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The University of Southern Mississippi

WHO WILL DEFY AUTHORITY?
PERSONALITY FEATURES AND DESTRUCTIVE
OBEDIENCE IN THE MILGRAM PARADIGM

by

Ashton Caroline Southard

Abstract of a Dissertation
Submitted to the Graduate School
of The University of Southern Mississippi
in Partial Fulfillment of the Requirements
for the Degree of doctor of Philosophy

ABSTRACT

WHO WILL DEFY AUTHORITY?

PERSONALITY FEATURES AND DESTRUCTIVE
OBEDIENCE IN THE MILGRAM PARADIGM

by Ashton Caroline Southard

May 2014

The present study examined the potential role of individual differences in personality in the likelihood of engaging in destructive obedience to authority within a modified version of the Stanley Milgram paradigm (Milgram, 1963, 1974). Personality features examined included the Big Five dimensions of agreeableness, openness, neuroticism, conscientiousness, and extraversion, and the dimensions of the Dark Triad, which consist of narcissism, psychopathy, and Machiavellianism (Paulhus & Williams, 2002). Participants were 39 undergraduates enrolled in introductory psychology classes who participated in exchange for partial fulfillment of a research requirement. Data were collected in two phases. Phase 1 consisted of online completion of personality measures. Phase 2 consisted of an in-person laboratory session in which participants engaged in an ostensible learning task. Via a rigged drawing, participants were always assigned the role of “Teacher” and an actor posing as another participant was always assigned the role of “Learner.” Participants were tasked with conducting a paired-associates learning test consisting of 15 trials with the Learner via a computer. Participants were also instructed to administer escalating electric shocks as punishment to the Learner for every incorrect response. Each time participants indicated reluctance to continue with the learning task the Experimenter would urge them to continue by issuing a series of four increasingly

demanding prods. The session ended if the participant refused to continue after the Experimenter had issued all four prods on a single trial or if the participant continued to trial 15. In reality, no electric shocks were actually administered and all of the Learner's responses were prerecorded. Results of logistic regression analyses revealed no meaningful associations between obedience and personality features. Due to low variability in rates of obedience, two additional variables were computed, which reflected participants' reluctance to obey. The first variable reflected the number of prods from the Experimenter each participant required during their session and the second variable reflected the trial on which participants required the first prod. Regression analyses revealed that only the Big Five dimension of conscientiousness significantly associated with participants' reluctance to obey, such that individuals higher in conscientiousness were more reluctant to obey the Experimenter.

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A Dissertation
Submitted to the Graduate School
of The University of Southern Mississippi
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for the Degree of Doctor of Philosophy

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CHAPTER I

LITERATURE REVIEW

“When you think of the long and gloomy history of man, you will find more hideous crimes have been committed in the name of obedience than have ever been committed in the name of rebellion.” (Snow, 1961, p. 24)

Obedience to authority is an important construct interwoven into many aspects of various cultures around the world (Milgram, 1974). The field of social psychology became interested in the study of obedience during the 1960s and 1970s following the events of World War II. Stanley Milgram conducted a series of studies examining the conditions under which individuals would follow the orders of an authority figure to ostensibly administer severe electric shocks to an individual claiming to suffer from a heart condition (Milgram, 1974). In reality, the individual participants believed to be receiving the shocks was a paid actor serving as a confederate in the study and no shocks were actually administered. Milgram’s unsettling findings revealed that the majority of individuals in his studies continued to administer increasingly severe electric shocks despite the protests of the confederate. While Milgram’s research has long been cited as evidence for the power of situational pressures to influence behavior, it remains that some individuals obey while others do not (Blass, 1991). Therefore, it seems likely that some of the variability in obedience may be explained by individual differences in personality features (Burger, 2009). The present study examines individual differences in the Big Five personality dimensions of agreeableness, conscientiousness, openness, extraversion, and neuroticism and the Dark Triad dimensions of narcissism, psychopathy, and

Machiavellianism as possible mechanisms of obedience within the Stanley Milgram paradigm.

Introduction to Obedience

Obedience refers to a form of social influence in which a person yields to explicit instructions or orders from an authority figure (Colman, 2009). Obedience to authority is a basic concept that is inherent in the functioning of all societies and has been regarded as a component contributing to both positive and negative events in the realm of human relations (Milgram, 1974). In nearly all societies, obedience emerges early in childhood. As children are socialized, they learn to comply with the requests of adults either to avoid punishment or to gain some sort of reward (Carlsmith, Lepper, & Landauer, 1974). With age, children come to understand that obeying the rules of legitimate authorities is important in ensuring the smooth functioning of various social situations. For example, children come to understand that it is important to obey the rules of teachers in a school setting and to obey the rules of their parents while at home (Laupa, Turiel, & Cowan, 1995). Socialization theories posit that children, under the influence of familiar authority figures, adopt the social norms of their culture. As they get older, children are expected to conform more and more to the social norms of their culture. In contrast, cognitive developmental theories suggest that young children adhere unquestioningly to adult authority and become more and more autonomous in their thought and actions as they get older. As adults, individuals may accept and comply with authority or may reason autonomously about requests from authority figures depending on the context and nature of the requests (Laupa et al., 1995). Although there are differences in these two theories

of the development of obedience, both illustrate how the development of obedience begins in childhood and continues into adulthood as it becomes part of normal behavior.

In adulthood, obedience plays a major role in the functioning of society (Blass, 1999). On average, adults comply with rules set forth by the authorities in their culture. For example, Americans stop their cars for red traffic signals, pull their car to the side of the road for emergency vehicles, pay taxes set forth by the government, and readily accept the consequences for non-compliance to these rules. People stop in airports to be searched before boarding a flight, pay fines for parking violations, and submit to drug tests and background checks prior to being hired for an occupation. Thus, obedience to legitimate authority is part of everyday life for individuals in various cultures. In this way, obedience to authority can be seen as inherent in the functioning of societies around the world (Milgram, 1974).

However, in some situations, obedience can lead to very negative outcomes. Obedience to authority has been implicated in numerous destructive events over the years. Indeed, history is full of tragic and horrific acts committed by individuals who were “just following orders.” Among these instances is the atrocious slaughter of millions of innocent people during the Holocaust. The phrase “I was only following orders” has come to be automatically associated with soldiers, officers, and government personnel of Nazi Germany. Following the fall of the Nazi empire, this phrase was employed as a defense in many trials held round the world. Perhaps the most notable use was in the trial of Klaus Barbie who was convicted of a number of war crimes including sending over 40 Jewish children from a children’s home in France to their death in the gas chambers of Auschwitz (Kelman & Hamilton, 1989). Another haunting instance of the dangers of

obedience occurred during the Vietnam War. On March 16, 1968, in an incident that has come to be known as the Mỹ Lai massacre, American soldiers assigned to Charlie Company attacked and killed over 500 innocent women, children, and elderly men under the orders of their commanding officers (Kelman & Hamilton, 1989; Laupa et al., 1995). More recently, obedience has been implicated in the tortuous actions of the 800th Military Police Brigade stationed at the Iraqi prison camp Abu Ghraib in 2004 (Bartone, 2004; Fiske, Harris, & Cuddy, 2004). The emergence of images in the media depicting American soldiers subjecting Iraqi prisoners to various forms of physical, psychological, and sexual abuse were shocking to many. Some individuals were quick to blame these actions on “a few bad apples.” However, others have stressed that the explanation for these actions is much more complex. Social psychologists have pointed out that the peers of these soldiers and their superior officers in charge at Abu Ghraib should be implicated as well (Fiske et al., 2004). Classic studies in social psychology (e.g., Haney, Banks, & Zimbardo, 1973; Milgram, 1974) have shown that obedience, conformity, and social influence are prevailing forces that can lead individuals to behave in ways that are harmful to others (Bartone, 2004).

Another well-known incident resulting from obedience is the tragic crash of the space shuttle *Challenger*, which killed all seven astronauts onboard on the morning of January 28, 1986. Prior to the morning of *Challenger's* launch, National Aeronautics and Space Administration (NASA) officials were warned twice that proceeding with the launch as scheduled would be disastrous (Kelman & Hamilton, 1989; Maier, 2002). On the night before the scheduled launch a telephone conference was held between Morton-Thiokol—the manufacturer of *Challenger's* rocket boosters—and NASA officials. During

the conference Morton-Thiokol instructed NASA officials not to launch *Challenger* the following morning because their engineers had determined that the low temperatures projected (29°) would cause the seals between sections of the rocket to fail. Rather than heed this warning, NASA officials argued against it and eventually the Morton-Thiokol managers were pressured into going against the recommendation of their engineers and withdrew their suggestion to postpone *Challenger's* launch (Rogers, 1986). Thus, the disaster could have been avoided had the Morton-Thiokol managers not conformed to NASA officials by obeying their demands to approve the launch. A second warning came the morning of the launch when Rocco Petrone—the senior official of Rockwell which was another contractor for the *Challenger*—found chunks of ice on the support structure of the shuttle. Petrone sent word to NASA officials stating that, in the opinion of Rockwell, it was not safe to launch *Challenger*. Again, this warning was not heeded by NASA officials who insisted that Rockwell had not requested that the launch be postponed (Rogers, 1986). Maier (2002) has suggested that the climate surrounding NASA leading up to the *Challenger* disaster was one of distortion, "... in which bad news was routinely 'submerged' or 'doctored' so as not to threaten the top brass's intention of accelerating the flight schedule..." (p. 283). Further, Maier suggests that there is evidence that NASA officials were pressured by the Regan administration to launch *Challenger* on the morning of January 28th for two main reasons. First, this would allow the president to include the successful launch in his State of the Union Address scheduled for later that day. Second, as originally introduced in Reagan's 1984 reelection campaign, one of *Challenger's* passengers—a civilian school teacher named Christina McAuliffe—was scheduled to give a widely publicized "Lesson From Space" the following Friday. If the

launch had been postponed by even one day, the president would not have been able to mention it in his speech and the “Lesson From Space” would not have occurred on a school day. Thus, it appears that obedience to the pressures from authority figures, whether it was NASA officials or the presidential administration, played a role in the tragic crash of the space shuttle *Challenger*.

The dangers of obedience also exist outside of military and government settings. Between 1971 and 1976 the Ford Motor Company knowingly manufactured and sold vehicles with a dangerous flaw in design. Ford engineers expressed concern to higher executives regarding the location and design of the gas tank on the Pinto model, which posed a danger in that it was likely to rupture in low-speed rear-end crashes. Ford executives, concerned with a competitive market, ignored suggested modifications to the Pinto’s design and sold over 1.5 million dangerously flawed vehicles. The executives at Ford handed down the orders to manufacture these defective vehicles, which individuals at lower levels of the company followed despite knowledge of the dangerous implications of their actions. Numerous lawsuits were filed against the Ford Motor Company and numerous avoidable injuries and deaths resulted from the flawed design of the Pinto’s gas tank, including the tragic burn deaths of three teenage girls (Kelman & Hamilton, 1989).

The danger of unquestioning obedience to authority in nongovernmental settings is not limited to the authority of high-powered company executives. Some individuals are often recognized as legitimate, trusted authority figures. Medical doctors are typically recognized as figures of authority, especially in hospital settings. Generally, doctors are legitimate authority figures who are trusted to care for their patients and have their best interests at heart. However, doctors do make mistakes and due to the nature of their

occupation these mistakes can be very harmful. Individuals who are in place to recognize the potential mistakes of doctors include nurses, among other individuals. However, nurses may be reluctant to disagree with a doctor even when they are aware a mistake has been made due to the doctor's perceived authority. Hofling, Brotzman, Dalrymple, Graves, and Pierce (1966) conducted a study investigating this possibility in which hospital nurses were instructed by a doctor via telephone to administer an "obviously excessive" dose of medication to a patient (p. 171). The doctor's request should have been recognized as absurd and an obvious mistake for several reasons. First, ordering medication over the phone was not allowed by hospital policy. Second, the medication ordered by the doctor was not approved by the hospital for use. Third, the nurse was unfamiliar with the doctor making the request. And fourth, the dose requested by the doctor was twice the maximum daily dose listed on the medication's container. Twenty-two nurses, 10 from a private hospital and 12 from a municipal hospital, received phone calls from a man claiming to be "Dr. Hanford," who explained that he was coming in to see a patient and would like the patient to have received 20 milligrams of an unusual medication prior to his arrival. The requested medication, "Astroten," was in reality a placebo; however, the nurses were led to believe that it was a real medication. The bottle containing the ostensible drug indicated the maximum daily dose was 10 milligrams; thus, the nurses were aware that the doctor had requested twice the maximum amount. The results indicated that 21 of the 22 nurses would have administered the medication (i.e., the nurses were stopped and debriefed just prior to entering the patient's room). Thus, almost all of the nurses in this study would have obeyed the request of the unfamiliar doctor despite explicit knowledge that the request was against hospital policy,

that the medication had not been approved for use by the hospital, and that the requested dose was twice the daily maximum.

Airline pilots are also individuals who are viewed as legitimate, trusted authority figures. Airplane passengers and flight crew members trust pilots to safely operate aircrafts and exercise good judgment while in the air. However, pilots can make errors and obedience to the authority of a pilot who has made an error during flight can result in catastrophe. Crew members who possess enough knowledge to monitor the actions of pilots and potentially call attention to any errors made include first officers (i.e., co-pilots) and, on some flights, flight engineers. However, as pointed out by Tarnow (2000), first officers are often unlikely to address errors or challenge the authority of the pilot. Indeed, the National Transportation Safety Board has documented that rates of obedience among first officers is unsettlingly high even after the realization that a pilot has made an error (Tarnow, 2000). The National Transportation Safety Board (1994) conducted an investigation of airplane accidents between 1978 and 1990 in which the actions of the flight crew were involved as contributors to the accident. The investigation determined that 37 of the 75 accidents were caused or contributed to by the actions of the flight crew. Further, of these 37 accidents, 80% involved an error in which the first officer, or another cockpit crew member, did not challenge the pilot after an obvious error had been made. Tarnow (2000) suggests that failure to challenge the pilot after an error has been made is likely due to the perceived authority of the pilot. Thus, given that the original number of airplane accidents was 75, it can be estimated that as many as 25% of accidents were caused by obedience to the authority of the pilot (Tarnow, 2000).

As discussed above, obedience to authority is a concept that is central to the functioning of all societies (Milgram, 1974), however, obedience is also a central component in various instances of destruction and tragedy (Kelman & Hamilton, 1989). Obedience has been implicated in destructive actions carried out by a wide range of institutions including military (Bartone, 2004; Fiske et al., 2004; Kelman & Hamilton, 1989; Laupa et al., 1995), government (Kelman & Hamilton, 1989; Maier, 2002; Rogers, 1986), private business (Kelman & Hamilton, 1989), health care (Hofling et al., 1966), and airlines (Tarnow, 2000). Thus, it is clear that obedience to authority is an important concept that warrants scientific investigation in order to further understand the underlying mechanisms leading individuals to obey authority figures, even when obedience entails harm to another individual.

Stanley Milgram's Obedience Studies

The first, and most widely known, investigations of obedience were conducted by Stanley Milgram in the 1960s and 1970s (see Blass, 1991 or Miller, 1986, for reviews). Even though Milgram's research was conducted quite some time ago, his work continues to be referenced in a wide array of disciplines, both in and outside of psychology, as well as in the popular media (Blass, 2004). Milgram conducted multiple investigations of obedience, with varying methods and manipulations; however, the most widely known and most relevant to the current study is Experiment 5 (Milgram, 1963, 1974). Experiment 5 was conducted in 1961 and involved male participants varying in occupation. Participants responded to a newspaper advertisement offering \$4.50 in exchange for participation in an experiment regarding human memory and learning. Upon arrival at the laboratory at Yale University, participants were greeted by a middle-

aged male Experimenter and met another male participant, who was in actuality a trained confederate. Through a rigged drawing, the actual participant was always assigned the role of “Teacher” and the confederate was always assigned the role of “Learner,” and the Experimenter explained that the study was designed to examine the effects of punishment on learning. Next, the participant observed the Experimenter strap the confederate Learner into a chair—to “prevent excessive movement”—and place electrodes on his arm (Milgram, 1974, p. 19). The Experimenter stated to the Learner that his task was to remember a list of word pairs and that he would receive an electric shock as punishment every time he made an error on a paired associate learning task and that the shock would increase in intensity with each subsequent error. At this point, the Learner states to the Experimenter that he has been diagnosed with a heart condition and asks if the shocks are dangerous. The Experimenter responds in a dismissive tone that the shocks are painful but will cause no tissue damage.

In an adjacent room to the Learner, the participant Teacher was seated in front of a shock generator on which there were 30 switches ranging from 15 to 450 volts. The switches were labeled by voltage as well as verbal designations ranging from “SLIGHT SHOCK” to “DANGER – SEVERE SHOCK” (Milgram, 1974, p. 20). The Teacher was then instructed to conduct a learning test with the Learner in the adjacent room over an intercom. For items the Learner answered correctly, the Teacher was to move on to the next item. However, when the Learner gave an incorrect answer the Teacher was to administer an electric shock as punishment. Teachers began with the lowest shock (15 volts) and moved up one step on the shock generator for each successive incorrect answer. Importantly, the Learner was a paid actor who, in reality, received no shocks at

all, but the Teacher was an actual naïve participant who truly believed that the Learner was receiving painful electric shocks. In order to solidify participants' beliefs in the reality of the situation, each participant was given a sample shock from the generator. Each sample shock of 45 volts was administered to the participants' wrist by pressing the third lever on the shock generator.

The true purpose of the study was to examine how long an individual would continue to obey an authority figure (i.e., the Experimenter) and inflict increasing pain on another individual despite their cries of protest. According to Milgram (1974), the participant experienced an internal conflict during the procedure between the desire to stop the experiment due to the perceived harm and pain of the Learner and the commitment to obey a legitimate authority figure. With each increasingly severe shock, the participant was able to hear the Learner's escalating cries of discomfort: after the 75 volt shock the Learner grunted, after the 120 volt shock the Learner stated his discomfort, after the 150 volt shock he stated that he no longer wished to continue the experiment, and after the 285 volt shock the Learner's responses were only screams of pain. However, each time the participant hesitated to administer a shock or gave any indication of a reluctance to proceed, the Experimenter would use a sequence of four increasingly demanding prods in order to persuade the participant to proceed. Upon each indication of reluctance to continue with the experiment, the Experimenter would begin with the first prod and would give each successive prod until the participant obeyed and continued the learning task or still refused to continue following the fourth prod, at which point the experiment was terminated. The order of the successive prods was as follows: "please continue" or "please go on," "the experiment requires that you continue," "it is absolutely

essential that you continue,” and lastly, “you have no other choice, you *must* go on” (Milgram, 1974, p. 21). Further, the Experimenter also used a series of special prods to address specific questions participants might ask. If a participant asked the Experimenter if the Learner could suffer permanent physical harm, the Experimenter responded “although the shocks may be painful, there is no permanent tissue damage, so please go on” (Milgram, 1974, p. 21). And if necessary this response would be followed by prods two, three, and four. Also, if a participant commented that the *Learner* no longer wished to continue, the Experimenter would respond “Whether the Learner likes it or not, you must go on until he has learned all the word pairs correctly. So please go on” (Milgram, 1974, pp. 21-22). Again, if necessary this response would be followed by prods two, three, and four.

Surprisingly, the results indicated that 65% of participants in the study continued to administer shocks to the Learner all the way to the end of the shock generator’s range of 450 volts (Milgram, 1974). These unsettling findings have had a lasting impact on the field of psychology as a whole, and discussions of Milgram’s research are included in most, if not all, social psychology textbooks. Indeed, these studies continue to be one of the most infamous and widely known investigations in psychology (Burger, 2009).

Ethical Issues

Milgram’s obedience research contributed to many changes in the field of psychology, notably in the area of research ethics (Benjamin & Simpson, 2009). Soon after Milgram’s original studies, many ethical issues were raised regarding the well-being of participants, the use of deception, and informed consent (Miller, 1986). Within a year of Milgram’s first publication of the obedience studies, psychologist Diana Baumrind

(1964) published an article in *American Psychologist* criticizing the ethics of the obedience studies. Baumrind criticized Milgram's ethics on several grounds, her central concern being the psychological stress experienced by the participants (Miller, 1986). Focusing on the distress experienced by Milgram's participants, Baumrind argued that the possible long-term psychological harm caused by participation in the obedience studies—such as loss of dignity and lowered sense of self-esteem—out-weighed the possible benefits of the knowledge to be gained (Baumrind, 1964).

In a reply to Baumrind, Milgram (1964) addressed her concern for participants' long-term well-being in several ways. First, the results of a follow-up questionnaire indicated that, overall, 84% of participants reported being "very glad to have been in the experiment," 15% reported neutral feelings, and 1.3% indicated negative feelings (Milgram, 1964, p. 849). Next, Milgram reported participants' feelings toward this type of research, with 80% indicating that more studies of this sort were very important and more should be conducted in the future and 74% indicating that after participation in the study they had learned something important about themselves. Further, approximately one year after their participation, 40 participants underwent a psychiatric interview with an impartial medical examiner. The examining psychiatrist, Paul Errera, conducted interviews with these participants. Errera concluded that, although some participants recalled being distressed during the study, none showed signs of psychological harm resulting from their participation. Additionally, he reported no evidence of any lasting negative impact on the participants. Milgram argued that these findings were evidence that the distress experienced by participants during the study quickly disappeared and was not harmful to their psychological well-being (Milgram, 1964). Further, a replication of

Milgram's study which aimed to investigate both the immediate and long-term effects of participation in the obedience studies found there was no evidence of negative psychological effects resulting from participation (Ring, Walliston, & Corey, 1970).

Following the 1964 exchange between Baumrind and Milgram, many social scientists took stances on the ethical issues involved in the obedience studies and behavioral researchers became significantly interested in ethics in the laboratory (Miller, 1986). By the time the full description of Milgram's studies were published in his book, *Obedience to Authority: An Experimental View*, changes in the regulation of research practices were occurring that would make replications of the studies very difficult (Blass, 2009; Milgram, 1974). Two significant developments, the American Psychological Association's 1973 publication of *Ethical Principles in the Conduct of Research with Human Participants* and the National Research Act (1978), led to the requirement for all research involving human participants to be evaluated and approved by institutional review boards (IRBs), the requirement of informed consent of participants, and the minimization of risk to participants. Due to these new regulations, replications of Milgram's studies ceased (Blass, 2009; Werhane et al., 2011).

Alternative Methodologies for Studying Obedience

Although true behavioral replications of Milgram's studies were not permitted due to ethical concerns, multiple authors have attempted to study obedience to authority using other methodologies. A virtual simulation methodology was employed by Slater and colleagues (2006) in which participants were asked to administer increasing levels of shock to a virtual female Learner. Participants were seated in a dimly lit room with a projection device placed on their head and an electric shock machine with 20 voltage

levels was placed on a table in front of them. The image of a woman seated with her arms restrained to the arms of her chair was projected onto a blank wall via the device attached to the participants' heads. Participants were instructed to conduct a paired associate word test with the virtual woman and to administer electric shocks increasing in voltage to her after each incorrect response she gave by selecting the appropriate shock level on the electric shock machine. The participants experienced heightened levels of stress during the study despite the knowledge that the Learner was not a real person. However, despite heightened levels of stress, the majority of participants (17 of 23) obeyed the Experimenter and administered all 20 shocks to the virtual Learner. Those participants who refused to obey the Experimenter did so on the later trials of the procedure.

The research of Slater et al. (2006) is indeed provocative and supports the utility of virtual environments in psychological research; however, the authors do acknowledge that their study "did not address Milgram's hypothesis about destructive obedience" (p. 39). Specifically, the type of obedience involved in Milgram's (1963, 1974) research is of a destructive nature and entails obeying a legitimate authority figure when obedience to that authority means harming another person. Given that the participants in the study conducted by Slater and his colleagues were acutely aware that both the shocks as well as the Learner were not real, this research does not truly address Milgram's conception of destructive obedience.

Another study involving an immersive video environment was conducted by Dambrun and Vatiné (2010) using a sample of French college students. In contrast to research in which the Learner was a virtual computer simulation, Dambrun and Vatiné used video of a real person. However, similar to Slater et al. (2006), all participants were

made aware that the procedure was only a simulation. Upon arrival at the laboratory, participants completed measures assessing state anxiety, state-anger, trait-anger, right-wing authoritarianism, and depression. Next, participants were seated at a computer and shown a series of slides. First, the slides informed the participants that everything they were about to see was completely artificial (i.e., the shocks and the Learner's reactions were all prerecorded). Second, the slides explained that they were about to take part in a study investigating the effects of punishment on learning, which would involve a paired associate learning task. Next, participants were told that each time the Learner gave an incorrect response on the learning task they were to administer an electric shock that would increase in intensity with each successive incorrect response. Participants were then shown a recording of an Experimenter strapping a Learner into a chair and placing an electrode on each of his arms. The Experimenter then read a list of word pairs to the Learner.

In the final phase of the procedure, participants watched as an Experimenter read a word (e.g., blue) and four answer choices to the Learner, and shortly afterward the word appeared on the computer screen along with the correct answer choice (e.g., sky). Then participants heard the Learner give his response, which was also presented on the computer screen in a box labeled "result." Then the participants were to indicate whether the response was correct or incorrect by pressing the corresponding button on the computer screen. When the Learner's response was incorrect and participants pressed the corresponding incorrect button on the screen they heard an "electric buzzing sound" and an "electric discharge sound" (Dambrun & Vatiné, 2010, p. 765). This study also included two conditions. In the "visible" condition participants saw and heard the Learner

respond to the shocks simultaneously with the “electric discharge sound,” and in the “hidden” condition participants only heard the reaction of the Learner. The intensity of the Learner’s reaction rose with the intensity of the shock administered. If a participant expressed at any point that they did not wish to continue the procedure, an Experimenter would respond with the first two prods originally used by Milgram. First, the Experimenter would respond “please go on;” if the participant still refused to continue, the Experimenter would respond “the experiment requires that you continue” (Dambrun & Vatiné, 2010, p. 765). If a participant refused to continue after the second prod the experiment was discontinued.

Results indicated that in the visible condition 62.5% of participants obeyed the Experimenter and administered all the electric shocks to the Learner. Additionally, the authors found that the greater participants’ level of state-anger and right-wing authoritarianism the higher the level of shock–voltage they administered to the Learner, meaning those participants who reported the higher levels of state-anger and right-wing authoritarianism displayed the highest levels of obedience. Although these results are provocative, the procedure used by Dambrun and Vatiné differs from that of Milgram’s original studies in several ways. First, participants were made explicitly aware that they were taking part in a prerecorded simulation. Participants were aware throughout the study that neither the shocks nor the Learner’s reactions were real. Thus, this study, similar to the research of Slater et al. (2006), did not exactly match Milgram’s conception of destructive obedience. Second, the Experimenter in this study only gave two prods in response to participants’ reluctance to continue, meaning that participants only needed to indicate three consecutive times that they no longer wished to continue to be considered

disobedient. In contrast, the Experimenter in Milgram's original study issued four prods, which meant that participants had to indicate five consecutive times that they no longer wished to continue in order to be deemed disobedient. Thus, in the research of Dambrun and Vatiné (2010) the threshold for disobedience was somewhat lower than in Milgram's original studies.

Other studies have assessed obedience to an authority figure who requests that participants give increasingly harsh verbal feedback and rude remarks to an individual who is obviously upset (Bocchiaro & Zimbardo, 2010; Meeus & Raaijmakers, 1995). Bocchiaro and Zimbardo (2010) conducted a study in which participants worked with a confederate on solving a series of logic problems. Participants were assigned the role of "coach," which entailed assisting the confederate "performer" to solve the problems by giving personal feedback. Personal feedback was given by the participants to the confederate in the form of harsh negative comments regarding his performance on the logic problems as well as rude remarks regarding his general ability. The Experimenter was not physically present during the study and only the participants were able to communicate with him during this time via a headset with microphone. The authors state that this situation is one that is likely to produce higher rates of disobedience because participants are in direct contact with the confederate throughout the trials, which requires them to make the harsh statements directly, and the Experimenter (i.e., authority figure) is not physically present during the trials. Participants also completed a measure of personality that included the dimensions of Extraversion, Agreeableness, Conscientiousness, Emotional Stability, and Openness. It was hypothesized that participants' decisions to obey or disobey the Experimenter would be primarily

determined by the situation. Thus, the authors expected no relationship between dimensions of personality and obedience rate. The results confirmed the authors' expectations, as only 30% of participants obeyed the Experimenter and gave all 15 harsh remarks to the confederate. Additionally, there were no statistically significant differences between participants who obeyed and those who disobeyed on measures of personality.

The research of Bocchiaro and Zimbardo (2010) differs from Milgram's conception of destructive obedience. First, the "harm" that participants believed they were inflicting was of an emotional and psychological nature, as opposed to physical harm. Milgram's (1974) participants were led to believe they were inflicting physical harm via the administration of electric shocks to the Learner. Additionally, participants were also aware that the Learner suffered from a heart condition, which implies that the electric shocks could possibly cause long-term physical harm. Thus, Milgram's study may have led participants to perceive the situation as more serious because of the possibility of physical harm to the Learner. Next, Bocchiaro and Zimbardo (2010) specifically designed their study to examine those individuals who defy authority. As such, the authors took precautions to increase the likelihood of disobedience, which included removing the presence of the Experimenter during the procedure and requiring participants to make the harsh punishing remarks directly to the confederate in a face-to-face situation. Milgram systematically altered the proximity of the Learner to both the Experimenter and the Learner in his original obedience research. The most relevant version of the paradigm for the present study was Study 5 in which the Experimenter remained in the room with the Teacher throughout the procedure and the Learner was

placed in a separate room and interacted with the participant via an intercom. Thus, the procedures used by Milgram differ in key aspects from the research of Bocchiaro and Zimbardo (2010). Further, regarding the null personality findings, it may be possible that there were too few obedient participants (9 of 30) to reveal significant differences. Indeed, the authors acknowledge that given their small sample size, the difference in personality between those who were obedient and those who were not would need to be substantial in order to reach significance. Thus, it may be possible that individual differences in personality may emerge in a larger sample.

Other research has utilized an occupation scenario in which participants are instructed to act as a business executive and make hiring recommendations for the business (Brief, Buttram, Elliott, Reizenstein, & McCline, 1995). Brief et al. (1995) instructed participants to play the role of the Chief Financial Officer (CFO) of a restaurant chain, which required them to make several decisions for the business, including hiring a new Vice President (VP) of Human Resources. Participants were given the application profiles of several candidates for the position that included the race of the candidate (White or Black). Candidate application profiles were constructed such that each candidate was equally qualified for the VP position. Participants read instructions—written by the president of the company—for hiring the new VP, which included a manipulation that created three separate conditions. In the “pro-White” condition participants were instructed not to hire a Black person, in the “pro-Black” condition participants were instructed not to hire a White person, and in the control condition participants received no instruction regarding the race of the candidates. Additionally, half of participants were informed that multiple executives in the company, including the

president, would review their recommendations (high observability), and the other half of participants were informed that no one else would be made aware of their recommendations (low observability). The results indicated that participants made hiring recommendations on the basis of race when instructed to do so by an authority figure (i.e., the president of the company). Interestingly, the obedience results were unaffected by observability, which indicates that hiring recommendations were made according to race regardless of whether or not participants believed other individuals would be made aware of their decisions (Brief et al., 1995).

Although the research of Brief et al. (1995) does indicate that obedience to an authority figure is likely to occur even if it entails racial discrimination, it does not address destructive obedience per se. Participants in this study were not led to believe that they would actually be harming anyone; although they were aware that there may have been racial discrimination inherent in their task, there was no actual risk of harm to the ostensible job applicants because participants in this study were explicitly aware that the job applicants and the company were fictional. Thus, throughout the study participants knew that their hiring decisions would not actually affect anyone.

The studies discussed above have undoubtedly contributed to our knowledge regarding obedience in a number of ways; however, the studies of Slater et al. (2006), Dambrun and Vatiné (2010), Bocchiaro and Zimbardo (2010), and Brief et al. (1995) do not directly examine Milgram's concept of *destructive* obedience to authority and differ from the Milgram's paradigm in several ways. First, participants in the study of Slater et al. (2006) were aware that their decisions to obey the authority figure (i.e., continuing to administer electric shocks to a virtual woman) were not actually harming a real person.

The same is true of the participants in the Brief et al. (1995) study because participants were aware that their decisions to obey the authority of a president of a fictional company to hire a job candidate on the basis of race would not actually harm a real individual. Thus, participants in the studies of Slater et al. (2006) and Brief et al. (1995) may have been more likely to obey the authority figure because they were aware that obedience would not actually cause any harm to a real person. In Milgram's original obedience studies, participants actually interacted with the Learner directly during the orientation to the study and the learning trials. Thus, participants were aware that the individual they believed they were harming was a real person. Next, in the research of Bocchiaro and Zimbardo (2010), the harm that participants believed they were causing was of an emotional/psychological nature, differing from Milgram's original studies in which participants believed they were inflicting physical harm on the Learner. Further, Bocchiaro and Zimbardo's absence of significant differences in personality dimensions between obedient and disobedient participants may be due to the small size of their sample. It is also possible that personality may play a different role in obedience to inflict emotional/psychological harm and obedience to inflict physical pain.

Ethical Developments in Obedience Research

Today, most scientists agree that exact replications of Milgram's studies are well out of bounds given current ethical guidelines and, as a result, no replications of Milgram's procedure were attempted for more than three decades (Benjamin & Simpson, 2009; Burger, 2009). However, Burger (2009) conducted a partial replication of Milgram's procedures employing what has been called "the 150-volt solution" (e.g., Miller, 2009, p. 22). The 150-volt solution was proposed by Packer (2008) in a meta-

analysis of Milgram's original studies. Packer analyzed the relationship between level of shock and the likelihood of terminating participation across eight of Milgram's original studies. The results indicated that the largest proportion of participants who disobeyed the Experimenter and ended their participation (39%) did so at the 150-volt point. More specifically, Burger (2009) points out that of the 40 participants in Milgram's fifth study, described previously, only 14 stopped before reaching the end of the shock generator's range of 450 volts and of these 14, six stopped at the 150-volt point. Only seven participants who continued after the 150-volt shock stopped at all. In other words, 79% of participants who continued with the study past the 150-volt shock continued all the way to 450-volts (Burger, 2009). This level of shock is a significant point in the study because, although the Learner has expressed pain and discomfort after prior shocks, this is the first time that the Learner explicitly expresses that he does not wish to continue the session. Thus, it appears that the 150-volt point can be considered as a "point of no return" (Burger, 2009, p. 2).

Burger (2009) suggested that the 150-volt point could be used as an ethical solution in conducting research in the Milgram paradigm. He reasoned that, "knowing how people respond up to and including the 150-volt point in the procedure allows one to make a reasonable estimate of what they would do if allowed to continue to the end" (Burger, 2009, p. 2). Further, preventing participants from delivering punishments after the 150-volt point side-steps the later trials during which Milgram's participants experienced higher levels of distress. Thus, for participants who continue to the 150-volt point, ending the session quickly after a participant chooses to proceed to the next trial following the 150-volt shock, avoids the more intense stress experienced by Milgram's

participants while allowing reasonable estimates to be made about participants' further obedience (Burger, 2009).

Individual Differences and Obedience

Milgram's obedience studies have largely been viewed as evidence for the power of the situation in determining human behavior (Blass, 1991). However, it remains that some participants disobeyed the Experimenter while others did not. Thus, it seems likely that some of the variability in obedience can be accounted for by individual differences in personality (Burger, 2009). Milgram himself suggested that there could be individual differences in personality traits related to obedience (Milgram, 1974). However, few studies of obedience have examined the possible role that individual differences may play in the decision to either obey or defy authority (e.g., Blass, 1991; Burger, 2009). Those studies that have examined this possibility reveal either null or contradictory findings. These findings may be due, in part, to small sample sizes, but it is also possible that some of the dimensions of personality examined in past studies are irrelevant to obedience (Blass, 1991).

Miranda, Caballero, Gomez, and Zamorano (1981) conducted an obedience study in Spain that was designed to be very similar to the procedures used by Milgram (1974). In this study, Miranda et al. examined the role of Eysenck's measure of introversion-extraversion in obedience. Participants in this study were selected on the basis of either having high scores for introversion or high scores for extraversion. Obedience was measured by the number of electric shocks participants administered to the Learner. Results indicated no significant differences in obedience rates between introverted individuals and extraverted individuals. This finding has been interpreted as unsurprising

given that relationships with authority are not considered an important aspect of this personality dimension (Blass, 1991, p. 402). However, the sample size used by Miranda et al. was small (12 men and 12 women). As a result, it is possible that individual differences in extraversion may emerge between obedient and disobedient individuals in a larger sample. Further, as suggested by Blass (1991), it is possible that relationships individuals have with authority figures are not relevant to the personality dimension of introversion-extraversion. Similarly, Bocchiaro and Zimbardo (2010) did not find significant associations between the Big Five personality dimensions and the willingness to give increasingly harsh feedback to an obviously emotional individual. As with Miranda and colleagues (1981), this null finding may have been due to the small size of their sample. It is also possible that personality plays a different role in determining whether individuals obey an authority figure's orders to inflict psychological/emotional harm compared to obeying an authority figure's orders to inflict physical harm.

Elms and Milgram (1966) conducted a study examining the role of authoritarianism in obedience. Authoritarianism is considered to be a personality style consisting of several interrelated constructs including authoritarian submission and conventionalism. Authoritarian submission is characterized by unquestioning submission to authority figures and conventionalism is described as a tendency to accept and obey rules set by authority figures (Adorno, Frenkel-Brunswik, Levinson, & Sanford, 1950). In this study, 40 men who had participated in a variation of Milgram's (1974) obedience studies completed the Minnesota Multiphasic Personality Inventory (MMPI; Hathaway & McKinley, 1951) several months after their original participation. Half of these men had been obedient during their original participation, meaning they followed the orders of the

Experimenter and administered all the shocks to the Learner. The other half of these participants had been disobedient, which means they had defied the Experimenter and refused to continue administering shocks to the Learner at some point during their participation in the previous study. The results revealed no significant differences on the standard scales of the MMPI between obedient and disobedient participants. The authors did find that disobedient participants scored higher on a measure of social responsibility, whereas obedient participants scored higher on a measure of authoritarianism. However, F. D. Miller (1975) conducted a study in which participants were ordered by an Experimenter to inflict pain upon themselves while solving math problems but found no relationship between authoritarianism and obedience (as cited in Blass, 1991). Although these two studies investigate obedience in different ways, it is clear that these findings are contradictory regarding the relationship between personality and obedience.

Given the findings of previous research regarding the relationship between personality and obedience, as well as the variety of procedures and methods used in previous studies of obedience, the current study seeks to further examine the possibility that certain domains of personality may play a role in destructive obedience to authority. Previous authors have pointed to Milgram's obedience research as an example of the power of the situation in determining behavior (Blass, 1991); however, it remains that some obeyed the authority figure in the study whereas others did not. Situational determinants may indeed be powerful, but the role of individual personality should not be overlooked (Sidanius & Pratto, 1999). The present study will investigate the possible relationships that several personality traits have with obedience in the Milgram paradigm. The present study will examine the connection that destructive obedience has with the

Big Five personality dimensions (i.e., openness, conscientiousness, extraversion, agreeableness, and neuroticism) and the Dark Triad of personality (i.e., psychopathy, narcissism, and Machiavellianism; Paulhus & Williams, 2002).

The Big Five Personality Dimensions

Personality traits refer to relatively enduring ways of thinking, feeling, and behaving. Most psychologists studying personality have considered it to consist of several dimensions (McCrae & Costa, 1997). Over the past few decades, many scientists have advocated a description of personality that consists of five main dimensions, which have come to be known as the Big Five or the Five-Factor Model (FFM; Pervin, 1994). The Big Five personality traits are neuroticism, extraversion, openness, agreeableness, and conscientiousness. The personality dimensions resulted from decades of research, and although some authors have questioned the Big Five (e.g., Pervin, 1994), it remains the most widely held view of personality (Pytlik-Zillig, Hemenover, & Dienstbier, 2002). The Big Five is suggested to aid in research on personality because it simplifies a wide variety of personality traits into a more concise and manageable structure (McCrae & Costa, 1987). The Big Five dimensions have also been found to be a valid and representative model of personality in cross-cultural samples (McCrae & Costa, 1997).

Neuroticism. The personality dimension of neuroticism is considered by most psychologists to be a tendency towards negative emotionality (e.g., McCrae & Costa, 1997; Pytlik-Zillig et al., 2002). McCrae and Costa (1997) described individuals high in neuroticism as frequent worriers, insecure, self-conscious, and temperamental. Neuroticism has also been related to tendencies toward anxiety, depression, anger, and embarrassment (McCrae & Costa, 1997). Behaviorally, neuroticism is associated with

impulsiveness, which includes tendencies to overeat, smoke, and drink to excess (Costa & McCrae, 1980). Neuroticism has also been associated with tendencies toward irrational beliefs (Vestre, 1984) and poor coping skills (McCrae & Costa, 1986). McCrae and Costa (1987) suggest that these behavioral and cognitive tendencies stem from the experience of negative affect. Individuals with high levels of neuroticism may experience negative emotions more intensely and more frequently than others. These individuals may also display impulsive behaviors such as overeating or drinking to excess, which may be more difficult for individuals with high levels of neuroticism to regulate because of their intense distress. Further, the experience of negative emotions may also contribute to the poor coping skills and tendencies toward irrational thinking—such as self-blame for events outside of one’s control—that are often displayed by individuals with this personality feature.

Individual differences in neuroticism have also been found to be related to obedience within the Milgram paradigm. Zeigler-Hill, Southard, Archer, and Donohoe (2013) conducted a recent study in which participants were required to administer increasingly loud white-noise sound-blasts to a confederate Learner who ostensibly suffered from frequent migraine headaches. The results revealed that participants who were the most reluctant to obey the Experimenter were those who reported lower levels of neuroticism but higher levels of negative affect during the session. Masters (2009) suggested that disobedience in Milgram-type studies would require strong personality, healthy psychological functioning, and/or substantial ego strength. Given the findings of Zeigler-Hill et al. (2013), it is likely that individuals high in neuroticism experience negative affect during the study but due to their tendencies toward anxiety, insecurity,

and embarrassment (McCrae & Costa, 1997), they may not view themselves as capable of disobeying the authority of the Experimenter.

Extraversion. The extraversion dimension of the Big Five is characterized by sociability, cheerfulness, high activity level, assertiveness, and sensation seeking (McCrae & Costa, 1987). Individuals high in the dimension tend to be gregarious, outgoing, social people who enjoy the company of others (McCrae & Costa, 1987, 1997). However, McCrae and Costa (1987) suggest that just because individuals high in extraversion may be highly social and outgoing, this does not necessarily mean they are likeable individuals. People high in extraversion may enjoy being around others more than others enjoy being around them. Previous research has found that extraversion is not related to obedience (Bocchiaro & Zimbardo, 2010; Miranda et al., 1981). However, the sample sizes in these studies were relatively small. Thus, it is possible that individual differences in extraversion may be related to levels of destructive obedience within the Milgram paradigm if a large enough sample is used that will allow the researchers to detect such differences. Further, given that extraversion has been associated with assertiveness (McCrae & Costa, 1987, 1997), individuals high in extraversion may be more likely to assert themselves and disobey the Experimenter's orders to continue with the session.

Openness. The openness dimension of the Big Five is characterized by originality, imagination, having broad interests, and a general sense of daring (McCrae & Costa, 1987). Openness may be apparent in the imagination, aesthetics, feelings, actions, ideas, and values of individuals with high scores for this dimension. These individuals tend to accept new experiences willingly and readily adapt to changing aspects of life in general

(Terracciano, McCrae, Hagemann, & Costa, 2003). Openness has also been associated with a need for variety, nontraditional values, and intelligence (McCrae & Costa, 1985). It is unclear whether or not individual differences in openness will be related to obedience within the Milgram paradigm. Given that individuals high in the dimension have been found to be accepting of new experiences and adapt readily to changing situations (Terracciano et al., 2003), they may be more likely to view their role as Teacher in the session as a new experience and then adapt to fulfill the requirements of that role.

Agreeableness. The Big Five dimension of agreeableness represents tendencies such as willingness to trust others, altruism, straightforwardness, and compliance (McCrae & Costa, 1997). Agreeable individuals tend to cooperate well with others, are generally easy to get along with, and display a sense of modesty and humility (McCrae & Costa, 1997). Within the Milgram obedience paradigm, agreeableness may be related to higher levels of obedience. Given that agreeableness is associated with willingness to trust others as well as compliance, this may lead individuals higher in this dimension to trust the Experimenter's assertion that the shocks being delivered to the Learner are not harmful and to continue obeying the orders of the Experimenter.

Conscientiousness. Finally, the conscientiousness dimension of the Big Five reflects characteristics such as self-control, low impulsivity, and self-discipline (McCrae & Costa, 1987). Conscientious individuals are often viewed by others as hardworking, ambitious, energetic, and scrupulous (McCrae & Costa, 1987, 1997). These individuals are also well-organized, habitually careful, and self-disciplined, which McCrae and Costa (1987) suggest could lead to adherence to a moral code. If this suggestion is correct, then

individual differences in conscientiousness may be associated with levels of obedience within the Milgram paradigm. If individuals high in conscientiousness do adhere to a moral code, this may lead these individuals to be less likely to obey an Experimenter's orders to continue administering electric shocks to a Learner, as this action is likely to be viewed as immoral.

The Dark Triad of Personality

The Dark Triad of Personality was identified by Paulhus and Williams (2002) and consists of subclinical levels of psychopathy, narcissism, and Machiavellianism. These constructs have been found to be distinct and nonequivalent, yet positively related (Paulhus & Williams, 2002). It has been suggested that examination of the Dark Triad in addition to the broader Big Five personality dimensions could provide a more comprehensive range of personality variation (Hodson, Hogg, & MacInnis, 2009). Together, the constructs of the Dark Triad represent a socially malicious interpersonal style and are characterized by self-promotion, deception, disagreeableness, and lack of empathy (Paulhus & Williams, 2002). The Dark Triad has been associated with various tactics of social influence such as using charm, playing hardball, and coercion (Jonason & Webster, 2012), yet relatively little is known about how these constructs relate to *being influenced* such as following the demands of an authority figure. Jonason and Webster (2012) found all three Dark Triad traits to be related to the use of multiple influence tactics across multiple influence targets. Similarly, Jonason, Slomski, and Partyka (2012) found the Dark Triad to be associated with various influence tactics in the workplace. Although these studies have shed light on how the Dark Triad relates to influencing others, no research has examined how individuals who possess the Dark Triad

characteristics respond to the influence tactics directed toward them by other individuals. Given the characteristics of the Dark Triad (e.g., emotional coldness, lack of empathy, self-promotion; Paulhus & Williams, 2002), it is possible that these constructs may be related to the likelihood of obeying an authority figure even when obedience means harming another person. The current study aims to examine how the constructs that constitute the Dark Triad of personality relate to destructive obedience in the Milgram paradigm.

Psychopathy. Psychopathy is considered to consist of two factors (Jakobwitz & Egan, 2006; Levenson, Kiehl, & Fitzpatrick, 1995). The first factor—which is commonly referred to as primary psychopathy—reflects psychopathic traits including selfishness, callousness, lack of affect for others, superficial charm, chronic lying, and lack of remorse (Jakobwitz & Egan, 2006; Levenson et al., 1995). The secondary factor reflects an antisocial lifestyle and is characterized by susceptibility to boredom, impulsivity, early behavior problems, and delinquency (Jakobwitz & Egan, 2006; Levenson et al., 1995). Psychopathy has largely been investigated in forensic populations such as prisoners and mentally disordered offenders. More recently, the study of psychopathy has expanded to include investigations in normal populations. Psychopathy has been examined in various samples of non-institutionalized and nonclinical individuals including samples of business managers (Board & Fritzon, 2005) and samples of college students (e.g., Levenson et al., 1995; Ross, Lutz, & Bailey, 2004). Psychopathy in nonclinical populations is best represented by the primary factor, which reflects a lack of an antisocial criminal history but the presence of psychopathic personality traits such as low

empathy and anxiety, as well as guiltlessness, dishonesty, and failure to form close attachments (Lilienfeld & Andrews, 1996).

It is important to distinguish between the primary and secondary dimensions of psychopathy because the two dimensions have been found to have different relationships with other measures of personality. Jakobwitz and Egan (2006) examined the relationships that primary and secondary forms of psychopathy had with Machiavellianism, narcissism, and the Big Five personality dimensions in the general population. Results revealed a positive relationship between primary psychopathy and narcissism, but secondary psychopathy was unrelated to narcissism. Additionally, the authors subjected all variables to a factor analysis, which yielded four factors. The first factor primary and secondary psychopathy, narcissism, and Machiavellianism all loaded positively. On the second factor, only secondary psychopathy loaded positively in addition to a positive loading for neuroticism and a negative loading for conscientiousness. The remaining two factors only contained a positive loading for openness and a positive loading for extraversion, respectively, indicating these constructs were unrelated to the traits of the Dark Triad. The authors suggest these findings indicate that secondary psychopathy represents the behavioral traits of psychopathy, including antisocial lifestyle and lack of impulse control, while primary psychopathy is better characterized as the dispositional psychological aspects of psychopathy.

Levenson et al. (1995) also examined primary and secondary psychopathy and their relationships with a range of personality traits in a sample of college students. The authors found that both primary and secondary forms of psychopathy were related to anxiety but the relationship was significantly stronger for secondary psychopathy. Both

dimensions of psychopathy were associated with disinhibition, but the relationship was significantly stronger for primary psychopathy than it was for secondary psychopathy. Further, primary psychopathy—but not secondary psychopathy—was negatively related to fear of physical danger. Taken together, the findings of Levenson et al. (1995) and Jakobwitz and Egan (2006) suggest that psychopathy should be viewed as being composed of two dimensions, such that the primary dimension reflects callousness, lack of remorse, and manipulation, whereas the secondary dimension is characterized by impulsivity, intolerance, frustration, and a self-defeating lifestyle.

It is possible that psychopathy, given its associations with various tendencies such as guiltlessness and lack of empathy (Lilienfeld & Andrews, 1996), could be associated with obedience within the Milgram paradigm. It has been suggested that participants in Milgram's obedience studies did not place responsibility for the fate of the Learner on themselves and instead viewed the Experimenter, principal investigator, and/or the university that had approved the research as responsible for the possible harm to the Learner (Burger, 2011). Given the relationship between psychopathy—specifically the primary dimension—and tendencies toward guiltlessness and lack of empathy, it is possible that the proposed diffusion of responsibility may be exacerbated in individuals with high levels of this trait. Another possibility is that these tendencies may lead individuals high in psychopathy to disregard the well-being of the Learner entirely, leading to higher rates of obedience. Indeed, it has been suggested that individuals who disobey the authority of the Experimenter may “think more about helping relieve the suffering of another person” (Bocchiaro & Zimbardo, 2010, p. 167), which is a possibility that is unlikely for those with high levels of primary psychopathy.

Levenson et al. (1995) suggest that individuals with high levels of psychopathy, especially high levels of the primary dimension, are skilled at overcoming inhibitions and further suggest that this skill would come into play in studies such as Milgram's (1974) obedience research. The authors also mention Cleckley's (1988) description of psychopathy as including a tendency toward unmotivated antisocial behaviors. Indeed, within the Milgram paradigm the antisocial behavior implicated in obedience (i.e., continuing to shock a protesting Learner) can be viewed as weakly motivated. Thus, given the relationship between psychopathy and antisocial behavior, individuals higher in primary psychopathy may be more likely to display higher levels of obedience.

Secondary psychopathy may also be associated with higher levels of obedience for the reasons discussed above as well as one other reason: neurotic tendencies. That is, secondary psychopathy has been associated with increased neuroticism (Jakobwitz & Egan, 2006). Previous research has found a relationship between neuroticism and reluctance to obey within the Milgram paradigm (Zeigler-Hill et al., 2013). Specifically Zeigler-Hill et al. found that the participants who were the most reluctant to obey the Experimenter were those lower in neuroticism who had experienced higher levels of negative affect during the study. Given the positive relationship between secondary psychopathy and neuroticism, it is possible that these individuals may be more likely to obey the Experimenter, especially if they do not experience higher levels of negative affect.

Narcissism. Subclinical narcissism is described as a preoccupation with the self and possession of an inflated self-concept. It is associated with grandiosity, entitlement, feelings of superiority, interpersonal exploitation, lack of empathy, and a strong desire for

attention and admiration (Emmons, 1984; John & Robins, 1994; Morf & Rohdewalt, 2001; Raskin & Hall, 1981; Raskin & Novacek, 1989; Raskin & Terry, 1988).

Individuals high in narcissism have been found to display high levels of self-esteem, a desire to be admired by others (Emmons, 1984), and are perceived by others as being aggressive (Raskin & Novacek, 1989), rude, and self-centered (Raskin & Terry, 1988).

Narcissistic individuals also tend to display high levels of self-interest in their interpersonal relationships (Raskin & Novacek, 1989) and display a general lack of empathy for others (Watson, Grisham, Trotter, & Biderman, 1984).

Ackerman et al., (2011) proposed a three-factor structure underlying the general construct of narcissism, which consists of Leadership/Authority, Grandiose Exhibitionism, and Exploitativeness/Entitlement. The Leadership/Authority dimension is characterized by self-perceptions of assertiveness, desire for leadership and authority, higher sense of self-esteem, and adaptive strategies for self-enhancement. The authors suggest that the Leadership/Authority factor reflects the more adaptive and positive aspects of narcissism. Also, the Leadership/Authority factor was found to be unrelated to maladaptive psychopathic tendencies such as impulsivity and antisocial behavior, as well as Machiavellianism. Grandiose Exhibitionism is represented by extraversion, self-absorption, vanity, superiority, and grandiosity. The Exploitativeness/Entitlement factor, which the authors suggest to represent the most maladaptive aspects of narcissism, is characterized by antisocial tendencies (such as the willingness to manipulate and exploit others), frequent fluctuations in self-esteem, high neuroticism, low agreeableness, and feelings of entitlement. This factor was also found to be related to the devaluing of others, Machiavellianism, and low-quality interpersonal relationships.

It has been suggested that disobedience in Milgram-type research would require strong personality, healthy psychological functioning, and/or substantial ego strength (Masters, 2009). Given findings indicating that individuals with high levels of the Leadership/Authority factor of narcissism tend to be assertive, higher in self-esteem, and possess a desire for leadership and authority roles, it is possible that this factor may have a relationship to obedience in the Milgram paradigm. Individuals high in Leadership/Authority may possess the assertiveness and feelings of self-worth that are likely needed to disobey the Experimenter.

The Grandiose Exhibitionism factor of narcissism may also be related to obedience. Grandiose Exhibitionism has been found to be related to self-absorption, vanity, superiority, and grandiosity (Ackerman et al., 2011). Individuals with high levels of Grandiose Exhibitionism may be likely to view their role of Teacher as indicative of their superiority and power over the Learner, which could lead to higher levels of obedience. Additionally, higher levels of Grandiose Exhibitionism may cause individuals to view their role in the session as especially important to the study, leading them to continue obeying the Experimenter.

Exploitativeness/Entitlement may also be related to obedience within the Milgram paradigm. Exploitativeness/Entitlement has been suggested to represent the most maladaptive and socially malicious aspects of narcissism (Ackerman et al., 2011). Individuals high in this factor have been found to possess a willingness to manipulate and exploit others, as well as tendencies to devalue others. These tendencies may cause individuals with high levels of Exploitativeness/Entitlement to disregard the well-being of the Learner and lead to higher levels of obedience. Further, previous research has

found that lower levels of neuroticism are related to reluctance to obey the Experimenter in the Milgram paradigm under certain conditions (Zeigler-Hill et al., 2013), which is important given that Exploitativeness/Entitlement has been associated with high neuroticism (Ackerman et al., 2011). Thus, higher levels of Exploitativeness/Entitlement may be related to higher levels of obedience.

Machiavellianism. Christie and Geis (1970) developed the construct of Machiavellianism, which is characterized by a deceptive and manipulative interpersonal style. Machiavellianism as a personality trait involves a cynical world view, immoral beliefs, lack of emotion, strategic planning for the achievement of long-term goals, and a variety of manipulative interpersonal tactics. Machiavellianism is associated with a lack of empathy (Barnett & Thompson, 1985), high self-interest, and interpersonal exploitation (Christie & Geis, 1970). It is possible that individual differences in Machiavellianism may be related to obedience in the Milgram paradigm. Given the characteristics and traits associated with this construct in the research literature (e.g., lack of empathy and emotional coldness), individuals with higher levels of Machiavellianism may be more likely than others to continue administering electric shocks to the Learner.

Machiavellianism has received considerable empirical attention since its introduction by Christie and Geis (1970). Recently, Rauthmann and Will (2011) conducted a meta-analysis of the existing literature and compiled a comprehensive description of the cognitive, affective-emotional, motivational, and behavioral manifestations of the construct. The authors describe cognitive, affective, motivational, and behavioral aspects of Machiavellianism separately in a hierarchical fashion by first describing a general tendency and then more specific manifestations of the tendency.

First, the authors characterize Machiavellian affect as an overall lack of emotional reactions to situations, others, the self, and moral issues. Two general tendencies are suggested, which are emotional detachedness and low conscience. Emotional detachedness is described as shallow, callous, and/or cold affect toward others, lack of empathy, as well as a lack of understanding of one's own emotions. Low conscience is characterized as a lack of guilt or remorse. Second, the authors describe Machiavellian behavior in general as manipulative, tactical, antagonistic, and self-beneficial.

Machiavellianism involves a number of interpersonal manipulation tactics including the manipulation of others' emotions, persuasion, and intimidation. Individuals with high levels of this trait strive to be viewed positively by others, as well as being seen as dominant. Interestingly, the authors state that individuals with Machiavellian tendencies are likely to display antisocial tendencies as long as there are no consequences for the antisocial behaviors. Next, Machiavellian cognition is characterized as a generally negative and cynical view of the world and others. Individuals high in Machiavellianism tend to disregard moral, ethical, and normative rules and institutions, and also tend to view other people as tools to be manipulated for personal gain. Machiavellian cognition is also characterized by self-centered thinking and long-term strategic planning to achieve personal goals. Finally, Machiavellian desires and motivation are described as self-centered, in that they focus on self-promotion and personal gain. Individuals with high levels of Machiavellianism tend to pursue self-serving goals such as the attainment of power, money, and status rather than communal goals aimed at helping others.

Given the tendencies and characteristics associated with Machiavellianism, it is possible that individual differences in this characteristic may be related to obedience in

the Milgram paradigm. Individuals with high levels of Machiavellianism are skilled at the manipulation of others and frequently use tactics for influencing others interchangeably in pursuit of their goals (Christie & Gies, 1970). Machiavellian individuals also enjoy being dominant and being in positions of power (Rauthmann & Will, 2011). In the present study, participants are led to believe that the goal of the study is to investigate the effects of punishment on learning, and participants are placed in a position of power over the Learner. It is possible that individuals with high levels of Machiavellianism may view the punishment of the Learner as a necessary tactic for achieving the goal of the study, and they may also view their role as Teacher as a position of power over the Learner. Thus, individuals with high levels of Machiavellianism may be more likely to obey the Experimenter. Additionally, the various influence and manipulation tactics associated with Machiavellianism include forming alliances (Jonason et al., 2012). Within the Milgram paradigm, it is possible that individuals with high levels of Machiavellianism may view the situation in terms of forming an alliance with the Experimenter in order to achieve the “goal” of the study (i.e., the Learner remembering all the word pairs).

Machiavellianism is associated with a lack of emotion and empathy for others, as well as a lack of emotional reaction in various situations (Rauthmann & Will, 2011). Milgram (1974) described participants in the obedience studies as experiencing stress and anxiety during the session, and many participants displayed considerable concern for the Learner’s well-being. Therefore, in the present study individuals with high levels of Machiavellianism may not experience the emotional reactions and concern for the Learner described by Milgram (1974), which may lead them to be more likely to obey the Experimenter.

Additionally, Prociuk and Breen (1976) found Machiavellianism to be positively correlated with a measure of external locus of control in which one views the world as controlled by powerful others rather than being controlled by chance. The authors reason that this relationship is due to the possibility that in a world controlled by powerful others there is a chance for some degree of personal control if an individual is powerful. Thus, individuals high in Machiavellianism may possess a desire for personal control, which could lead to acceptance of their role as Teacher in the present study because it will place them in a position of power over the Learner.

It is also important to note that Nedd and Marsh (1979) found a negative relationship between Machiavellianism and a self-report measure of conformity to authority. However, the measure of conformity employed in that study placed participants' responses on a continuum that ranged from conformity to self-assertion. Given research indicating the relationship between Machiavellianism and use of multiple influence tactics (Christie & Geis, 1970), the findings of Nedd and Marsh (1979) could be due to Machiavellian tendencies toward influencing others, rather than to conformity to authority.

Overview and Predictions

Obedience to authority has been implicated in numerous destructive instances over the years (e.g., Kelman & Hamilton, 1989). Research examining this concept has revealed that, although the majority of individuals are obedient to an authority figure, there are individuals who disobey (Blass, 1991). Thus, it is possible that individual differences may play an important role in who disobeys the commands of the Experimenter. However, previous research examining this possibility has not provided

support for this perspective. The current study aims to examine whether personality features (i.e., the Big Five dimensions and the Dark Triad) are associated with destructive obedience within the Milgram paradigm.

Regarding the Big Five dimensions of personality, it is possible that these dimensions may be associated with destructive obedience. The Big Five dimension of neuroticism has been found related to obedience within the Milgram paradigm. Zeigler-Hill et al. (2013) found that individuals with low levels of neuroticism who experienced higher levels of negative affect were the most reluctant to obey an authority figure's orders. It has been suggested that disobedience in the Milgram paradigm would require personal stability (Masters, 2009). Given the findings of Zeigler-Hill et al.—as well as research finding neuroticism associated with higher levels of insecurity and emotional instability (McCrae & Costa, 1997)—neuroticism may be positively related to obedience.

Hypothesis 1: Individual differences in neuroticism will predict obedience such that higher levels of neuroticism will be associated with obedience.

The Big Five dimension of extraversion may also be related to obedience within the Milgram paradigm. Extraversion has been associated with characteristics such as being outgoing and assertive (McCrae & Costa, 1987, 1997), which may lead individuals higher in this dimension to be more likely to assert themselves and disobey the Experimenter. Previous studies (Bocchiaro & Zimbardo, 2010; Miranda et al., 1981) that found no relationship between extraversion and obedience have employed small sample sizes in which individual differences between those participants who obey and those who disobey would have to be considerable in order to be detected. Thus, it may be possible that individual differences in extraversion may emerge in a larger sample.

Hypothesis 2: Individual differences in extraversion will predict obedience such that higher levels of extraversion will be associated with disobedience.

The Big Five dimension of agreeableness may be related to higher levels of obedience within the Milgram paradigm. Agreeableness has been associated with compliance and willingness to trust others (McCrae & Costa, 1997). These tendencies may lead individuals with higher levels of agreeableness to comply with the orders of the Experimenter and trust the Experimenter's assertion that the shocks being delivered to the Learner are not harmful.

Hypothesis 3: Individual differences in agreeableness will predict obedience such that higher levels of agreeableness will be associated with obedience.

The Big Five dimension of conscientiousness is characterized by traits such as self-control, and individuals high in this dimension are described as well organized, habitually careful, and highly self-disciplined (McCrae & Costa, 1987). McCrae and Costa (1987) suggest these characteristics may lead individuals high in conscientiousness to adhere to a code of moral conduct. If this suggestion is correct, individual differences in conscientiousness may be related to obedience within the Milgram paradigm. Adherence to a code of moral conduct may lead individuals with high levels of conscientiousness to view the Experimenter's orders to continue administering electric shocks as immoral, which, in turn, may lead to lower levels of obedience.

Hypothesis 4: Individual differences in conscientiousness will predict obedience such that higher levels of conscientiousness will be associated with disobedience.

It is unclear whether the Big Five dimension of openness will be related to obedience. This dimension is characterized by originality, imagination, and a sense of

daring, as well as a willingness to accept new experiences and adapt to changing situations readily (McCrae & Costa, 1987; Terracciano et al., 2003). It is possible that individuals high in openness may willingly accept the experience of their role as Teacher and adapt to the requirements of this role. However, it may also be possible that these tendencies are unrelated to the concept of destructive obedience. Thus, openness is included in the current study for exploratory purposes.

Psychopathy can be characterized as consisting of two dimensions: primary psychopathy and secondary psychopathy (Levenson et al., 1995). Primary psychopathy has been described as representing the dispositional psychological aspects of psychopathy such as low empathy, lack of remorse, and guiltlessness, whereas secondary psychopathy is characterized by neuroticism, impulsivity, intolerance, and frustration (Jakobwitz & Egan, 2006; Lilienfeld & Andrews, 1996). It is possible that both the primary and secondary dimensions of psychopathy may be related to obedience within the Milgram paradigm. Individuals with high levels of primary psychopathy may be more likely to disregard the well-being of the Learner and obey the Experimenter given the relationships between primary psychopathy and low empathy, lack of remorse, and guiltlessness.

Hypothesis 5: Individual differences in primary psychopathy will predict obedience such that higher levels of primary psychopathy will be associated with obedience.

Secondary psychopathy may also be associated with obedience. Previous research has found neuroticism to be related to obedience within the Milgram paradigm such that individuals lower in neuroticism who experienced higher levels of negative affect during the study were more reluctant to obey the Experimenter (Zeigler-Hill et al., 2013). Given

that secondary psychopathy is associated with higher levels of neuroticism, individuals with high levels of psychopathy may be more likely to obey the Experimenter, especially if these individuals do not experience higher levels of negative affect during the study.

Hypothesis 6: Individual differences in secondary psychopathy will predict obedience such that higher levels of secondary psychopathy will be associated with obedience.

Narcissism in the general population is characterized by a preoccupation with the self, inflated sense of self-concept, interpersonal exploitation, a lack of empathy, a desire for attention and admiration, and feelings of grandiosity, entitlement, and superiority (Emmons, 1984; John & Robins, 1994; Morf & Rohdewalt, 2001; Raskin & Hall, 1981; Raskin & Novacek, 1989; Raskin & Terry, 1988). Narcissism can be viewed as consisting of three facets, including Leadership/Authority, Grandiose Exhibitionism, and Exploitativeness/Entitlement (Ackerman et al., 2011). Leadership/Authority is associated with traits such as assertiveness, desire for leadership and authority, higher sense of self-esteem, and adaptive strategies for self-enhancement. Given these associations, Leadership/Authority may be related to obedience within the Milgram paradigm. It has been suggested that disobedience in Milgram-type studies would require strong personality, healthy psychological functioning, and/or substantial ego strength (Masters, 2009). Thus, it is possible that individuals high in the Leadership/Authority dimension may possess the assertiveness and ego-strength likely needed to disobey the orders of the Experimenter.

Hypothesis 7: Individual differences in the Leadership/Authority facet of narcissism will predict obedience such that higher levels of Leadership/Authority will be associated with disobedience.

The Grandiose Exhibitionism facet of narcissism is characterized by self-absorption, vanity, superiority, and grandiosity (Ackerman et al., 2011). This facet of narcissism may also be related to obedience within the Milgram paradigm. It is possible that individuals with high levels of Grandiose Exhibitionism—possessing tendencies toward superiority, grandiosity, and self-absorption—may view their role of Teacher in the study to reflect their superiority over the Learner and may also lead these individuals to view themselves as especially important to the study resulting in higher levels of obedience.

Hypothesis 8: Individual differences in the Grandiose Exhibitionism facet of narcissism will predict obedience such that higher levels of Grandiose Exhibitionism will be associated with obedience.

The Exploitativeness/Entitlement facet of narcissism is characterized by antisocial tendencies, including the willingness to manipulate and exploit others for personal gain, higher levels of neuroticism, low agreeableness, devaluing others, and feelings of entitlement (Ackerman et al., 2011). Exploitativeness/Entitlement is also believed to represent the most maladaptive aspects of narcissism. It is possible that Exploitativeness/Entitlement may be related to obedience within the Milgram paradigm. Given that Exploitativeness/Entitlement is associated with higher levels of neuroticism and tendencies toward exploitation and devaluing of others, individuals high in this facet

of narcissism may disregard the well-being of the Learner, leading to higher rates of obedience.

Hypothesis 9: Individual differences in the Exploitativeness/Entitlement facet of narcissism will predict obedience such that higher levels of Exploitativeness/Entitlement will be associated with obedience.

Machiavellianism is best described as a deceptive and manipulative interpersonal style (Christie & Geis, 1970). Machiavellianism is characterized by a cynical world view, lack of empathy, immoral beliefs, lack of emotion, and the use of a wide variety of manipulative interpersonal tactics (Barnett & Thompson, 1985; Christie & Geis, 1970). Machiavellianism may also be related to obedience within the Milgram paradigm. Given the association between Machiavellianism and emotional coldness, lack of empathy, and willingness to manipulate and exploit others, it is possible that individuals with higher levels of this trait may be more likely to disregard the well-being of the Learner, leading to higher levels of obedience.

Hypothesis 10: Individual differences in Machiavellianism will predict obedience such that higher levels of Machiavellianism will be associated with obedience.

In addition to the hypotheses stated above, the current study will also include two exploratory features. First, possible differences in the rates of obedience between male and female participants were examined. Second, the current study included both male and female confederate Learners in order to explore possible differences in the rates of obedience between sessions in which the Learner was male and those in which the Learner was female.

CHAPTER II

METHOD

Participants

Participants in the present study were 54 undergraduates (five men, 49 women) from the Oakland University research participant pool, who participated voluntarily in exchange for partial completion of course-required research participation. Of the 54 individuals who completed Phase 1 (online measures of personality), 15 females were excluded from participation in Phase 2 (in person lab session). Of these 15, six were excluded because they endorsed at least one of the exclusion criteria, five were excluded because of prior knowledge of the true purpose of the study (i.e., were familiar with Milgram's original studies), and four were excluded because of technical issues (i.e., computer program malfunction). A series of t-tests determined that there were no significant differences on personality variables between participants excluded and those remaining in the study with the exception of Leadership/Authority narcissism, $t(51) = 2.15, p = .04$. Participants remaining in the study reported higher levels of Leadership/Authority narcissism ($M = 6.27, SD = 1.96$) than those who were excluded ($M = 4.88, SD = 2.43$). The magnitude of the difference in the means (mean difference = 1.39, 95% CI: .09 to 2.70) was moderate ($\eta^2 = .08$).

Measures

Demographic/Health Form

A brief demographic/health form containing items regarding participants' age, sex, racial-ethnic background, academic status, marital status, annual income of family of origin, and sexual orientation was administered to participants directly after completion

of the informed consent. Additionally, the health portion of the form included items designed to probe for mental health issues such as anxiety (e.g., “Has a doctor ever diagnosed you as ‘anxious’?”), depression (e.g., “Has a doctor ever diagnosed you as ‘depressed’?”), and Posttraumatic Stress Disorder (e.g., “Has a doctor ever diagnosed you as having Posttraumatic Stress Disorder [PTSD]?”). In addition, items addressing physical health issues such as heart disease (e.g., “Have you ever been told by a doctor that you have heart disease [e.g., heart attack, angina, abnormal heart rhythm]?”), stroke (e.g., “Have you ever been told by a doctor that you had a stroke?”), and pregnancy (e.g., “Are you currently pregnant?”) were also included. Participants responded to each item by circling “Yes” or “No.” This form was administered as a precautionary measure aimed at identifying individuals who may potentially be at a higher risk for being negatively impacted—physically or mentally—by participation in the study.

Big Five

The personality dimensions of the Five Factor Model were assessed via the Big Five Inventory (BFI; John & Srivastava, 1999). The BFI consists of 44 items and includes subscales for openness, conscientiousness, extraversion, agreeableness, and neuroticism. Items consist of short phrases describing trait adjectives that form the markers of the Big Five personality dimensions. Responses to items are given on a scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). The openness subscale consists of 10 items (e.g., “I see myself as someone who values artistic, aesthetic experiences”). The conscientiousness subscale consists of 9 items (e.g., “I see myself as someone who perseveres until the task is finished”). The extraversion subscale consists of 8 items (e.g., “I see myself as someone who is talkative”). The agreeableness subscale consists of 9

items (e.g., “I see myself as someone who is helpful and unselfish with others”). The neuroticism subscale consists of 8 items (e.g., “I see myself as someone who worries a lot”). Recently, Paulhus and Williams (2002) reported alpha reliabilities of .80, .81, .87, .81, and .86 for the openness, conscientiousness, extraversion, agreeableness, and neuroticism subscales, respectively. Alpha reliabilities for the subscales of the BFI in the current study were .80, .79, .77, .82, and .79 for openness, conscientiousness, extraversion, agreeableness, and neuroticism, respectively.

Narcissism

Narcissism was assessed using the Narcissistic Personality Inventory (NPI; Raskin & Hall, 1979, 1981). The NPI is considered the standard measure of subclinical narcissism (Paulhus & Williams, 2002). This version of the NPI is made up of 40 items in a forced-choice format, meaning that participants must choose between a narcissistic and a non-narcissistic statement for each item (e.g., “I like having authority over other people” or “I don’t mind following orders”). The overall NPI is well validated, and it has been found to have good internal consistency in samples of college students ($\alpha = .84$; Ackerman et al., 2011). There has been controversy regarding the underlying factor structure of the 40-item NPI (see Brown, Budzek, & Tamborski, 2009, for a review) but Ackerman et al. (2011) recently suggested three subscales, Leadership/Authority, Grandiose Exhibitionism, and Exploitativeness/Entitlement. Leadership/Authority is measured by 11 items and includes items such as “I like to have authority over other people” and “If I ruled the world it would be a much better place.” The Grandiose Exhibitionism subscale is measured by 10 items such as “I really like to be the center of attention” and “I know that I am good because everybody keeps telling me so.” The

Exploitativeness/Entitlement subscale is measured by 4 items such as “I can make anybody believe anything” and “I find it easy to manipulate people.” Scores for the overall NPI and the three subscales were calculated by summing the number of narcissistic responses on all items. Overall NPI scores can range from 0 to 40 and scores on the Leadership/Authority, Grandiose Exhibitionism, and Exploitativeness/Entitlement subscales can range from 0 to 11, 0 to 10, and 0 to 4, respectively. The Leadership/Authority, Grandiose Exhibitionism, and Exploitativeness/Entitlement subscales have been found to have adequate alpha reliabilities of .78, .72, and .46, respectively (Ackerman et al., 2011). Alpha reliabilities for the Leadership/Authority, Grandiose Exhibitionism, and Exploitativeness/Entitlement subscales in the current study were .50, .71, and .38, respectively. It is important to note that the lower level of reliability of the Exploitativeness/Entitlement subscale is not unusual and is most likely due to the small number of items composing this subscale (Ackerman et al., 2011).

Psychopathy

Psychopathy was measured using the Levenson Self-Report Psychopathy Scale (LSRP; Levenson et al., 1995). The LSRP was designed specifically to measure psychopathy in the general population and is based on the two-factor interpretation of Hare’s revised Psychopathy Checklist (PCL-R; Hare, 1991). The LSRP consists of 26 items and responses are provided on scales ranging from 1 (*disagree strongly*) to 4 (*agree strongly*). The primary psychopathy subscale consists of 16 items measuring tendencies toward dishonesty, lack of remorse, callousness, and manipulation. Eleven items on the primary subscale are worded in the psychopathic direction (e.g., “For me, what’s right is whatever I can get away with”) and five are worded in the opposite direction (e.g., “I

would be upset if my success came at someone else's expense") and are reverse-scored. The secondary psychopathy subscale consists of 10 items measuring impulsivity, frustration, quick-temperedness, and a self-defeating lifestyle. Eight items on the secondary subscale are worded in the psychopathic direction (e.g., "I find myself in the same kinds of trouble, time after time") and the remaining two are worded in the opposite direction (e.g., "Before I do anything, I carefully consider the possible consequences) and are reverse-scored. Participants were instructed to read each item carefully and indicate the extent to which they agree with each statement. Scores on both LSRP subscales were calculated by summing responses to each item after reverse-scoring of items worded in the non-psychopathic direction. Both LSRP subscales have been found to be reliable in samples of the general population. Levenson et al. (1995) reported internal consistency estimates of .82 and .63 for the primary and secondary subscales, respectively, and suggest the lower reliability of the secondary subscale is acceptable for a 10-item scale. More recently, Ross et al., (2004) reported an internal consistency of .85 for the primary subscale and .62 for the secondary subscale. Jakobwitz and Egan (2006) also reported adequate reliabilities of .82 and .63 for the primary and secondary subscales, respectively. Alpha reliabilities for the primary and secondary psychopathy subscales in the present study were .82 and .71, respectively.

Machiavellianism

Machiavellianism was measured via the MACH-IV (Christie & Geis, 1970), which was designed to measure manipulative and deceitful tendencies as well as cynical and immoral beliefs. The original MACH scale included 71 items, but the scale was subsequently reduced to the 60 most meaningful items. Of these 60 items, the 20 items

that were most highly related were selected to constitute the MACH-IV. Responses to items on the MACH-IV are provided using scales that range from 1 (*strongly disagree*) to 5 (*strongly agree*). Participants are instructed to read each item and indicate the extent to which they agree with the statement. Ten items are worded in the Machiavellian direction (e.g., “The best way to handle people is to tell them what they want to hear”) and the remaining 10 items are worded in the opposite direction (e.g., “All in all, it is better to be humble and honest than important and dishonest”), which are reverse-scored. Overall scores for the MACH-IV were calculated by summing responses to all items (after reverse-scoring the 10 items worded in the direction opposite of Machiavellianism). Although Ray (1983) questioned the reliability of the MACH-IV, recent studies have found adequate reliabilities (e.g., Jakobwitz & Egan, 2006; McHoskey, Worzel, & Szyarto, 1998; Paulhus & Williams, 2002). The alpha reliability for the MACH IV in the current study was .61.

Affect

Affect during the procedure was measured via the Positive and Negative Affect Schedule (PANAS; Watson, Clark, & Tellegen, 1988). The negative affect subscale of the PANAS consists of 10 items (e.g., distressed, scared, hostile) and the positive affect subscale consists of 10 items (e.g., strong, proud, excited). Responses were made on scales ranging from 1 (*very slightly or not at all*) to 5 (*extremely*). Gross and John (2003) reported adequate alpha reliabilities of .87 for the positive affect subscale and .85 for the negative affect subscale. The alpha reliabilities for the positive and negative affect subscales of the PANAS in the present study were .83 and .91, respectively.

Procedure

This study consisted of two phases. During Phase 1, participants completed online versions of the BFI (John & Srivastava, 1999), NPI (Raskin & Hall, 1979, 1981), LSRP (Levenson et al., 1995), and MACH-IV (Christie & Geis, 1970). Participants who completed the measures during Phase 1 were eligible to sign up for participation in Phase 2. During Phase 2, participants first arrived and took a seat in a waiting area where either a male or female confederate posing as another participant was already waiting. After approximately two to three minutes, a female Experimenter greeted both the participant and the confederate and escorted them to the laboratory where a second female Experimenter was seated.

In the laboratory, Experimenter 1 read the informed consent aloud after which both the participant and confederate signed the informed consent form and completed the demographic/health form. After participants completed the demographic/health form, Experimenter 1 examined the health portion of the survey. If any participant responded with a “Yes” to any of the mental and physical health questions, then the study was terminated at this point. Experimenter 1 informed the participant and confederate that they were randomly assigned to a control condition and nothing further was required for their participation. The participant was thanked for his or her time, granted credit for participation, and dismissed from the session. If participants did not indicate any possible mental or physical health problems, then the session proceeded.

Experimenter 1 explained that the study was designed to examine the effects of punishment on learning and would require one individual to assume the role of “Teacher” and the other to assume the role of “Learner.” Experimenter 1 explained that the roles

would be assigned via a drawing in order to ensure the roles were assigned in a fair manner. She then presented two folded slips of paper and allowed the participant and the confederate to each take one (the word “Teacher” was written on both slips of paper to make certain that the participant was always assigned the role of Teacher). After the drawing, Experimenter 1 briefly described the roles of the Teacher and the Learner. Participants were informed that as the Teacher they would conduct a paired-associate learning test via computer with the Learner and would administer a punishment to the Learner, in the form of a mild electric shock, each time the Learner made a mistake. Experimenter 1 then informed the Learner that his or her job in the session would be to learn the word pairs read to them by the Teacher. Next, Experimenter 1 asked if either the Teacher or Learner had any questions before continuing with the session. At this point, the Learner stated that they had been diagnosed with a mild heart arrhythmia and asked how severe the shocks would be. Experimenter 1 responded in a dismissive manner by saying “while the shocks may be painful, they are not dangerous. There is no risk of any long-term damage.”

Participants then watched as Experimenter 1 and Experimenter 2 seated the Learner behind a table with a microphone and placed standard medical restraints around his or her wrists, ankles, and waist. Experimenter 1 also attached two electrodes to the right forearm of the Learner and switched on the ostensible shock generator. At this point, Experimenter 1 instructed Experimenter 2 to finish setting up the shock generator and provide more specific instructions to the Learner. Experimenter 1 then escorted the participant out of the laboratory to another room. Participants were seated in front of a computer with a microphone and speakers attached to it. Experimenter 1 explained that

the Teacher's role was to read a list of word pairs to the Learner via the microphone after which they would test the Learner's memory for the word pairs. Each test word would appear on the computer screen with four possible answer choices, one of which was the correct answer. The correct answer for each trial was presented in blue so that participants could easily determine whether the Learner's response was correct or incorrect. Participants were told that there had been problems with Learners asking questions or trying to speak at the same time as the Teacher in prior versions of the study and that the Learner would only be able to communicate with the Teacher at two specific times during each trial in order to correct this problem. Participants were told that the Learner would only be able to respond after each test item and the answer choices were read to indicate the answer they believed to be correct and after each electric shock was administered to indicate the pain associated with the shock using a scale ranging from 1 (*not at all painful*) to 10 (*extremely painful*).

Participants were told that each time they communicated with the Learner they must click on a "Transmit On" icon to initiate the communication and they must click on a "Transmit Off" icon to end each communication in order to activate the Learner's microphone. In reality, however, all of the Learner's responses to test items and pain indications were prerecorded and clicking the "Transmit Off" icon on the computer screen simply activated the Learner's response for that trial. The schedule of the Learner's responses is provided in Table 1.

Table 1

Script for the Session

Probe	Options	Answer	Voltage	Response to Shock
1. Blue	Boy- <u>Girl</u> -Grass-Hat	“Umm. . . Girl.”	—	—
2. Nice	<u>Day</u> -Sky-Job-Chair	“Umm. . . Day.”	—	—
3. Fat	Man-Lady-Tub- <u>Neck</u>	“Umm. . . Lady?”	15v	“Eh. . . that’s not so bad. I give that a 1.”
4. Green	Grass-Hat- <u>Ink</u> -Apple	“Um. . . Grass?”	30v	“Ah, Um, That was, that was OK. Um I’ll give it a 3.”
5. Rich	<u>Boy</u> -Cake-Man-Girl	“Um. . . Man.”	45v	“Yeah, alright. That one definitely stung. I’ll give that one a 5.”
6. Fast	<u>Bird</u> -Car-Train-Plane	“Alright, I got this one. Bird.”	—	—
7. Blunt	Knife-Stick-Word- <u>Arrow</u>	“Ahh. . . Word.”	60v	“This is really starting to hurt! Umm. . . 7.”
8. Soft	Rug-Pillow- <u>Hair</u> -Grass	“Uhh. . . Rug?”	75v	“Crap! Uh. . . This really hurts! Ah. . . that’s an 8.”
9. Cool	Day-Shade-Water- <u>Cave</u>	“Ah um. . . Water.”	90v	“Jesus Christ that hurt! 9!”
10. Gold	Dollar-Necklace- <u>Moon</u> -Paint	“Uh. Moon.”	—	—
11. Hard	Stone- <u>Head</u> -Bread-Work	“Umm. . . S-Stone.”	105v	“Holy shit! My arm’s like burning. 10!”
12. Wet	Night-Grass- <u>Duck</u> -Cloth	“Uh. Cloth!”	120v	“God! I don’t know how much more I can take! 10 again!”
13. Brave	<u>Woman</u> -Soldier-Dog-Horse	“Damn it! Soldier.”	135v	“Goddamn fucking 11!”
14. White	Cloud- <u>Horse</u> -Rock-House	“God, I don’t know! Cloud!”	150v	“God! This is bullshit! I, this, this is not what I signed up for! My heart’s skipping beats! I, I don’t want to go on!”
15. Sad	<u>Face</u> -Music-Clown-Girl	“Really!? You really want me to answer this? I don’t know! Face!”	—	—

Note. The underlined options are the correct responses. Trials with a “—” indicate the Learner provided a correct response.

After Experimenter 1 made sure that the Teacher understood the procedure, Experimenter 2 entered the laboratory and informed Experimenter 1 that the Learner

understood his or her instructions and was ready to proceed with the session. At this point, both Experimenter 1 and Experimenter 2 took a seat behind the Teacher and Experimenter 1 stated that Experimenter 2 would be monitoring and recording the Learner's responses while Experimenter 1 made sure that the procedure "ran smoothly." Experimenter 1 then instructed the Teacher to begin the learning task.

For each test trial, participants indicated whether the Learner's response was correct or incorrect by clicking either a "Correct" or "Incorrect" icon on the computer screen. For trials on which the Learner's response was correct, clicking the "Correct" icon allowed the Teacher to move to the next trial. For trials on which the Learner's response was incorrect, clicking the "Incorrect" icon prompted a screen stating that the Learner's response to the previous item was incorrect, what the correct answer was, and the voltage level of the shock that would be administered as punishment, which the Teacher read aloud to the Learner (e.g., on trial three, Teachers read "Incorrect, the correct answer was 'neck,' you will now receive an electric shock of 15 volts"). Participants then selected the appropriate voltage by clicking its icon on the computer screen. As displayed in Figure 1, voltage icons were displayed in a grid-like fashion on the computer screen.

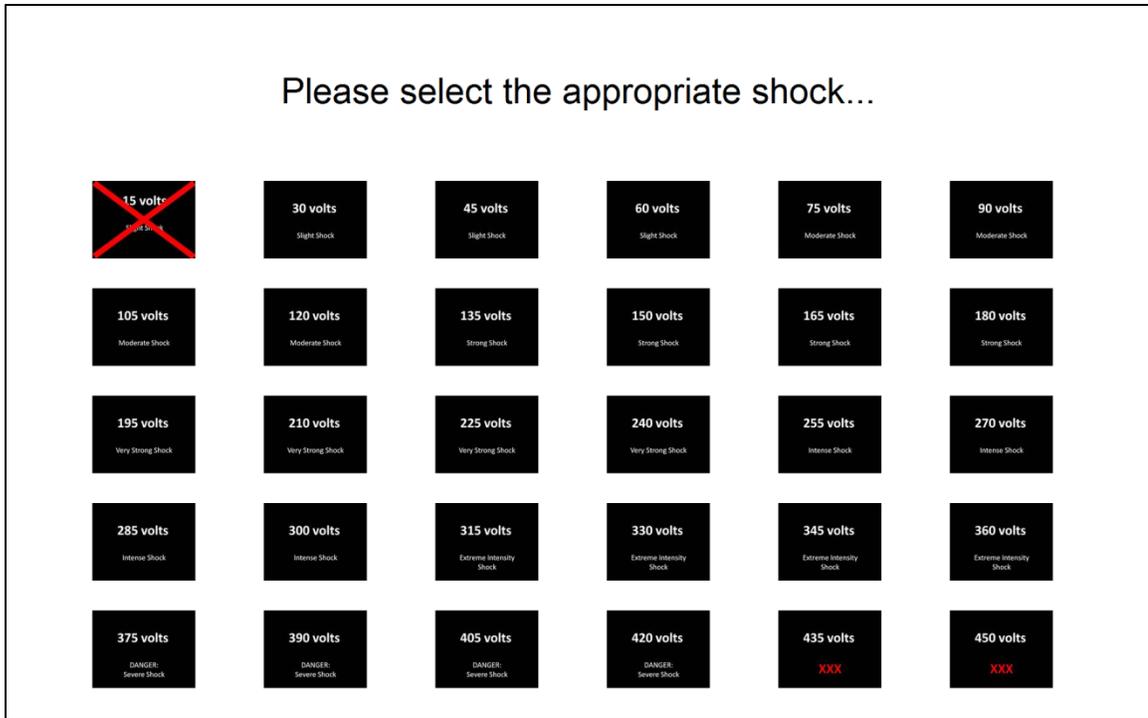


Figure 1. Voltage Selection Screen–Trial 4.

After the appropriate voltage icon was selected, participants heard the Learner’s prerecorded pain indication. The Learner’s pain indications escalated in severity along with the increasing shock voltage administered. After a voltage icon had been selected, a red “X” appeared over it for the remainder of the session so that participants had to select the next highest voltage icon on subsequent trials.

Each time the participant indicated reluctance to continue the session, Experimenter 1 responded with four increasingly authoritarian prods which were the same as those used by Milgram in his original obedience studies. In order, the prods were “please continue,” “the experiment requires that you continue,” “it is absolutely essential that you continue,” and “you have no other choice, you must go on.” Each time the participant indicated a reluctance to continue, Experimenter 1 began with the first prod. If the participant still refused to continue, then the second prod was given and so on. The

session was terminated if the participant still refused to continue after the fourth prod or if the participant continued to the 15th trial of the learning test. It is important to note that occasionally the prods issued to participants during the session had to be slightly modified to be appropriate for the context. For example, a participant might respond to the Experimenter's second prod by saying "I thought you said I could stop at any time?" In these instances, the Experimenter would acknowledge that the participant was correct but that they should still continue with the session (e.g., the third prod was altered to "Yes, but it is absolutely essential that you continue").

After the session was terminated, either because the participant had protested after Experimenter 1 had given the fourth prod or the participant had continued to the 15th trial of the learning task, Experimenter 1 assessed participants' affect using the Positive and Negative Affect Schedule (PANAS; Watson et al., 1988) and conducted a manipulation check to assess participants' suspicion regarding the purpose of the study. Additionally, each participant was asked whether the Learner or Experimenter 1 had been more of an influence on their behavior during the session. After completion of these measures, participants were fully debriefed and told the true nature of the study. The participant was then reunited with the Learner who reassured the participant that they were unharmed and had received no real electric shocks. Participants were finally thanked for their time and granted partial course credit for their participation.

Data Analytic Strategy

Obedience in the current study was represented as a dichotomous variable. That is, participants who refused to continue participation at any point in the study were considered disobedient, whereas participants who proceeded to trial 15 were considered

obedient. Obedient participants were coded as 0 and disobedient participants were coded as 1. Data were analyzed via logistic regression. All personality variables were entered as simultaneous predictors of the dichotomous outcome variable obedience. Chi-square analyses were attempted in order to examine differences in rates of obedience between male and female participants, as well as differences in rates of obedience between sessions in which the Learner was male and sessions in which the Learner was female.

Additional analyses also examined participants' reluctance to obey the Experimenter. Following the procedures of Burger (2009) and Zeigler-Hill et al. (2013) two variables were computed that served as indicators of participants' reluctances to obey. The first variable indicates the total number of prods from the Experimenter each participant required during the session (i.e., the number of times a participant indicated reluctance to continue during the session). The second variable indicates the first trial on which participants required a prod from the Experimenter (i.e., how early in the session each participant expressed reluctance to continue). Two multiple regression analyses were conducted in order to examine whether personality variables would predict participants' reluctance to obey. In each of these analyses all personality variables were entered in a single step as simultaneous predictors of the continuous outcome variables total number of prods and timing of first prod. A series of independent-samples t-tests were also conducted in order to examine differences in reluctance to obey between male and female participants, as well as differences in reluctance to obey between sessions in which the Learner was male and sessions in which the Learner was female. Additionally, a principle components analysis of the Dark Triad was conducted in order to examine

whether components underlying the Dark Triad could predict obedience and reluctance to obey variables.

CHAPTER III

RESULTS

Means and standard deviations for personality variables are provided in Table 2.

Table 2

Means and Standard Deviations for all Personality Variables in the Model

	<i>Mean</i>	<i>SD</i>
1. Neuroticism	3.11	0.66
2. Extraversion	3.28	0.66
3. Agreeableness	3.97	0.60
4. Conscientiousness	3.80	0.54
5. Openness	3.23	0.62
6. Primary psychopathy	1.92	0.46
7. Secondary psychopathy	2.08	0.43
8. Leadership/Authority	6.27	1.96
9. Grandiose Exhibitionism	3.67	2.33
10. Exploitativeness/Entitlement	0.85	0.96
11. Machiavellianism	2.59	0.39

Overall, only six participants, all of whom were women, disobeyed the Experimenter and refused to continue the learning task, resulting in an obedience rate of 84.62%. Of the disobedient participants, 2 disobeyed before trial 5, 1 disobeyed on trial 8, 1 disobeyed on trial 11, and 2 disobeyed on trial 12. The total number of prods from the Experimenter ranged from 0 to 6 (4 participants required more than 4 prods during the session but did not require more than 3 on any single trial), and the average number of prods required during the session was 1.69. The trial on which participants required their first prod ranged from trial 3 to trial 15, with 12 participants requiring a prod prior to trial 15, 19 participants requiring their first prod on trial 15, and 8 participants completing the session without requiring any prods. A series of independent-samples t-tests revealed that

there were no significant differences between obedient and disobedient participants on personality variables.

Tests of Hypotheses

To determine the impact of personality variables on the likelihood of disobedience, a single logistic regression was performed. Disobedience was entered as the dichotomous outcome variable. All personality variables including the Big Five personality dimensions (neuroticism, extraversion, agreeableness, conscientiousness, and openness), primary and secondary psychopathy, Machiavellianism, and the three subfacets of narcissism (Leadership/Authority, Grandiose Exhibitionism, and Exploitativeness/Entitlement) were entered in a single step as simultaneous predictors. The evaluation of the overall model is provided in Table 3.

Table 3

Overall Model Evaluation

Significance of Overall Model			
	χ^2	<i>df</i>	<i>p</i>
Omnibus tests of model coefficients	11.76	11	.38
Goodness-of-fit			
	χ^2	<i>df</i>	<i>p</i>
Hosmer-Lemeshow Goodness-of-fit	1.40	8	.99
<i>R</i> ² -type Indices			
	<i>R</i> ²		
Cox & Snell <i>R</i> ²	.26		
Nagelkerke <i>R</i> ²	.45		

Note. **p* < .05; ***p* < .01; ****p* < .001.

The observed and predicted frequencies of the model are provided in Table 4.

Table 4

Observed and Predicted Frequencies for Disobedience

Observed		Predicted		
		Disobeyed		Percentage Correct
		No	Yes	
Disobeyed	No	31	2	93.9
	Yes	4	2	33.3
Overall Percentage				84.6

Results and test statistics for each independent personality variable are provided in Table 5.

Table 5

Logistic Regression Predicting Likelihood of Disobedience

	β	SE	Wald	df	p	Odds Ratio	95% C.I.	
							Upper	Lower
Neuroticism	1.21	1.14	1.14	1	.29	3.36	0.36	31.08
Extraversion	-3.08	1.95	2.48	1	.12	0.05	0.00	2.12
Agreeableness	3.52	2.11	2.78	1	.10	33.74	0.54	2108.35
Conscientiousness	0.19	1.63	0.01	1	.91	1.21	0.05	29.40
Openness	-0.45	1.23	0.13	1	.72	0.64	0.06	7.10
Primary Psychopathy	-0.85	2.60	0.11	1	.74	0.43	0.00	69.48
Secondary Psychopathy	-1.68	2.37	0.50	1	.48	0.19	0.00	19.32
Leadership/ Authority	0.12	0.52	0.05	1	.82	1.12	0.41	3.11
Grandiose Exhibitionism	0.46	0.47	0.95	1	.33	1.58	0.63	3.97
Exploitativeness/ Entitlement	1.05	1.07	0.97	1	.32	2.87	0.35	23.38
Machiavellianism	5.89	2.94	4.03	1	.05	362.54	1.15	114730.18

Note. *p < .05; **p < .01; ***p < .001.

As a whole, the model explained between 26% (Cox and Snell R-squared) and 45.2% (Nagelkerke R-squared) of the variance in disobedience and correctly classified 84.6% of cases. However, the full model containing all predictors was not statistically significant $\chi^2(11, N = 39) = 11.76, p = .38$, indicating that the model was not able to distinguish between individuals who were obedient and disobedient. The failure of the model to reach statistical significance could be due in part to the low number of disobedient participants in the current sample. As suggested by Hart and Clark (1999), low sample sizes increase the likelihood of Type II error problems in statistical analyses such as logistic regression. The authors suggest that 30 to 50 participants per independent variable should be included in a sample in order to avoid Type II errors. If this suggestion is correct, the small sample size in the current study may have led to the failure of the overall model to reach significance.

Hypothesis 1

It was predicted that individual differences in neuroticism would predict obedience such that higher levels of neuroticism would be associated with greater obedience. Results revealed that the odds ratio of 3.36 for neuroticism was not statistically significant ($p = .29$), indicating that neuroticism did not predict obedience. Hypothesis 1 was not supported.

Hypothesis 2

It was predicted that individual differences in extraversion would predict obedience such that higher levels of extraversion would be associated with greater disobedience. Results revealed that the odds ratio of .05 for extraversion was not

statistically significant ($p = .12$), indicating that extraversion did not predict disobedience. Hypothesis 2 was not supported.

Hypothesis 3

It was predicted that individual differences in agreeableness would predict obedience such that higher levels of agreeableness would be associated with greater obedience. Results revealed that the odds ratio of 33.74 for agreeableness was not statistically significant ($p = .10$), indicating that agreeableness did not predict obedience. Hypothesis 3 was not supported.

Hypothesis 4

It was predicted that individual differences in conscientiousness would predict obedience such that higher levels of conscientiousness would be associated with greater disobedience. Results revealed that the odds ratio of 1.21 for conscientiousness was not statistically significant ($p = .91$), indicating that conscientiousness did not predict disobedience. Hypothesis 4 was not supported.

It was unclear whether the Big Five dimension of openness would be related to obedience. Results revealed that the odds ratio .64 for openness was not statistically significant ($p = .72$), indicating that openness did not predict obedience or disobedience.

Hypothesis 5

It was predicted that individual differences in primary psychopathy would predict obedience such that higher levels of primary psychopathy would be associated with greater obedience. Results revealed that the odds ratio of .43 for primary psychopathy was not statistically significant ($p = .74$), indicating that primary psychopathy did not predict obedience. Hypothesis 5 was not supported.

Hypothesis 6

It was predicted that individual differences in secondary psychopathy would predict obedience such that higher levels of secondary psychopathy would be associated with greater obedience. Results revealed that the odds ratio of .19 for secondary psychopathy was not statistically significant ($p = .48$), indicating that secondary psychopathy did not predict obedience. Hypothesis 6 was not supported.

Hypothesis 7

It was predicted that individual differences in the Leadership/Authority facet of narcissism would predict obedience such that higher levels of Leadership/Authority would be associated with greater disobedience. Results revealed that the odds ratio of 1.12 for Leadership/Authority was not statistically significant ($p = .82$), indicating that Leadership/Authority did not predict disobedience. Hypothesis 7 was not supported.

Hypothesis 8

It was predicted that individual differences in the Grandiose Exhibitionism facet of narcissism would predict obedience such that higher levels of Grandiose Exhibitionism would be associated with greater obedience. Results revealed that the odds ratio of 1.58 for Grandiose Exhibitionism was not statistically significant ($p = .33$), indicating that Grandiose Exhibitionism did not predict obedience. Hypothesis 8 was not supported.

Hypothesis 9

It was predicted that individual differences in the Exploitativeness/Entitlement facet of narcissism would predict obedience such that higher levels of Exploitativeness/Entitlement would be associated with greater obedience. Results revealed that the odds ratio of 2.87 for Exploitativeness/Entitlement was not statistically

significant ($p = .32$), indicating that Exploitativeness/Entitlement did not predict obedience. Hypothesis 9 was not supported.

Hypothesis 10

It was predicted that individual differences in Machiavellianism would predict obedience such that higher levels of Machiavellianism would be associated with greater obedience. Results revealed that the odds ratio of 362.54 for Machiavellianism was statistically significant ($p = .05$); however, the direction of this association is opposite of the predicted direction. It is important to recognize that the odds ratio for Machiavellianism is most likely overestimated. This is most likely due to the small sample size of the current study, as well as the fact that relatively few participants were disobedient (Nemes, Jonasson, Genell, & Steineck, 2009). Hypothesis 10 was not supported.

Exploratory Analyses

In addition to the analyses concerning the main hypotheses, two exploratory analyses were also included. The first proposed exploratory analysis aimed to examine possible differences in rates of obedience between male and female participants. However, due to the low number of men in the current sample, as well as the fact that no men were disobedient, it was not possible to conduct a chi-square analysis because expected frequencies for men were below 5. The second proposed exploratory analysis aimed to examine possible differences in rates of obedience between sessions in which the Learner was male and sessions in which the Learner was female. However, due to the low number of disobedient participants, it was not possible to conduct a chi-square analysis because expected frequencies for disobedience were below 5.

Additional Analyses

Reluctance to Obey

Due to the fact that relatively few participants in the current sample were disobedient, additional analyses were conducted to examine participants' reluctance to obey. Following the procedures of Burger (2009) and Zeigler-Hill et al. (2013) two variables were computed, which served as indicators of participants' reluctance to obey. The first variable indicates the total number of prods from the Experimenter each participant required during the session (i.e., the number of times a participant indicated reluctance to continue during the session). The second variable indicates the first trial on which participants required a prod from the Experimenter (i.e., how early in the session each participant expressed reluctance to continue). The distributions for the two variables capturing reluctance to obey were severely negatively skewed. Therefore, transformations were performed in order to normalize these distributions. The variable representing the total number of prods was recoded such that participants who required no prods were coded as -1, participants who required one prod were coded as 0, and participants who required more than one prod were coded as 1. The variable reflecting the trial on which participants required their first prod was recoded such that participants who required their first prod prior to trial 15 were coded as -1, participants who required their first prod on trial 15 were coded as 0, and participants who did not require a prod were coded as 1.

Intercorrelations between all personality features and the two newly computed reluctance variables reflecting the total number of prods each participant required during

the session and trial on which participants required the first prod are displayed below in Table 6.

Table 6

Intercorrelations for Personality Features and Reluctance to Obey Variables

	Total Number of Prods	Time of First Prod
Neuroticism	.21	-.23
Extraversion	-.17	.12
Agreeableness	-.04	.01
Conscientiousness	.26	-.20
Openness	-.05	.02
Primary Psychopathy	.07	-.05
Secondary Psychopathy	.19	-.19
Leadership/Authority	-.15	.16
Grandiose Exhibitionism	.02	-.07
Exploitativeness/Entitlement	-.13	.04
Machiavellianism	.21	-.02
<i>Mean</i>	0.10	-0.15
<i>(SD)</i>	(0.72)	(0.71)

Note. * $p < .05$; ** $p < .01$; *** $p < .001$.

Two multiple regression analyses were conducted in order to examine the possible impact of personality variables on reluctance to obey. For both analyses, all personality variables, including the Big Five personality dimensions (neuroticism, extraversion, agreeableness, conscientiousness, and openness), primary and secondary psychopathy, Machiavellianism, and the three subfacets of narcissism (Leadership/Authority, Grandiose Exhibitionism, and Exploitativeness/Entitlement), were entered in a single step as simultaneous predictor variables. For the first regression analysis, participants' total number of prods required during the session was entered as a continuous outcome variable. For the second regression analysis, the trial on which

participants required the first prod was entered as a continuous outcome variable. The results of these analyses are displayed in Table 7.

Table 7

Multiple Regression Analysis Examining the Impact of Personality Features on Reluctance to Obey Variables

	Total Number of Prods			Time of First Prod		
	R^2	AR^2	β	R^2	AR^2	β
<i>Step 1</i>	.35	.09		.32	.05	
Neuroticism			.24			-.30
Extraversion			-.30			.06
Agreeableness			.01			-.27
Conscientiousness			.57**			-.48*
Openness			.04			-.10
Primary Psychopathy			-.01			.03
Secondary Psychopathy			.23			-.19
Leadership/Authority			-.30			.30
Grandiose Exhibitionism			.18			-.25
Exploitativeness/Entitlement			-.19			-.02
Machiavellianism			.17			-.26

Note. * $p < .05$; ** $p < .01$; *** $p < .001$; AR^2 indicates the adjusted R^2 for each model.

Results for the first model revealed that personality variables accounted for 36% of the variance in total number of prods required during the session. Although the model as a whole was not statistically significant, $F(11, 27) = 1.36, p = .25$, conscientiousness did emerge as a significant predictor, $\beta = .57, t = 2.93, p = .007$. This indicates that individuals who reported higher levels of conscientiousness required more prods during the session (i.e., were more reluctant to obey). For the second model, personality variables accounted for 32% of the variance in the timing of participants' first prod during the session. Similar to the first analysis, this model also failed to reach statistical significance, $F(11, 27) = 1.18, p = .35$, although conscientiousness did emerge as a

significant predictor, $\beta = -.48$, $t = -2.43$, $p = .02$. This indicates that individuals who reported higher levels of conscientiousness required a prod earlier in the session (i.e., were reluctant to obey earlier). It is important to note that the significant findings for conscientiousness are most likely a statistical artifact resulting from a suppression effect, as conscientiousness was not significantly correlated with either of the reluctance to obey variables.

In order to examine differences in reluctance to obey between male and female participants, two independent-samples t-tests were conducted. The first analysis examined differences in the total number of prods required during the session between male and female participants. Results revealed that there was no significant difference in the number of prods required during the session, $t(37) = -1.01$, $p = .32$, between male ($M = -0.20$, $SD = 0.84$) and female ($M = 0.15$, $SD = 0.70$) participants. The magnitude of the difference in the means (mean difference = -0.35 , 95% CI: -1.04 to 0.35) was small ($\eta^2 = .03$). The second analysis examined differences in the timing of the first prod required during the session between male and female participants. Results revealed that there was no significant difference in the timing of the first prod required during the session, $t(37) = 1.20$, $p = .24$, between male ($M = 0.20$, $SD = 0.84$) and female ($M = -0.21$, $SD = 0.69$) participants. The magnitude of the difference in the means (mean difference = 0.41 , 95% CI: -0.28 to 1.09) was small ($\eta^2 = .04$).

In order to examine differences in reluctance to obey between sessions in which the Learner was male and sessions in which the Learner was female, two independent-samples t-tests were conducted. The first analysis examined differences in the total number of prods required during the session between sessions in which the Learner was

male and sessions in which the Learner was female. Results revealed that there was no significant difference in the total number of prods required during the session, $t(36) = 1.22, p = .23$, between sessions in which the Learner was male ($M = 0.23, SD = 0.69$) and sessions in which the Learner was female ($M = -0.63, SD = 0.77$). The magnitude of the difference in the means (mean difference = 0.29, 95% CI: -0.19 to 0.77) was small ($\eta^2 = .04$). The second analysis examined differences in the timing of the first prod required during the session between sessions in which the Learner was male and sessions in which the Learner was female. Results revealed that there was no significant difference in the timing of the first prod required during the session, $t(36) = -0.69, p = .49$, between sessions in which the Learner was male ($M = -0.23, SD = 0.69$) and sessions in which the Learner was female ($M = -0.63, SD = 0.77$). The magnitude of the difference in the means (mean difference = -0.16, 95% CI: -0.65 to 0.32) was small ($\eta^2 = .01$).

Factor Analysis of the Dark Triad

A principle components analysis of the Dark Triad (primary and secondary psychopathy, Machiavellianism, and Leadership/Authority, Grandiose Exhibitionism, and Exploitativeness/Entitlement narcissism) was conducted in order to determine if a component underlying these personality factors could predict obedience. Although the sample size was small ($N = 38$), the Kaiser-Meyer-Okin value was .624, exceeding the recommended value of .60 (Kaiser, 1970, 1974), and Bartlett's Test of Sphericity (Bartlett, 1954) was significant ($p < .001$), supporting the factorability of the data. Principle components analysis revealed two components with eigenvalues greater than one, explaining 42.36% and 23.35% of the variance, respectively. An inspection of the screeplot revealed a clear break after the second component, and it was determined that

two components would be retained. The two component solution accounted for 65.72% of the variance in the Dark Triad variables. To aid in the interpretation of these two components, a direct oblimin rotation was performed. The rotated solution revealed a simple structure, with all variables loading substantially on only one component, as displayed in Table 8.

Table 8

Principle Components Analysis Factor Loadings of the Dark Triad

Dark Triad Variable	Pattern Coefficients	
	Component 1	Component 2
Secondary Psychopathy	.85	
Machiavellianism	.85	
Primary Psychopathy	.72	
Exploitativeness/Entitlement	.58	
Leadership/Authority		.91
Grandiose Exhibitionism		.65

Variables loading strongly on the first component included primary and secondary psychopathy, Machiavellianism, and Exploitativeness/Entitlement narcissism. This is similar to the first factor found by Jakobwitz and Egan (2006) in their factor analysis of the Dark Triad. Variables loading strongly on the second component were Leadership/Authority and Grandiose Exhibitionism narcissism. The first component was termed “Manipulation,” reflecting the shared manipulative tendencies common to the variables loading strongly on this component. The second component was termed “Grandiosity/Authority,” reflecting the shared characteristics of the variables loading strongly on this component.

A logistic regression was performed in order to determine the possible role of the newly computed Manipulation and Grandiosity/Authority variables in the likelihood of

disobedience. In the model, disobedience was entered as the dichotomous outcome variable and the Manipulation and Grandiose/Authority variables were entered in a single step as simultaneous predictors. The model as a whole failed to reach statistical significance, $\chi^2(2, N = 39) = 0.66, p = .719$. The odds ratios for Manipulation and Grandiosity/Authority were 2.04 ($p = .51$) and .84 ($p = .54$), respectively, indicating that neither variable predicted obedience.

In order to determine whether the Manipulation and Grandiosity/Authority variables would play a role in individuals' reluctance to obey, two multiple regression analyses were conducted. For these two analyses, the Manipulation and Grandiosity/Authority variables were entered as simultaneous continuous predictors. For the first analysis, the number of prods participants required during the session was entered as the continuous outcome variable. Results revealed that the model as a whole failed to reach significance, $F(2, 38) = 0.15, p = .86$. For the second analysis, the trial on which participants required their first prod was entered as the continuous outcome variable. Results revealed that the model as a whole failed to reach significance, $F(2, 38) = 0.21, p = .81$.

CHAPTER IV

DISCUSSION

The current study aimed to examine the possible role of personality in destructive obedience to authority in a modified version of the Stanley Milgram (1963, 1974) paradigm. Although previous research regarding the connection between personality and obedience has failed to find significant associations, it remains that some individuals are obedient and others are not. Therefore, the present study investigated a range of personality features that could possibly be associated with obedience in a situation in which participants were ordered by an Experimenter to ostensibly inflict pain on another person via administration of electric shock.

Review of Findings

It was predicted that obedience would be associated with higher levels of neuroticism, agreeableness, primary and secondary psychopathy, Machiavellianism, Exploitativeness/Entitlement, and Grandiose Exhibitionism, whereas disobedience was predicted to be associated with higher levels of extraversion, conscientiousness, and Leadership/Authority narcissism. Tests of the main hypotheses via logistic regression revealed that the overall model failed to reach significance and that none of the predicted associations between personality features and obedience emerged. Although the analysis regarding Machiavellianism did reach conventional levels of significance, the observed association was not in the expected direction and it was most likely a statistical artifact due to the low sample size in the present study (Nemes et al., 2009).

Because only six participants were disobedient, two variables indicating participants' reluctance to obey were computed following the procedures employed by

Burger (2009) and Zeigler-Hill et al. (2013). The first variable reflected the total number of prods from the Experimenter that each participant required during the laboratory session. The second variable reflected the trial on which participants required the first prod from the Experimenter, that is, how early in the session each participant indicated reluctance to continue with the learning task. As the distributions of these variables were severely negatively skewed, transformations were performed in order to normalize their distributions.

Results of multiple regression analyses examining possible relationships between personality features and the variables concerning reluctance to obey revealed that only conscientiousness reached conventional levels of significance such that individuals higher in conscientiousness required more prods from the Experimenter and also required their first prod significantly earlier. However, this finding is most likely a statistical artifact resulting from a suppression effect, as conscientiousness was not significantly correlated with either of the reluctance to obey variables. If this relationship were able to be replicated in a larger more diverse sample there are two possible explanations. First, this finding may be due to the tendencies of individuals high in conscientiousness to adhere to a higher code of moral conduct (McCrae & Costa, 1987). It is possible that participants high in conscientiousness perceived the learning task and the administration of electric shocks as immoral and were therefore more reluctant to continue the session. Second, it is also possible that the association between reluctance to obey and conscientiousness may be partially due to the tendencies of individuals high in conscientiousness to be meticulous when performing tasks (McCrae & Costa, 1987, 1997). This tendency to be meticulous in task performance may have led individuals high

in conscientiousness to question whether they were performing their role of Teacher appropriately as the Learner's protests and indications of pain escalated. If this is indeed the case, then these individuals may have questioned the Experimenter in order to make sure they were conducting the learning task correctly. However, it is important to note that this result occurred only in analyses examining reluctance to obey and did not emerge in analyses regarding obedience/disobedience and that these results are not consistent with previous studies that failed to find an association between conscientiousness and obedience (e.g., Bocchiaro & Zimbardo, 2010; Zeigler-Hill et al., 2013). As such, these results warrant replication in a larger sample in order to determine the reliability of this finding.

Analyses also revealed that there were no significant differences between male and female participants for obedience or either indicator of reluctance to obey. This finding is in line with previous results finding no sex differences in rates of obedience (Blass, 1991; Burger, 2009; Milgram, 1974). These findings may indicate that men and women are similarly susceptible to obey authority figures. However, it is also possible that the low number of men in the current sample contributed to this result. Additionally, there were no differences in obedience rates, or in reluctance to obey, between sessions in which the Learner was male and sessions in which the Learner was female. This finding may indicate that men and women are equally likely to be the victims of destructive obedience. However, this result warrants replication in a larger, more diverse sample in order to reliably determine whether or not the sex of the Learner plays a role in individuals' reluctance to obey in this paradigm.

Further, a principle components analysis of the Dark Triad was conducted in order to determine whether underlying factors of these personality features would predict obedience and/or reluctance to obey variables. Analyses revealed two underlying components, which were termed “Manipulation” and “Grandiosity/Authority,” reflecting the Dark Triad features loading strongly on the two components. Results of logistic regression and multiple regression analyses revealed that these two underlying Dark Triad components predicted neither obedience nor reluctance to obey.

Limitations and Future Directions

It is important to note some limitations of the current study. First, the sample size was quite small ($N = 39$) and consisted primarily of college-aged women. Therefore, it is possible that the results of the current study only generalize to women in this age-range. It is important for future research to obtain larger sample sizes that are more diverse in order for results to be generalized to a wider range of individuals.

A second limitation—related to the small sample size of the current study—is that there were relatively few disobedient participants. The fact that only six participants disobeyed may have contributed to the lack of significant associations between obedience and personality variables (see Hart & Clark, 1999, for a similar argument). That is, there was relatively little variability in obedience to predict using personality features. Another potential explanation is that the power of this particular situation is simply too strong and could overwhelm any potential effects of personality. Indeed, the power of the situation has been frequently discussed in literature regarding the Milgram paradigm (e.g., Benjamin & Simpson, 2009; Blass, 2009; Milgram, 1963; Twenge, 2009), and future

research may benefit from modifying the paradigm further in order to reduce the severity of the situation.

There are several ways in which the Milgram paradigm may be altered in order to achieve more variability in obedience. Previous research has attempted reduce the situational power in Milgram's paradigm to obtain higher rates of disobedience. For example, Zeigler-Hill et al. (2013) modified the type of punishment the Teacher ostensibly administered to the Learner. In that study, Teachers believed they were administering white noise sound-blasts as punishment to the Learner instead of electric shock. The goal of Zeigler-Hill et al. was to examine the role of personality in obedience in a more ethical fashion. This modification was intended to lead more participants to disobey as a result of the reduced situational power. However, the use of sound-blasts resulted in a considerably high obedience rate of 94%. Zeigler-Hill et al. (2013) suggest this high rate of obedience may have occurred because participants did not perceive the sound-blasts to be a severe punishment and were not adequately motivated to disobey the Experimenter. As a result, the present study attempted to increase the severity of the punishment by employing ostensible electric shock—similar to Milgram's original studies—in order to sufficiently motivate participants to disobey, while limiting the study to 15 trials. The obedience rate of approximately 85% in the current study is indeed lower than that found by Zeigler-Hill et al. (2013) and comparable to the 83% obedience rate found in Milgram's original study at the 150-volt point. These findings may indicate that the type of punishment ostensibly administered to the Learner may be a factor that researchers should consider when determining the power of the situation. Sound-blasts

may not evoke sufficient motivation to disobey, whereas electric shock may be too overwhelming for participants.

In order to achieve more variability in obedience, future research may further benefit by varying aspects of the Milgram paradigm other than the type of punishment ostensibly administered to the Learner. For example, in variations of Milgram's original studies the distance of the Experimenter and the Learner from the Teacher were systematically varied (Milgram, 1974). In Milgram's Experiment 7, the Experimenter was not present in the laboratory with the Teacher during the learning tasks and gave instructions over a telephone. In this variation, it was found that the rates of obedience decreased from 83% in the baseline Experiment 5 to 75%. Additionally, in Milgram's Experiment 10, the location of the laboratory was moved from Yale University to an office building in Bridgeport, Connecticut. This variation of the paradigm yielded a lower obedience rate of 75%, similar to Experiment 7. As such, future research may benefit from increasing the distance between the Experimenter and the Teacher, as well as moving the session from a university campus to another location in order to obtain more variability in obedience.

A third limitation of the current study is the fact that the recorded pain indications for each Learner were not evaluated for consistency. That is, there were no examinations regarding whether each Learner's pain indications for each voltage level were equal in intensity and tone. Attempts were made to make recordings for each Learner as identical as possible for each voltage level. However, as these recordings were not officially evaluated by independent raters for intensity and tone, it is possible that differences in recordings for each Learner may have affected the results of the present study. Future

research employing multiple Learners should subject each Learner's recorded pain indications to an evaluation by blind independent raters to ensure that each Learner's pain indications are matched for intensity.

A fourth potential limitation of the current study is pervasive knowledge of the Milgram obedience paradigm. Even though Milgram's research was conducted quite some time ago, his work continues to be referenced in a wide array of disciplines, both inside and outside of psychology, as well as in the popular media (Blass, 2004). Milgram's research is arguably one of the most well-known psychological investigations ever conducted (Blass, 2009). As such, it is possible that the current study was affected by individuals' prior knowledge of the true purpose of the study. Five participants were excluded from the study due to prior knowledge of the Milgram paradigm, each of whom alerted the Experimenters of this knowledge prior to beginning the learning task. Additionally, many safeguards were put in place in order to ensure that participants believed the situation was indeed real. Data collection was restricted to only introductory psychology students at the beginning of each semester before Milgram's research had been discussed in their courses. A manipulation check was conducted directly following completion of the session, which probed for participants' suspicion regarding the authenticity of the learning task as well as the punishments. No participants were excluded as a result of suspicion. However, it is always possible that some individuals had prior knowledge of the Milgram paradigm and did not disclose this to the Experimenters.

A fifth limitation is the range of personality features included in the current study. Although the present study included a broader range of personality features than the

majority of research regarding obedience, these features failed to produce any meaningful associations with obedience. As such, it is important for future research examining the role of personality in destructive obedience to include other aspects of personality that may be relevant to the construct of obedience. One personality feature that may play a role in obedience to authority is authoritarianism. Authoritarianism, or right-wing authoritarianism, is characterized by tendencies to be submissive to authority figures that are viewed as legitimate, hostility toward members of out-groups, and support for traditional values when those values are endorsed by authority figures (e.g., Adorno et al., 1950; Altemeyer, 1996). Elms and Milgram (1966) did find that men who had been obedient in a version of the paradigm scored higher on a measure of authoritarianism than did men who had been disobedient. Similar results did not emerge in Miller's (1975) study, which required participants to inflict pain on themselves (as cited in Blass, 1991), but it is possible that authoritarianism may still play a role in obedience. It may be that inflicting pain on oneself is too strong of a request and overwhelms the tendencies of authoritarian personalities to be submissive to authority figures. Additionally, Dambrun and Vatiné (2010) found that individuals scoring higher on a measure of right-wing authoritarianism were more likely to be obedient in a virtual version of the Milgram obedience paradigm. These findings, taken together, suggest that authoritarianism may be an individual difference that plays a potential role in destructive obedience.

An additional individual difference that may play a role in destructive obedience is involuntary subordination, which is defined by Sturman (2011) as frequent feelings of being stuck (i.e., entrapment), defeat, inferiority, and self-perceptions of submissiveness. Involuntary subordination has been found to be positively associated with behaviors that

are indicative of a lack of confidence, such as avoiding eye-contact, especially in men (Sturman, 2011). In the context of the Milgram paradigm, individuals high in involuntary subordination may be more likely to feel a sense of entrapment, which may lead these individuals to be submissive to the authority of the Experimenter. As such, it is possible that higher levels of involuntary subordination may be associated with higher rates of destructive obedience.

Another possibility future studies should consider is that the tendency to obey authority figures may be a personality feature itself. This could explain why previous research, as well as the current study, has failed to find consistent relationships between personality and obedience. If the tendency to obey authority figures is indeed a unique feature of personality, it may be represented by a combination of the characteristics of authoritarianism and involuntary subordination. Characteristics of authoritarianism such as tendencies to be subservient to legitimate authority (e.g., Adorno et al., 1950; Altemeyer, 1996) and characteristics of involuntary subordination such as viewing the self as submissive and inferior (Sturman, 2011) together may represent a general tendency to be obedient to authority. If this is correct, then individuals possessing these characteristics should be more likely to be obedient in the context of the Milgram paradigm.

It is also possible that personality simply has no influence on individuals' tendencies toward obedience. This may be the reason that research examining the role of personality in obedience has failed to produce meaningful associations. As previously mentioned, Milgram's obedience research has long been used as evidence for the power of a situation to overwhelm personality features (e.g., Benjamin & Simpson, 2009; Blass,

2009; Milgram, 1963; Twenge, 2009). This explanation holds that in this novel situation, the pressure from the Experimenter to continue the learning task may overpower an individual's personality features. If personality plays no role in obedience, then future research may benefit from examining factors other than the individual differences of participants such as characteristics of the Learner and the Experimenter. For example, future studies should investigate the potential effects of the ethnicity, gender, and age of the Experimenter and Learner on obedience rates.

Conclusions

The current study attempted to examine the role that individual differences in the personality dimensions of the Big Five and the Dark Triad play in destructive obedience within a modified version of the Stanley Milgram paradigm. Although personality dimensions failed to predict obedience, the conscientiousness dimension of the Big Five was found to be associated with two variables reflecting participants' reluctance to obey. As these results are contradictory to previous research finding no association between conscientiousness and obedience (e.g., Bocchiaro & Zimbardo, 2010), this result should be replicated in a larger sample in order to determine whether this association is reliable. Future research examining associations between individual differences and obedience to authority would benefit by attempting to increase variability in obedience. Possible ways to achieve this may be to increase the distance between the Experimenter and the Teacher during the learning task and to move the laboratory to a location other than a university campus. Future studies should also examine the possible role of other personality variables, such as authoritarianism and involuntary subordination or a combination of the two, in the likelihood of engaging in destructive obedience. Additionally, a potentially

fruitful avenue for future research may be to examine characteristics of the Experimenter and the Learner in order to determine if features such as the ethnicity of the authority figure and the victim affect rates of obedience.

APPENDIX A

IRB APPROVAL FROM THE UNIVERSITY OF SOUTHERN MISSISSIPPI



THE UNIVERSITY OF SOUTHERN MISSISSIPPI

Institutional Review Board

118 College Drive #5147
Hattiesburg, MS 39406-0001
Tel: 601.266.6820
Fax: 601.266.5509
www.usm.edu/irb

**HUMAN SUBJECTS PROTECTION REVIEW COMMITTEE
NOTICE OF COMMITTEE ACTION**

The project has been reviewed by The University of Southern Mississippi Human Subjects Protection Review Committee in accordance with Federal Drug Administration regulations (21 CFR 26, 111), Department of Health and Human Services (45 CFR Part 46), and university guidelines to ensure adherence to the following criteria:

- The risks to subjects are minimized.
- The risks to subjects are reasonable in relation to the anticipated benefits.
- The selection of subjects is equitable.
- Informed consent is adequate and appropriately documented.
- Where appropriate, the research plan makes adequate provisions for monitoring the data collected to ensure the safety of the subjects.
- Where appropriate, there are adequate provisions to protect the privacy of subjects and to maintain the confidentiality of all data.
- Appropriate additional safeguards have been included to protect vulnerable subjects.
- Any unanticipated, serious, or continuing problems encountered regarding risks to subjects must be reported immediately, but not later than 10 days following the event. This should be reported to the IRB Office via the "Adverse Effect Report Form".
- If approved, the maximum period of approval is limited to twelve months. Projects that exceed this period must submit an application for renewal or continuation.

PROTOCOL NUMBER: **10090101**
PROJECT TITLE: **OF10**
PROPOSED PROJECT DATES: **09/15/2010 to 09/15/2011**
PROJECT TYPE: **New Project**
PRINCIPAL INVESTIGATORS: **Virgil Zeigler-Hill, Ph.D.**
COLLEGE/DIVISION: **College of Education & Psychology**
DEPARTMENT: **Psychology**
FUNDING AGENCY: **N/A**
HSPRC COMMITTEE ACTION: **Full Committee Review**
PERIOD OF APPROVAL: **09/23/2010 to 09/22/2011**



Lawrence A. Hosman, Ph.D.
HSPRC Chair

10-27-2010

Date

APPENDIX B

IRB APPROVAL FROM OAKLAND UNIVERSITY



**Institutional Review Board for the
Protection of Human Subjects**

Office of Grants, Contracts & Sponsored Research
Rochester, Michigan 48309-4401
(248) 370-4898 Fax: (248) 370-2973

February 14, 2012

Professor Virgil Zeigler-Hill
Department of Psychology

Reference: IRB application #4869, "OW12"

Dear Professor Zeigler-Hill:

The Institutional Review Board (IRB), responsible for the review of research involving human subjects, has reviewed and approved the project referenced above. **Per federal regulation, approval for the project will be for a one-year from the date of the IRB meeting at which your project was reviewed (12/15/2011) and ending 12/14/2012.**

This approval is granted with the understanding that NO changes may be made in the procedures to be followed or the consent form(s) to be used until after such modifications have been submitted to the IRB for review and approval. Do not collect data while the modified application is being reviewed. Data collected during this time can not be used.

If a consent form is required for the project, researchers must retain a copy of the informed consent form in their files for three years and must provide a copy of the consent form to the subject.

Any unanticipated problems involving risks to human subjects or serious adverse effects must be promptly reported to the IRB.

Two-months prior to the expiration of this approval you will receive notification of the need for updated information to be used for the project's continuing review. When project is completed, please download the IRB Application Completion Form from the Human Subjects site at the Research webpage, complete and email it to me. Thank you.

Sincerely,

A handwritten signature in cursive script that reads "Judette Haddad".

Judette Haddad, PhD, CIP
Regulatory Compliance Coordinator

APPENDIX C

IRB APPROVAL FROM OAKLAND UNIVERSITY



**Institutional Review Board for the
Protection of Human Subjects**

Office of Grants, Contracts & Sponsored Research
Rochester, Michigan 48309-4401
(248) 370-4898 Fax: (248) 370-2973

November 30, 2012

Professor Virgil Zeigler-Hill
Department of Psychology

Reference: Renewal of the approval of IRB application #4869, "OW12"

Dear Professor Zeigler-Hill:

The Institutional Review Board (IRB), responsible for the review of research involving human subjects, has reviewed and approved the continuation of the project referenced above. **Per federal regulation, approval for the project will be for a one-year from the date of the IRB meeting at which your request for continuing review was performed (11/29/2012) and ending 11/28/2013.**

This approval is granted with the understanding that NO changes may be made in the procedures to be followed or the consent form(s) to be used until after such modifications have been submitted to the IRB for review and approval. Do not collect data while the modified application is being reviewed. Data collected during this time can not be used.

If a consent form is required for the project, researchers must retain a copy of the informed consent form in their files for three years and must provide a copy of the consent form to the subject.

Any unanticipated problems involving risks to human subjects or serious adverse effects must be promptly reported to the IRB.

Two-months prior to the expiration of this approval you will receive notification of the need for updated information to be used for the project's continuing review. When project is completed, please download the IRB Application Completion Form from the Human Subjects site at the Research webpage, complete and email it to me. Thank you.

Sincerely,

A handwritten signature in cursive script that reads "Judette Haddad".

Judette Haddad, PhD, CIP
Regulatory Compliance Coordinator

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