiment but actually works for the experimenter.

C) any variable that is held constant throughout the study and measured at the end.

D) an assigned group of participants who experience all aspects of the study except the independent variable.

Question Type: Definition

2. _____ are the inferences we make about the causes of other people's behavior.

A) Stereotypes

B) Biases

C) Attributions

D) Habits

Question Type: Definition

3. Which of the following is true about attributions?

A) An attribution is a biased attitude toward a group of people or an individual member of a group based on unfair generalizations about what members of that group are like.

B) Schemas of how people are likely to behave based simply on the groups to which they belong are known as attributions.

C) Attribution occurs when people yield to the social pressure of an authority figure.

D) Attributions are the inferences we make about the causes of other people's behavior.

Question Type: Definition

4. _____ attributions ascribe other people's behavior to something within them, such as their personality, motives, or attitudes.

A) Peripheral

B) External

C) Situational

D) Dispositional

Question Type: Definition

5. Which of the following is true about dispositional attributions?

A) We display a self-serving bias when we make dispositional attributions for our failures.

B) Dispositional attributions ascribe other people's behavior to something within them, such as their personality, motives, or attitudes.

C) Dispositional attributions rely on misleading cues.

D) Schemas about the social world are developed with the help of dispositional attributions.

Question Type: Definition

6. Professor Wagner told her psychology class that they must have performed poorly on their midterm exam because they were lazy and did not study. Professor Wagner's belief is an example of a(n) _____.

A) stereotypical comment

B) dispositional attribution

C) external attribution

D) self-serving bias

Question Type: Application

7. Which of the following is an example of dispositional attribution?

A) Ted blames the weather for his below-average performance at the local golf tournament.

B) Nelson attributes his injury at the construction site to defective helmets.

C) Rita's professor blamed her poor performance on her bad study habits.

D) Rick attributes his poor test score to the lack of desire to study hard.

Question Type: Application

8. People make _____ attributions when they think that something outside the person, such as the environment or circumstances, is the cause of his or her behavior.

A) dispositional

B) situational

C) general

D) internal

Question Type: Definition

9. Which of the following is true about situational attributions?

A) People make situational attributions when they think that something outside the person is the cause of his or her behavior.

B) Situational attributions rely on misleading cues.

C) Schemas about the social world are developed with the help of situational attributions.

D) People make situational attributions when they think that a person's character is the cause of his or her behavior.

Question Type: Definition

10. Which of the following individuals is making a situational attribution?

A) Randy finds dirty dishes in the kitchen sink and comments that his daughter was just too lazy to wash them after she ate.

B) Maureen tells her friends that her boyfriend could not choose a nice shirt to wear if it

came out of the drawer and bit him.

C) Marissa sees Chris trip and notes how clumsy he must be; she didn't see that the concrete of the sidewalk was crumbling.

D) Ted's girlfriend is late meeting his friends and him for dinner, and he tells the group that she is probably stuck in traffic.

Question Type: Application

11. Which of the following is an example of situational attribution?

A) Sean, a star athlete of his state, performs well in front of roaring support from the audience.

B) Naomi thinks she did not score a goal in the game because she hadn't practiced enough.

C) Jack teaches his little daughter to follow rules around the house by rewarding her for any good work done.

D) Alexia attributes her pitiable performance in the music concert to the poor sound system.

Question Type: Application

12. Making situational attributions for our failures but dispositional attributions for our successes is known as a _____.

A) normative social influence

B) out-group homogeneity

C) fundamental attribution error

D) self-serving bias

Question Type: Definition

13. The tendency to make dispositional attributions about others' behavior and ignore the context of the situation surrounding the behavior is called _____.

A) cognitive dissonance

B) the fundamental attribution error

C) out-group bias

D) informational social influence

Question Type: Definition

14. Which of the following is true about the fundamental attribution error?

A) The error is in making situational attributions for our failures and dispositional attributions for our successes.

B) People develop models, or schemas, about the social world, which function like lenses through which we filter our perceptions.

C) People tend to explain other people's behavior in terms of dispositional attributions rather than situational ones.

D) People make situational attributions for internal factors and dispositional attributions to external factors.

Question Type: Definition

15. Ashley and Donald are hiking in the mountains. When Donald trips over a rock, Ashley attributes it to his clumsiness. However, when she trips over the same rock, she blames it on the placement of the rock. This is an example of _____.

A) self-serving bias

B) conformity

C) fundamental attribution error

D) prejudice

Question Type: Application

16. Which of the following statements about cognitive dissonance is true?

A) It helps us explain why and how we change our attitudes.

B) The cognitive component of our attitude helps reduce the discomfort caused due to cognitive dissonance.

C) It is the feeling of discomfort caused by information that is at odds with one's conception of oneself as a reasonable and sensible person.

D) The perceived credibility of the character enhances the credibility of the product, hence reducing its cognitive dissonance.

Question Type: Definition

17. When explaining other people's behavior, the tendency to overemphasize personality traits and underestimate situational factors is referred to as the

A) Actor/Observer Bias

B) Fundamental Attribution Error

C) Ingroup/Outgroup Bias

D) Self-fulfilling Prophecy

Question Type: Definition

18. Larry says, "I forgot milk at the grocery store because I was thinking about picking my daughter up from school." When Larry's wife forgets to buy milk he says, "She forgot milk at the store because she's an airhead." This is an example of the

A) Actor/Observer Bias

B) Fundamental Attribution Error

C) Ingroup/Outgroup Bias

D) Just World Hypothesis

Question Type: Application

19. Casey eats a lot of junk food. She knows the negative consequences of her diet, but rationalizes her behavior by saying the junk food helps her deal with her anxiety. Casey is using this explanation because she is uncomfortable with the inconsistency between her actions and her beliefs and wants to reduce

A) Implicit Attitudes

B) Simple attitudes

C) Cognitive dissonance

D) Attitude accessibility

Question Type: Application

20. Brenden does not like psychology, but he is still taking an introductory psychology course. Due to cognitive dissonance, Brenden will probably have a(n) _____ attitude by the end of the semester.

A) more positive

B) more negative

C) neutral

D) unchanged

Question Type: Application

21. Lisa believes that drinking alcohol is wrong. However, her boyfriend, Mike, likes to drink beer after work. Instead of breaking up with Mike, she decides that drinking alcohol is not so bad after all. Lisa's attitude most likely changed because of

A) The fundamental attribution error

B) The actor/observer bias

C) postdecisional dissonance

D) cognitive dissonance

Question Type: Application

22. You are recruiting part-time tutors for and elementary school. Dissonance theory suggests that a successful strategy to increase the commitment of those tutors would be to pay them a

A) Salary that increases over time

B) small amount of money

C) Large bonus after three months

D) Large salary as soon as they start

Question Type: Application

23. Which of the following is illustrated in the Stanford Prison Experiment Study

A) People will behave according to their roles in a situation

B) People are innately, or naturally, violent, unless limited by society

C) People will not obey orders when the orders violate their principles

D) People placed in all male groups will establish a social hierarchy

Question Type: Application

24. Have you ever taken a college class that taught the above concepts? (please list class if so)

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25) In your current General Psychology class has your professor covered these concepts yet?

Appendix L

Final Survey

Please tell us how much time you spent studying the information in the packet between when you watched the PowerPoint presentation and when you returned today:

_____

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On a scale of 0 to 4 where 0 is not interested and 4 is very interested, how interested are you in Social Psychology Concepts like those you were shown in the PowerPoint Presentation? (*please circle your answer)*

0-Not Interested 1-Slightly Interested 2-Interested 3-Mostly Interested 4- Very Interested

On a scale of 0 to 4 where 0 is Not likely and 4 is Very likely, how likely are you to take an interest based course for a general education requirement such as Psychology?

0-Not Likely 1-Slightly Likely 2- Neutrally Likely 3-Mostly Likely 4- Very Likely

Appendix M

Additional Analysis

A curvilinear quadratic regression was calculated to predict depth of learning, measured as score on application subtest, based on interest, measured using a rating of sports (0 to 100). No significant regression equation was found ($F(2,72) = 0.89$, $p = .41$), with an R^2 of .02.

A curvilinear quadratic regression was calculated to predict depth of learning, measured as score on application subtest, based on interest, measured using a rating of sports (zero to 100). A significant regression equation was found ($F(2,72) = 3.07$, $p = .05$), with an R^2 of .08. Participants' predicted application subtest score is equal to -.01 + 0.68 (Interest), where interest is measured using a self-report rating on a scale of zero to 100. Participants' score on application subtest increased by 0.68 points for each increased reported point in interest. Interest was a significant predictor of depth of learning.

A multiple linear regression was calculated to predict depth of learning, measured as score on application subtest, based on age, education, and race. No significant regression equation was found ($F(7, 67) = 1.10$, $p = .38$), with an R^2 of .10.

A multiple linear regression was calculated to predict depth of learning, measured as score on definition subtest, based on age, education, and race. No significant regression equation was found ($F(7, 67) = 0.98$, $p = .46$), with an R^2 of .09.

A multiple linear regression was calculated to predict motivation to learn, measured as reported time spent studying, based on age, education, and race. A significant regression equation was found ($F(7, 112) = 2.46$, $p = .02$), with an R^2 of .13. Participants predicted motivation to learn is equal to 3.76 – 2.70 (education) + 0.78 (age)

+ 0.50 (interaction between education and age) – 2.34 (race) + 1.05 (interaction between age and race) + 0.51 (interaction between education and race) + .16 (three way interaction between education, age, and race). Participants study time decreased 2.70 hours for each year of education gained, increased 0.78 hours for each year in age that increased, and decreased by 2.34 hours depending on the participants' race. The interaction between age and race was the only significant predictor of study time.