2023

Halo Meets Horn: Influence of Dissonant Information in Impressions

Amber Sanders
Murray State University

Follow this and additional works at: https://digitalcommons.murraystate.edu/etd

Part of the Social Psychology Commons

Recommended Citation

Halo Meets Horn:

Influence of Dissonant Information in Impressions

A Thesis

Presented to

the Faculty of the Department of Psychology

Murray State University

Murray, Kentucky

In Partial Fulfillment

of the Requirement for the Degree

of Master of Science in Experimental Psychology

by Amber Sanders

August 2023

Acknowledgements

Abstract

The halo effect is a cognitive bias in impression formation that happens when people assume that when a person has a positive trait, such as physical attractiveness, the rest of their characteristics are also positive, leading to an overall positive perception of that person (Thorndike, 1920; Radeke & Stahelski, 2020). Conversely, the horns effect links together a negative trait, such as unattractiveness, with other seemingly negative traits (e.g., selfishness), leading to an overall negative perception (Radeke & Stahelski, 2020). However, these impression formation heuristics can lead to inaccurate impressions and poor judgments (Baumeister & Vohs, 2007). The current study examines the application of cognitive dissonance theory when one becomes aware that the formed impression is inaccurate. It was expected that, the individual would become aware of the inconsistency between reality and the impression, feel aversive (i.e., experience dissonance), and would ultimately work to reduce the dissonance through reduction strategies (Aronson, 1969; Elliot & Devine, 1994; Festinger, 1962; Harmon-Jones & Harmon-Jones, 2007; McGrath, 2017). Results indicated that the halo and horn effect were not present and there was not an overall positive or negative perception due to physical attractiveness. However, condition and information influenced impression ratings.

TABLE OF CONTENTS

List of Figures

Chapter I: Introduction

Social cognition refers to the way individuals process, remember, and use information in social contexts to explain and predict how people behave (Fiske & Taylor, 2013; Hunt et al., 2012). To know how to behave in a social setting, interpret other's social behaviors, and understand how to properly interact with and respond to others, people must acquire knowledge about social and emotional concepts, behavioral norms and mores, as well as schemas of common social events (Shany-Ur & Rankin, 2014). Heuristics, or mental shortcuts, help people quickly reduce the complexity of the world so that humans can cope with their limited processing capacity (Keren & Teigen, 2004). Specific to social cognition, heuristics aid in the ability to make interpretations and inferences about other people (Hunt et al., 2012). For example, the representative heuristic allows people to quickly judge whether an individual matches a set of attributes for a prototypical category (e.g., ingroup member; Dale, 2015). Individuals interpret these heuristics and check the small bits of details to see whether the individual meets the perceivers expectations or theory (Jones, 1990; Shany-Ur & Rankin, 2014). This type of automatic cognition allows individuals to think quickly and with little effort. Therefore, heuristics lead to attitudes, biases, stereotypical tendencies, and the prediction of behavior (Newman, 1996; Stangor, 2012).

Categorization, a type of heuristic, simplifies the person's perception by allowing an individual to understand who or what something is by knowing what it is different from (Medin & Heit, 1999). The categorization process then leads to stereotype-based judgments (Macrae & Bodenhausen, 2000) which in turn influences the processing of information about a person as well as the social decision-making processes (Branscombe & Smith, 1990). Memories can also be influenced by inferences that people make based on their experience and knowledge (Guillory & Geraci, 2010). The way in which individuals classify and organize attitudes, behaviors, or experiences allows the observer to infer things about others based on their perceived social category (Schneider, 2004).

The demands of social environments, such as responding to decisions made by others as well as coordinating mutual decisions, often rely on heuristics to make rapid decisions instead of tediously gathering and processing information (Todd et al., 2008). Fortunately, heuristic-based approaches to

social cognition tend to be accurate and succeed in increasing the effectiveness of social decision making in specific situations (Gigerenzer & Goldstein, 1996; Tversky & Kahneman, 1974). For example, Czerlinski and colleagues (1999) examined the take-the-best heuristic that allows an individual to choose between alternatives based on a single piece of information and discovered that this simple heuristic was reliably predictive. This heuristic allows individuals to find a classifying cue that serves as a basis for a judgment which leads to all other cues being ignored (Czerlinski et al., 1999). For example, individuals vote for a candidate that they believe is best to address one major issue, instead of based on multiple issues. Therefore, the candidate that individuals thought to best address the most important issue almost always won the popular vote (Graefe & Armstrong, 2012).

As individuals expend less cognitive energy to use heuristics, as opposed to step-by-step algorithms in social judgments, people tend to over rely on them (Hunt et al., 2012). Heuristics are subject to systematic breakdown occasionally and can result in biased information processing leading to incorrect judgments and hurtful cognitive biases (Haselton & Funder, 2006; Hunt et al., 2012).

A considerable number of impressions go wrong; however, the initial impression often seems accurate to the perceiver (Stangor, 2012). For example, people typically associate faces that look happy as belonging to a trustworthy person. Yet the individual may only perceive the happy face in the temporal location that they judged the social behavior (Carney et al., 2007). That is, the perceiver may only see the individual in this one limited situation, never allowing the perceiver to see the individual in a new situation or can see how the initial impressions might have been wrong.

Moreover, using heuristics to match an individual to a category, then allows the individual to rely on schemas, a framework that helps organize and interpret information, to infer information about the individual (Dale, 2015). Schemas are the preexisting assumptions about the way the world is organized that develops from repeated experience which then is repeatedly reinforced (Axelrod, 1973; Grant & Holmes, 1981). To seek the appropriate schema to fit the available information, a person will use previous knowledge to select the most accessible schema (Axelrod, 1973). When new information becomes available, whether the information was experienced or inferred, a person will try to fit the new

information into an already existing schema, modify an existing schema, or create a new schema altogether (Axelrod, 1973). For example, if an individual meets a new person, they will use their previous knowledge and experiences they have had with other people who may look or dress similar, to infer information about the individual. However, that related schema could contain erroneous stereotypes (i.e., attractive people are narcissistic; Eagly et al., 1991) which are then overgeneralized to the entire population (e.g., all beauty pageant contestants are conceited). It is for this reason that accurate impression formation is so important.

Impression Formation

There are multiple ways that biases play in how people perceive others and the impressions that they form (Schneider, 1973). First, the order of information is important in person perception. The information that we learn first is weighted more heavily than the information that comes after meeting the person (Forgas, 2011a; Stangor, 2012). This primacy effect occurs when an individual weighs the information that they acquired earlier in the interaction more than the later information (Moore, 2015). Therefore, we typically rely heavily on initial information and neglect any subsequent information that is learned. However, a recency effect could sway the weight of information because learning additional traits of a person can intervene and influence an individual's initial impression (Forgas, 2011a). However, this effect is not as strong as the primacy effect and typically involves more cognitive complexity (Mayo & Crockett, 1964).

Second, central traits, or pieces of information that carry greater weight than other information, also influence us to make inferences and can dominate an impression (Secord & Berscheid, 1963; Stangor, 2012). For example, Reich and Ray (2006) discovered that social and intellectual desirability were associated by the presentation of either socially oriented (e.g., warm versus cold) or intellectually oriented (serious versus foolish) central traits. Thus, central traits have a very strong influence on our impressions of others. Asch (1946) proposed a Gestalt view of impression formation in which influential central traits set the direction for the view of the individual and were discovered to affect the meaning of other traits that were described. For example, including a central trait that is seen as negative, such as

being described as cold, in an otherwise positive set of traits appeared to change the meaning of all the positive traits, thus resulting in a negative impression (Hampson, 1998). Although most people will engage in positive behaviors most of the time, when a person behaves in a way that society typically disapproves of, the novelty of the behavior could lead to the formation of a negative bias. This is because the negative information attracts greater attention and receives more cognitive processing time, therefore making negative behavior more heavily weighted in the impressions of others (Gardner, 1996).

Third, perceivers tend to exaggerate the size of the relationship between perceived traits (Schneider, 1973). For example, students who hear a professor is nice, may also assume the professor is funny and grades easily. This can lead to inaccurate impressions and poor judgments that are quite difficult to change (Baumeister & Vohs, 2007). For instance, Wolffhechel and colleagues (2014) discovered that women are perceived as more trustworthy, responsible, and attractive whereas men are seen as more emotionally stable. Additionally, it was found that men with a calmer personality was associated with friendliness and extraversion (Wolffhechel et al., 2014).

Lastly, in forming impressions, people typically pay attention to the most salient features and then infer general traits about the individual based on those salient features (Moore, 2015). Physical attractiveness is a powerful salient feature across social situations (Reis et al., 1980; 1982). Physical attractiveness stimulates different expectations towards others such that, an individual's attractiveness uniquely produces social exchanges with other people that vary with the individual's degree of physical attractiveness (Adams, 1977).

Specifically, the "*what is beautiful is good*" is a common heuristic that links beauty and goodness (Eagly et al., 1991). In social cognition and impression formation, this heuristic, often referred to as a halo effect in first impressions, leads perceivers to believe that physically attractive individuals also possess a variety of other positive personal qualities (Dion et al., 1972; Eagly et al., 1991; Forgas & Laham, 2016; Lucker et al., 1981; Nisbett & Wilson, 1977). The term "halo" comes from religious imagery where a glowing circle, or halo, is floating above the heads of saints indicating their general goodness as well as exalted status (Forgas & Laham, 2016, p. 276). The perception of physical attractiveness casts a "*halo*"

over a target and causes biases in judgments on other attributes in a positive direction, such as believing an attractive person is also intelligent, personable, and humorous (Forgas & Laham, 2016).

Typically, this bias is measured by presenting photographs of people to the participants and then having the participants rate their first impressions of the individual in the photograph as well as traits that the participant might infer about the individual, such as attractiveness and intelligence (Dermer & Thiel, 1975; Forgas, 2011b; Kaplan, 1978; Lucker et al., 1981; Moore et al., 2011; Nida & Williams, 1977; Timmerman & Hewitt, 1980; Wetzel et al., 1981; Zebrowitz & Franklin Jr., 2014). The presence of the halo effect is then determined by the inter-correlations having an average of 0.6 of greater (Leuthesser et al., 1995). For example, Wetzel and colleagues (1981) and Nisbett and Wilson (1977) had participants observe an interview of a college professor who acted in a manner that was either considered warm or cold and then had participants rate the subject on his physical appearance, mannerisms, and accent. Participants rated the *warm* professor higher in physical appearance compared to the professor that was portrayed as *cold*. Thus, being attractive leads to the inference that the individual will have more positive attributes such as being warm and friendly.

Thorndike (1920) describes the emergence of the halo effect as the overestimation of strength in the probable relationship between unknown personal qualities from known characteristics. This pattern of trait-specificity suggests that the halo effect depends on what the judges already know and expect about the relationship between different personality traits (Forgas & Laham, 2016). Lucker and colleagues (1981) found that physical attractiveness predicted the positive attributes of sexiness and liking of an individual thus demonstrating that personality judgements are a reliable predictor of target attractiveness.

In a directly inverse relationship, the *horn* effect exists when physically unattractive people are assumed to possess less socially desirable personality traits (Berscheid & Hatfield, 1974; Dion et al., 1972; Dion & Berscheid, 1974; Lucker et al., 1981; Timmerman & Hewitt, 1980). There is a disproportionate lack of research for the horn effect compared to the halo effect. However, limited known research on this topic typically stems from consumer products. For instance, Sundar and colleagues (2014) found that negative labels, such as artificial ingredients, do lead to negative inferences or

evaluations about specific product features. In impression formation, the horn effect occurs when an individual sees another as physically unattractive; this negative information should influence the formation of other trait inferences making them negative as well. For example, Radeke and Stahelski (2020) discovered that faces that were seen as more unattractive (e.g., scowling faces) were perceived as less pleasant to look at, more threatening, emotionally unstable, and less honest.

Regardless of the affective direction, both the halo and horn effect predict impressions to flow in one direction. However, little known research has examined what happens when a halo/horns impression is accompanied by inconsistent information. What happens to those effects when information is perceived that flows in the opposite affective direction?

Cognitive Dissonance

Schemas have significant effects for the way one encodes, stores, and uses information about one's social environment (Kuethe, 1962). People identify and choose alternatives based on the values and preferences of the individual as well as the one that best fits the individuals' goals, and desires (Festinger, 1964; Fulop, 2005). When one cognition, thought or behavior is consistent with another in some psychological sense, the relationship between the two cognitions is consonant (Festinger, 1962; Oshikawa, 1970).

When an individual has inconsistent beliefs, thoughts, or attitudes that manifest mental discomfort, a condition is aroused called cognitive dissonance. The psychological aversiveness of dissonance provokes negative emotions such as guilt and self-criticism (Devine et al., 1991). Cognitive dissonance has properties of physical and emotional arousal, that works as a drive, similar to hunger (Croyle & Cooper, 1983; Festinger & Carlsmith, 1959). This state of undifferentiated physiological aversive arousal of dissonance is negative therefore, it is attributed internally and becomes the psychological discomfort that motivates or "drives" a dissonance reduction strategy (Elliot & Devine, 1994).

Frymier and Nadler (2007) found that for dissonance to work effectively there needs to be an aversive consequence, freedom of choice, and insufficient external justification. For example, when a

sunbather confronts the information that excessive sun exposure can cause skin cancer, the three components for dissonance emerge to work effectively. Once the sunbather confronts the chance of cancer, they have the choice to continue sunbathing or to stop. If the individual continues the behavior capable of an aversive consequence (e.g., cancer), negative emotions such as disappointment with themselves and self-criticism will start to emerge (i.e., cognitive dissonance) which would then motivate the individual to reduce that feeling.

Cognitive dissonance motivates an individual to reduce this aversive arousal via a dissonance reduction strategy (Croyle & Cooper, 1983). Festinger (1957) first proposed only four common dissonance reduction strategies: changing one's attitudes therefore decreasing the number of inconsistent cognitions, changing one's behavior itself, creating new consonant cognitions, or reducing the importance of their counter attitudinal behavior (i.e., trivialization; McGrath, 2017). These strategies have been robustly supported in literature. Being a smoker and knowing the ill effects of smoking may motivate the individual to provoke the reduction of dissonance (Davis & Jones, 1960).

There are a range of strategies that individuals who smoke use to eliminate or reduce dissonance. A way to reduce dissonance would be to change their attitudes to fit their behavior such as adopting the belief that the one is addicted therefore making quitting out of their hands (Simmons et al., 2013). Another way to reduce dissonance would be a behavioral change such as reducing or stopping smoking would be the best method to eliminate the effects, however, it is also the hardest way. A different way to reduce dissonance is to create more consonant information, such as endorsing more rationalizations and distortions of logic regarding their smoking behavior such as believing that research has not proven that smoking causes lung cancer could help the individual reduce the dissonance (McMaster & Lee, 1991; Orcullo & San, 2016). Finally, one could reduce dissonance by reducing the importance of it. For example, an individual tells themselves that a short life that involves the pleasure of smoking is better than the life without it.

Dissonance studies typically occur in a laboratory setting, however, in our daily lives we may confront the same dissonance arousing situations repeatedly (McGrath, 2017). However, Wicklund and

Brehm (1976) believed dissonance reduction effects can be long or short lived depending on if the attitude or behavior change freezes as a new response or if the dissonance relations remained salient at future time points. For example, if an individual smokes, they may take on the attitude that the research for smoking is inconclusive. Thus, the persistence of this attitude assumes that there is an absence of strong forces toward returning to their original attitude of smoking is unhealthy.

Cognitive Dissonance and Impression Formation

Interpersonal perception was considered by Festinger (1957) as a source and means of reducing cognitive dissonance. Over the course of a person's life, a great deal of expectations about how things are related and what things are not related are accumulated, so when an expectation is not fulfilled, dissonance occurs (Festinger, 1962). Dissonance can be reduced by an alteration of an initial interpersonal perception by integrating all the traits or denying some of them (Alimaras, 1970).

Although first impressions can be changed, the change occurs after exposure to copious amounts of counter attitudinal information (Brambilla et al., 2019). Ferguson and colleagues (2019) identified three components that lead to updating implicit impressions. First, diagnosticity, which suggests that the new information should be seen as revealing to override the old information. Then believability, such that the person must believe the added information. Lastly, reinterpretation, which allows people to revise their initial impressions from negative to positive.

However, Briscoe and colleagues (1967) found that an unfavorable impression is more difficult to change than a favorable one. Unfavorable information suggests a deviation from social norms and indicates something unique about them as an individual which in turn renders it resistant to change (Hamilton & Huffman, 1971). Individuals also require more evidence to perceive improvement in someone's character than to perceive a decline (Klein & O'Brien, 2016). For example, when a colleague is normally seen as behaving nicely but all of a sudden act poorly, colleagues will judge her as having changed for the worse and it will take more convincing to reverse their attitudes compared to when a bad colleague is seen as improving their behavior.

People are extremely sensitive to the features of first impressions and when we perceive others, their faces and their emotions become interwoven into the way in which we perceive their actions (Krawczyk, 2018). As people tend to believe that traits remain stable over time, individuals can understand the behavior of a person if they attribute feelings, beliefs, and intentions to them (Moore, 2015; Vonk, 1993). Once an impression is formed, the individual seeks to have that impression be consistent with additional impressions (Grcic, 2008); if an impression is inconsistent with their other impressions of the person, the arousal of dissonance will happen and motivate the individual to reinterpret their initial impression (Mann & Ferguson, 2015). Previous studies have tried to change impressions by providing added information about a target that is both congruent and incongruent to the initial information that was provided (Gawronski et al., 2010; Petty et al., 2006). Adding new information is inclined to lead to revisions only after there has been considerable amounts of counteracting information (Mann & Ferguson, 2015).

Casselden and Hampson (1990) established that inconsistent trait pairs are more difficult to make compatible than consistent ones. For example, individuals will have an easier time forming an impression of another when the individual is described by congruent traits that suggest overlapping sets of behaviors (e.g., helpful and kind) compared to an individual described by incongruent traits that suggest contradictory behaviors (e.g., helpful, and unkind; Casselden & Hampson, 1990). Nevertheless, previous research has implied that incongruent trait information can be resolved to form consistent impressions. Unexpected events or inconsistent information can lead the observer to recategorize individuals or seek further information (Crant, 1996). New details might even emerge about an individual which would then suggest that an individual's first impression was incorrect, therefore, a different impression is necessary (Mann & Ferguson, 2015). Other studies have attempted to change impressions by presenting new information about the legitimacy of the older information, however asking individuals to simply undo their prior impression has been shown as less effective method in shifting implicit impressions (Mann & Ferguson, 2015).

There is a dearth in known research that examines the effect of dissonance information on the halo and horn effects. When an individual forms an impression of another, they strive to have that impression be consistent with other impressions (Grcic, 2008). Yet, studies have shown that first impressions can be reversed or updated (Ferguson et al., 2019; Mann & Ferguson, 2015) which suggests that dissonant information regarding individuals can alter an individual's impression later on. Considering, the halo and horn effects are general cognitive biases in impression formation (Forgas & Laham, 2016), dissonant information should trigger individuals to reverse or update their impressions of an individual, following the presence of aversive arousal.

Chapter II: Current Study

The purpose of the current study was to enhance the literature on impression formation and cognitive dissonance. The current study examined the effects of inconsistent and consistent information following a first impression that results in a halo/horn effect. Specifically, cognitive dissonance theory served as the framework for examination. That is, following an initial impression, does subsequent inconsistent information lead to cognitive dissonance arousal, and ultimately the use of dissonance reduction strategies (i.e., attitude change)? Moreover, how does cognitive dissonance reduction influence the halo and horn effects?

It was expected that receiving consistent person-perception information would exacerbate a previously formed halo/horn effect. However, it also was expected that receiving subsequent incongruent information would create cognitive dissonance which in turn cause individuals to use the reduction strategy of attitude change.

The current study employed a 2 (Target: attractive vs. unattractive) X 2 (Information: congruent vs. incongruent) X 2 (Impression ratings: 1st vs. 2nd) mixed model design. There were three specific hypotheses:

1. There will be a main effect of target on first impression ratings, such that the attractive target shall initially receive more positive ratings (i.e., halo effect) and the unattractive target shall initially be rated more negatively (i.e., horns effect) on the pre-impression ratings.

2. There will be a three-way interaction, such that participants who receive congruent information will show an exacerbated impression of their initial ratings, and participants that receive incongruent information will show a reversal in valence to the initial impression.

3. Lastly, and most importantly, it is hypothesized that the magnitude of dissonant/aversive arousal (i.e., negative self and discomfort scores) will positively predict the discrepancy in the changes in initial impression in the incongruent condition.

Chapter III: Methodology

Participants

   Participants were recruited from a convenience sample of undergraduate students, emerging

adults, as previous studies found that aging is associated with limitations in the use of specific trait

information in organizing impressions, thus younger adults are more likely to organize their

representations around specific traits (Hess et al., 1998). University students from a midwestern college

($N = 92$) were recruited through SONA, a research management program maintained by the psychology

department. Sixteen participants were excluded from this study due to an instrumentation error that

occurred at the beginning of data collection ($N = 76$). The sample included 90% female ($n = 68$) and 10%

male ($n = 8$). The ages of participants ranged from 18 to 26 ($M = 19.44$, $SD = 1.53$). Reported racial

identities from participants consisted of 80.26% Caucasian ($n = 61$), 7.89% African American ($n = 6$),

1.32% Asian/Pacific Islander ($n = 1$), 5.26% Bi/Multiracial ($n = 4$), 2.63% Hispanic ($n = 2$), 1.32%

Middle Eastern ($n = 1$) and 1.32% Native American ($n = 1$). Lastly, participants reported their sexual

orientation, with 78.95% heterosexual ($n = 60$), 2.63% homosexual ($n = 1$), 11.84% bisexual ($n = 9$),

2.63% other ($n = 2$), and 3.95% preferring not to say ($n = 3$).

Materials and Procedure

   This study appeared on SONA with the title "Impressions and Longevity" alongside other

potential psychology research studies. Participants were recruited to complete an online survey in

Qualtrics. Upon choosing to participate, participants were first presented with an informed consent

explaining the procedures and purpose.

   Once the participants consented, they were presented with an assessment of character scale ($\alpha = $

.87). This scale contains 7 items that assess how well an individual believes they can judge someone

else's character. This scale was created for the purpose of this study. The assessment of character ($M = $

32.54, $SD = 6.25$) was implemented to ensure that dissonance would occur by getting the participants ego

involved.

Participants then were assigned to one of two conditions by the last digit of their M-number (i.e., a quasi-randomly assigned school identification number). If the last digit of their M number is odd, they were then presented with a photo of an attractive target. Participants with the last digit of their M number is even, they were presented with a photo of an unattractive target (see Figure 1). The photos only differ in that the target's face was manipulated through caricaturing (Little et al., 2011). This photo has been used in prior studies (Sutherland et al., 2017) and is reliably perceived according to conditions.

Figure 1

Facial Manipulation

Note: Unattractive condition (left image) manipulated by caricaturing: 50% more extreme than original image. Attractive condition (right image) manipulated by symmetry: 100% symmetrical than original image.

Participants were then asked to rate their initial impressions of the target photo using the *Face Differential Scale (FDS1; Hurwitz, et al., 1975)*. This scale ($\alpha = .72$) contains 30 items that describe the personality of the person shown. Participants rated the man's attributes using a semantic differential scale, where descriptions range from one end of a spectrum to the other (e.g., intelligent vs unintelligent, naïve vs sophisticated). Participants were given an attribute with a slider ranging from 0 to 100. If the average

correlation between the physical attractiveness ratings and intelligence, warmth, and friendliness were stronger than a 0.6 then the halo effect was present. If the average correlation between the physical attractiveness ratings and negative attributes were stronger than 0.6 then the horns effect was present (Leuthesser et al., 1995). A final score was calculated by averaging the attribution ratings to form an impression score.

Then, participants were presented with a question asking them to slide a bar to indicate whether they believed him to be overall good or bad. An attention check followed and then participants received the same picture they received above (attractive or unattractive) as well as a brief paragraph that contained either congruent or incongruent information about the man in the target photo.

Incongruent Information

Attractive target: The man in the picture kidnapped and murdered three young children between the ages of 5 and 7. He would encounter them in a local park. He then lured them into the words by telling them that he needed their help to get a cat out of a tree. He was later arrested, found guilty by a jury, and will be receiving a prison sentence next week.

Unattractive target: While hiking through the woods, the man in the picture came across three young children between the ages of 5 and 7. He gave them food and water, led them out of the woods and kept them company for hours until the first responders came.

Congruent Information

Attractive target: While hiking through the woods, the man in the picture came across three young children between the ages of 5 and 7. He gave them food and water, led them out of the woods and kept them company for hours until the first responders came.

Unattractive target: The man in the picture kidnapped and murdered three young children between the ages of 5 and 7. He would encounter them in a local park. He then lured them into the words by telling them that he needed their help to get a cat out of a tree. He was later arrested, found guilty by a jury, and will be receiving a prison sentence next week.

Upon reviewing the new information, participants were asked to think back to the overall rating that they gave the man and report it. This was used to create a sense of cognitive dissonance within the participants. Participants then completed the *Affect Scale (Devine et al., 1991).* This scale (α = .84) contains 32 items that measure the participants' emotions. Participants recorded their responses on a seven-point Likert scale ranging from 1 (*does not apply at all* to 7 (*applies very much*). These affect indices have six factors that include Negative self (e.g., angry at myself), Discomfort (e.g., anxious), Positive (e.g., happy), Negative other (e.g., irritated at others), Threatened (e.g., threatened) and Depressed (e.g., sad). The scores on the items in each subscale were averaged to create a mean score for each factor. Importantly, the two subscales of Negative self and Discomfort were averaged together to create a "dissonance" score, where higher scores represent a higher magnitude of dissonant specific arousal.

Finally, participants were presented with the original photo again and asked to re-measure the target photo again using the same *Face Differential Scale (FDS2; Hurwitz, et al., 1975).* Participants then reported their overall ratings of the man again. Participants were again given an attribute with a slider ranging from 0 to 100. The average score of the three attributes, intelligence, warmth, and friendliness were then taken to be correlated with physical attractiveness. Participants were then asked a few demographic questions including age, biological sex, and sexual orientation to describe the sample. Upon completion, participants received a debriefing statement that explains the purpose of the study as well as the number of credits the participants were given once the study is completed.

Chapter IV: Results

This study aimed to contribute to the literature of impression formation and cognitive dissonance by testing whether the halo and horn effects present when viewing an attractive or unattractive photo, would change due to subsequent consistent or inconsistent information. Furthermore, this study intended to examine whether receiving inconsistent information about a target would influence perception changes through cognitive dissonance and reduction strategies.

To first determine if the halo and horn effects were present, a correlation analysis was conducted between attractiveness, and the mean of three attributes: friendliness, warmth, and intelligence in each condition. In order for the halo effect to be present the relationship between attractiveness and the three attributes needed to be stronger than a 0.6 in the attractive condition. Conversely, for the horn effect to present, the relationship between attractiveness and the three negative attributes needed to be stronger than 0.6 in the unattractive condition.

In the attractive condition, a Pearson's r correlation indicated that the initial ratings of attractiveness ($M = 42.24$, $SD = 27.58$) was not correlated ($r(51) = -.05$, $p = .718$) with the mean of the three attributes ($M = 56.63$, $SD = 13.91$). In the unattractive condition, a Pearson's r correlation indicated that the first ratings of attractiveness ($M = 26.04$, $SD = 22.91$) was not correlated ($r(25) = .22$, $p = .297$) with the mean of the three attributes ($M = 54$, $SD = 17.64$). Therefore, determining that no halo or horn effect was present.

To further indicate the lack of the halo and horn effect as well as to test the first hypothesis, that there will be a main effect of target on first impressions, an independent samples t-test was conducted. Results indicated that there was no difference in the composite mean score for the four attributes ($t(74) = 1.84$, $p = 0.069$, $d = .45$, 95% CI [-.48, 12.52] between the attractive ($M = 53.03$, $SD = 12.21$) and unattractive condition ($M = 47.01$, $SD = 15.51$). In all, the first hypothesis was not supported. The descriptive information for each of the individual attributes can be seen in Table 1.

Table 1

First Impression Ratings of Targets

	Attractive Condition		Unattractive Condition				
Variable	M	SD	M	SD	t (74)	p	Cohen's d
Attributes	53.03	12.21	47.01	15.51	1.84	0.069	0.45
Intelligence	59.20	14.50	47.96	20.90	2.73	0.008	0.67
Warmth	53.18	24.19	56.20	21.99	-0.53	0.600	-0.13
Friendliness	57.51	21.45	57.84	25.63	-0.06	0.953	-0.01
Attractiveness	42.24	27.58	26.04	22.91	2.54	0.013	0.62

To test the second hypothesis that a three-way interaction would occur, a 2 (target: attractive vs. unattractive) X 2 (information: congruent vs. incongruent) X 2 (impression ratings: 1st vs. 2nd) mixed model factorial ANOVA was conducted. Results indicated that there was a three-way interaction between condition, information, and impressions, $F (1, 72) = 109.30$, $MSE = 23880.76$, $p < .001$, $n^2p = .60$. Specifically, individuals changed their impression ratings in the direction of the information that they received which in turn exacerbated their initial impressions or reversed them. This supports the second hypothesis. These results can be seen in Figure 2A and Figure 2B.

Figure 2A

Three-Way Interaction of Information and Impressions in Attractive Condition
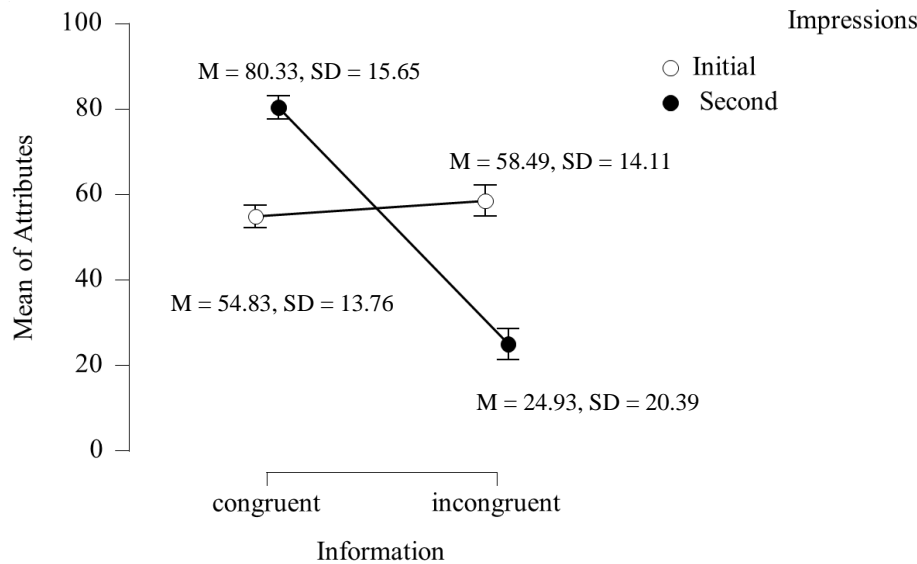
Figure 2B

Three-Way Interaction of Information and Impressions in Unattractive Condition
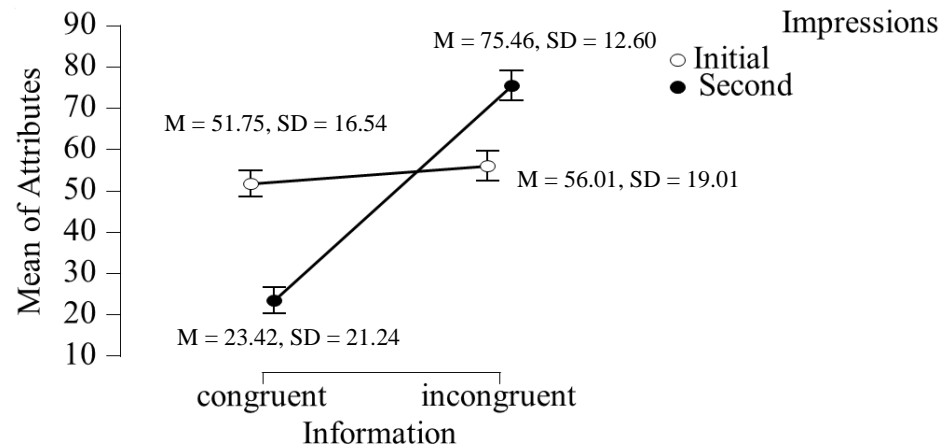
Additionally, there was a significant interaction between target and information, $F(1, 72) = 73.17$, $MSE = 24481.12$, $p < .001$, $n^2p = .50$, such that the impression score is higher when the information opposes the target photo. However, there was no significant interaction between impression ratings and target, $F(1, 72) = 0.01$, $MSE = 1.65$, $p = .931$, $n^2p = .00$ as well as impression ratings and

information, $F(1, 72) = 1.23$, $MSE = 269.44$, $p = .270$, $n^2p = .02$. There was no significant main effect of information, $F(1, 72) = 0.13$, $MSE = 44.94$, $p = .715$, $n^2p = .00$, target, $F(1, 72) = .89$, $MSE = 296.02$, $p = .350$, $n^2p = .01$, or impression ratings, $F(1, 72) = 2.77$, $MSE = 605.94$, $p = .100$, $n^2p = .04$. Further examination of the adjustment in impressions in all four conditions was conducted. An illustration of the changes in impression ratings can be seen in Figure 3.

Figure 3

Impression Adjustment in the Four Conditions

	Attractive Congruent	Unattractive Congruent	Attractive Incongruent	Unattractive Incongruent
Initial	54.83	51.75	58.49	56.08
Second	80.33	23.42	24.93	75.46

A 2 (target: attractive vs. unattractive) X 2 (information: congruent vs. incongruent) factorial ANOVA was conducted to determine whether one condition had more, or less dissonance compared to the others. Results indicated that there was not an interaction between target and information $F(1, 72) = 1.48$, $MSE = 433.01$, $p = .228$, $n^2p = .02$ nor was there a main effect of target $F(1, 72) = 1.23$, $MSE = 358.90$, $p = .272$, $n^2p = .02$ or information $F(1, 72) = 1.91$, $MSE = 560.17$, $p = .171$, $n^2p = .03$. Results can be seen in Figure 4.

Figure 4

Total Dissonance in the Four Conditions
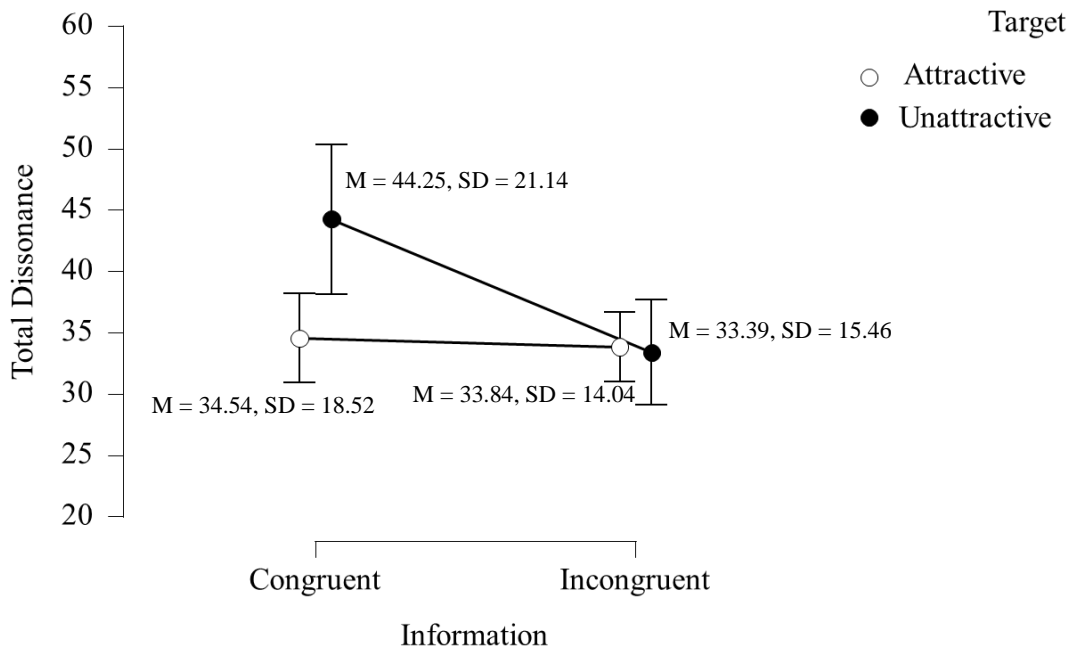
A 2 (target: attractive vs. unattractive) X 2 (information: congruent vs. incongruent) x 2 (overall impression: first vs. second) mixed model factorial ANOVA was then conducted to determine whether participants overall impression changed thus creating dissonance. Results indicated that there was a main effect of overall impressions $F (1, 72) = 19.47$, $MSE = 5365.07$, $p < .001$, $n^2p = .21$ as well as a main effect of information $F (1, 72) = 4.67$, $MSE = 2000.90$, $p = .034$, $n^2p = .06$. However, there was no main effect of target $F (1, 72) = .38$, $MSE = 164.47$, $p = .538$, $n^2p = .61$. There were significant interactions between overall impression, information, and target $F (1, 72) = 159.80$, $MSE = 44034.68$, $p < .001$, $n^2p = .69$, as well as information and target $F (1, 72) = 112.49$, $MSE = 48227.24$, $p < .001$, $n^2p = .61$. However, there was no interactions between overall impressions and information $F (1, 72) = .06$, $MSE = 16.76$, $p = .806$, $n^2p = .00$ or overall impressions and target $F (1, 72) = .43$, $MSE = 119.57$, $p = .512$, $n^2p = .01$. These results can be seen in Figure 5A and 5B.

Figure 5A

Three-Way Interaction of Information and Overall Impressions in Attractive Condition
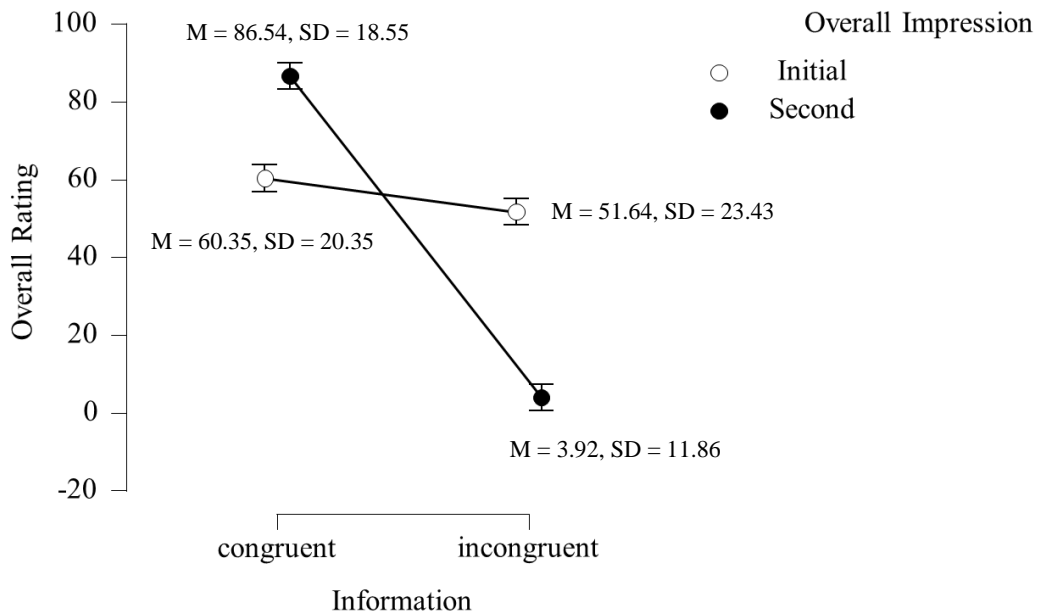
Figure 5B

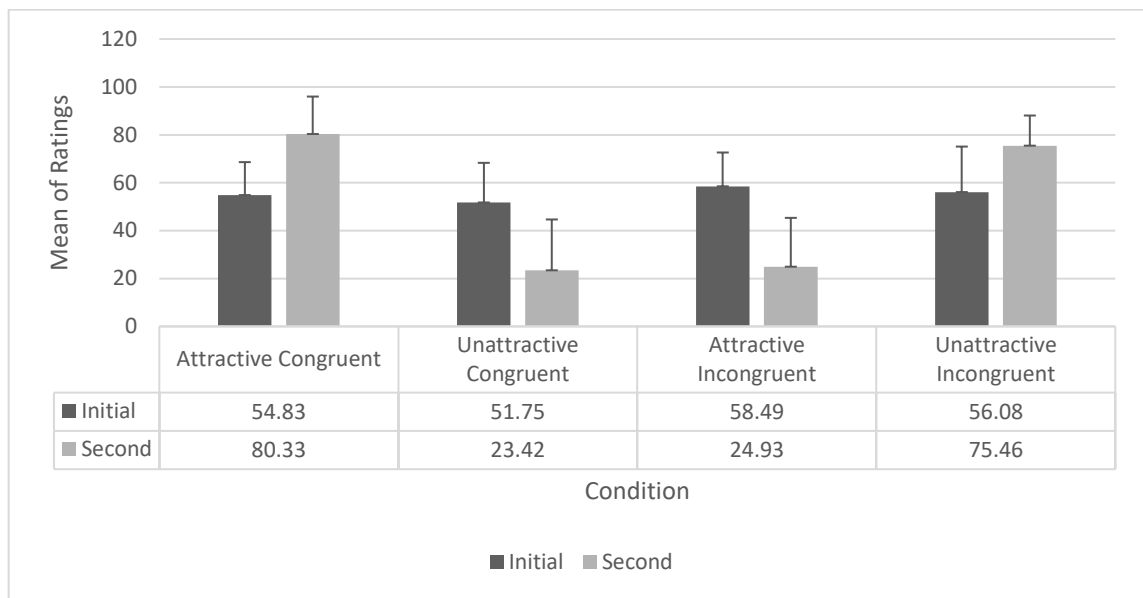*Three-Way Interaction of Information and Overall Impressions in Unattractive Condition*
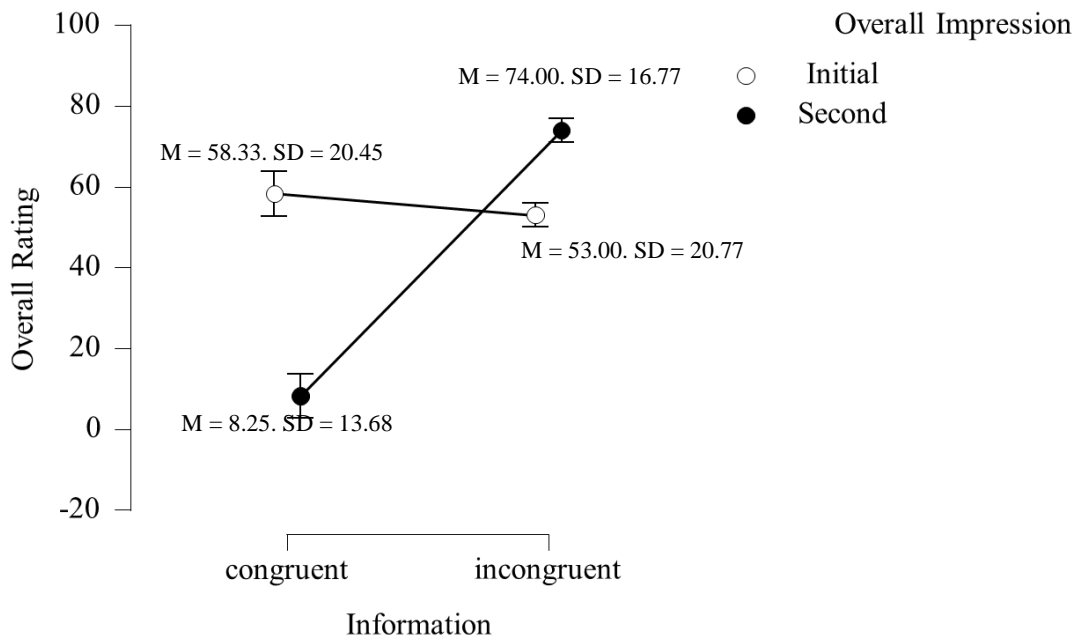
Finally, a multiple regression was conducted to determine if the magnitude of aversive arousal positively predicted the discrepancy of the changes in impressions in the incongruent condition, as expected in the last hypothesis. To test this hypothesis, a change score for impressions was created to determine the discrepancy of changes within the impression. The analysis was conducted using scores following receiving incongruent information in each of the two main conditions (i.e., attractive, and unattractive targets). Results indicated that dissonant arousal (β = -0.10, p = .746) did not significantly predict the discrepancy in changes (M = 33.39, SD = 15.46) in the unattractive incongruent condition F (1, 11) = 0.11, p = .746, R^2 = .01. Moreover, in the attractive incongruent condition, the dissonant arousal (β = -0.32, p = .121) also did not predict the discrepancy (M = 33.84, SD = 14.04) in changes, F (1, 23) = 2.59, p = .121, R^2 = .06. Thus, the third hypothesis was not supported.

Chapter V: Discussion

This project sought to investigate the effects of subsequent information on a potential halo or horn first impression. Specifically, this study investigated whether receiving subsequent inconsistent information led to cognitive dissonance arousal, and ultimately the use of dissonance reduction strategies (i.e., attitude change) in those impressions.

Correlational, as well as between groups testing found that the halo and horn effects were not present using the current target photos. In fact, there were no differences in impression ratings between the attractive and unattractive target at all, which does not support the first hypothesis regarding an expected main effect of ratings between targets. The average ratings of the attributes in the attractive condition shows that the ratings were mixed. Some of the ratings were below the midpoint which indicates more negative ratings, while other ratings were above the midpoint suggesting more positive ratings. This suggests that there was a problem with the experimental stimuli. That is, the independent variable was not maximized.

The participants in the attractive condition did not find the target photo attractive at all which caused the ratings of the target photo to be lower despite that the photo was meant to be seen as attractive. The average ratings of the attributes in the unattractive condition shows that most of the ratings were below the midpoint indicating that there were more negative ratings associated with the target. However, other ratings are above the midpoint which indicates more positive ratings associated with the target. Therefore, for the horn effect, a few of the participants in the unattractive condition found the target photo attractive, thus changing their ratings to more positive instead of negative. Ultimately, the initial impression was the same across all conditions.

It was expected that there would be a three-way interaction, such that participants who receive congruent information would show an exacerbated impression of their initial ratings, and participants that receive incongruent information will show a reversal in valence to the initial impression. This hypothesis was supported. Interestingly, despite the notion that initial impressions were the same across target photos, after receiving congruent information participants exacerbated their impressions, in line with their

assigned target condition. That is, if they were in the attractive condition and received congruent positive

information, their ratings became more positive, and if they were in the unattractive condition and

received subsequent information about the target that was negative, they increased the negativity of their

ratings. Conversely, individuals who received incongruent information reversed the polarity of their initial

impressions. That is, if they received negative information about the attractive target, or received

information about the unattractive target that was positive, they reversed their impression ratings to be

more in line with the new information. This suggests that participants were changing their impressions,

in ways that were aligned with their condition. Their impressions were not static and moved in

predictable directions.

However, cognitive dissonance was not found to be more prominent in one condition compared

to the others. Conversely, the overall ratings worsen when the information matched the unattractive target

and opposed the attractive target and vice versa. A possible explanation for this could be that morality

played a role in their updated impressions. Brambilla and colleagues (2019) discovered that a greater

impression change occurred when moral information was added to the target person. This would replicate

that study in the aspect that the information that was given pertained to the morality of the target person.

Individuals formed their first impression about the target person based off of appearances, however, after

learning either the positive or negative morality of the target person, they changed their impressions.

Previous studies have reported that personal characteristics influence the revision of first impressions.

Therefore, the individuals' first impressions were revised because of their beliefs of morality such that

information about the moral character of an individual promoted a stronger impression change (Brambilla

et al., 2019).

A follow-up analysis that examined whether cognitive dissonance arousal may have been

influential in that impression change was not supported. That is, participants simply just adjusted their

initial impressions in the direction of the new information but were not adjusting it due to dissonance. A

potential explanation of this could come from social verification theory which predicts that when

individuals are in situations of cognitive invalidation, they will turn to group norms for verification of

their behavior (Hillman et al., 2022). For instance, participants could have revised their initial impressions

of the target photo to the subsequent information since they turned to social/group norms which suggests

that an attractive person found guilty of something terrible should no longer be found attractive. This also

has implications in the court room in the form of the dangerous decisions theory which focuses on the

bias of the decision-maker in overvaluing certain heuristic cues while discounting other information

(Porter & ten Brinke, 2009) such that motivated assessments of guilt or innocence may be influenced by

facial appearance biases (Porter et al., 2010).

      In summary, the highlighted attributes from previous studies, friendliness, intelligence, and

warmth did not correlate with attractiveness thus producing no halo or horn effect. Thus, these attributes

are not as dependable as they were years ago. Other attributes may need to be examined for today's era.

This study also found errors in the photographs used such that the male target was seen as middling since

both conditions' initial impressions were the same. The averageness hypothesis of attractiveness could

play a role since average faces are typically more symmetric and caricaturing a face or making features

more distinct have shown to make the face more attractive (DeBruine et al., 2007). Additionally,

individuals revised their initial impressions to match the information that they received with no aversive

arousal. Social validation or morality could have played a role in this discovery since the information that

was given made the individual question the target's morality; in addition, individuals could have changed

their impressions due to societal standards and their validation within it.

Limitations

      The current study had some limitations that may have led to the lack of hypothesized findings.

First, the photographs used in this study were not perceived to show either the halo or horn effects, nor

were they significantly different in their perception of attractiveness. The photographs used in this study

were originally from a facial database. No previous evidence indicated that the photographs used were

able to invoke the halo or horn effects. In a study that is attempting to understand perceptual differences

between attractive and unattractive targets, it is imperative that the experimental stimuli present targets

that are inequivalent. Thus, this was a validity threat that directly impeded the primary objective of the study, which was to examine halo and horns effects.

Additionally, the photograph that was used also depicted a male. Previous studies that have focused on the halo effect have used a female for their target photo, therefore, using a male could have caused the lack of the halo and horn effects. A study by Bak (2010) examined sex differences in the halo effect and discovered that when viewing a photograph of a male, females did not evaluate the individual as more positive or negative when given the attractive or unattractive photo. However, when males viewed a photograph of a female, they evaluated the woman as more positive and less negative in the attractive condition compared to the unattractive. This would suggest that halo/horns effects only exist for the male perceiver. However, this seems highly unlikely. Future researchers should further examine potential sex differences in these effects, to determine if these perceptual effects are as robust as originally thought.

Another limitation in this study lies in the poor reliability of the attributes that were used. Although the facial differential scale was found to be reliable as a whole, the four attributes, attractiveness, warmth, friendliness, and intelligence, that were used were found to not be reliable ($\alpha =$ .36). The attributes were chosen due to being highlighted specifically in previous studies (Timmerman & Hewitt, 1980), where attractiveness was correlated with intelligence, warmth, and friendliness. Perhaps friendliness, warmth, and intelligence are no longer seen as the attributes that are correlated with attractiveness and attributes that are seen as more important in today's era was necessary. However, participants in the attractive condition found the target photo more intelligent than the unattractive condition, thus providing some evidence that individuals with attractive faces are perceived as more intelligent. Therefore, providing evidence that people may care about intelligence more than friendliness and warmth. Nevertheless, previous studies have examined the relationship between physical attractiveness and three attributes such as sexiness, femininity and masculinity and liking (Lucker et al., 1981). Other studies such as Gibson and Gore (2016) have found that facial masculinity is correlated with perceived attractiveness, trustworthiness, and aggression.

Conclusions

        This study failed to replicate results found in prior studies regarding the halo effect as individuals found the target photo to be the same level of attractiveness regardless of their condition. Perhaps the attributes chosen to be markers of the halo/horns effect in the current study were not as dependable as needed to determine the existence of the halo and horn effects.

        However, the study does support that perceivers adjust their impressions in line with subsequent information, whether congruent or incongruent with the initial impression. Previous studies have shown that a negative impression is more difficult to change compared to a positive one since they suggest a deviation from social norms (Briscoe et al., 1967) and in consequence social invalidation (Hillman et al., 2022). Although, a first impression can be changed, this change only occurs after the individual is exposed to an abundant amount of counter attitudinal information (Brambilla et al., 2019), which then can override the old information and help the individual believe the new information thus revising their impressions (Ferguson et al., 2019).

        However, aversive arousal was not found to be more present in one condition compared to the others. Thus, suggesting that the individuals were perhaps already using a strategy to reduce the dissonance that they were feeling. Therefore, dissonance also failed to predict the changes in impressions when given incongruent information. This could be because individuals could have adjusted their impressions towards the information simply due to their need to belong. Seeing an individual attractive although they have done something terrible could force society to deem their behavior as a deviation, thus the individual would change their impressions towards the information to stay and feel accepted in society.

        The trends of the overall ratings seem to follow a similar pattern to the adjustment of impressions. An individual's morality could have played a role in this. Since the individual's first impressions were based on appearance only, they were not invested in this current impression. However, once they received the information about the target person and discovered that what they did was either immoral or moral,

they learned that they were wrong and changed their impression to be consistent with the information that they received.

   To sum up, the results of the current study discovered that although there was a lack of halo and horn effects, when given information following an initial impression individuals tend to adjust their impressions to the new information. This replicates the findings of Brambilla and colleagues (2019) which suggests that first impressions can be changed only if the individual is exposed to information that is opposed to their own morality. However, the new information also exacerbated the individual's initial impressions. Although initial impressions can be changed, cognitive dissonance does not seem to predict the changes when an individual is given incongruent information about a person. Future studies should input a target photo that has been proven to produce the halo and horn effects as well as a scale that measures the individual's own assessment of judging a person's character. This would allow the individual to hopefully produce an aversive arousal when they have received information that is incongruent with the perceived person. In addition, future research should examine the role that morality plays in the halo and horn effects as well as the weight of the social verification theory.

Chapter VI: References

Adams, G.R. (1977). Physical attractiveness research. *Human Development, 20*(4), 217-239.

   https://doi.org/10.1159/000271558

Alimaras, P. (1970). Impression change as a means of reducing cognitive dissonance. [Doctoral dissertation, The

   City University of New York] University Microfilms.

Aronson, E. (1969). The theory of cognitive dissonance: A current perspective. In L. Berkowitz (Eds.) *Advances*

   in Experimental Social Psychology (pp. 1-34), Academic Press. https://doi.org/10.1016/S0065-

   2601(08)60075-1

Asch, S.E. (1946). Forming impressions of personality. *Journal of Personality and Social Psychology, 46,* 1230-

   1240. DOI: 10.1037/h0055756

Axelrod, R. (1973). Schema theory: An information processing model of perception and cognition. *The American*

   Political Science Review, 67(4), 1248-1266. https://doi.org/10.2307/1956546

Bak, P.M. (2010). Sex differences in the attractiveness halo effect in the online dating environment. *The Journal*

   of Business and Media Psychology, 1(1)*,* 1-7,

Baumeister, R. F., & Vohs, K. D. (2007). Implicit personality theory. In Encyclopedia of social psychology (Vol.

   1, pp. 467-467). SAGE Publications, Inc., https://dx.doi.org/10.4135/9781412956253.n276

Baumeister, R.F. (2011). Need-to-belong theory. *Handbook of theories of social psychology, 2,* 121-140.

Berscheid, E., & Hatfield, E. (1974). Physical attractiveness. In E.J. Coats & R.S. Feldman (Third Edition)

   Classic and Contemporary Readings in Social Psychology. (pp. 122-129). Prentice-Hall, Inc.

Brambilla, M., Carraro, L., Castelli, L., & Sacchi, S. (2019). Changing impressions: Moral character dominates

   impression updating. *Journal of Experimental Social Psychology, 82*, 64-73.

   https://doi.org/10.1016/j.jesp.2019.01.003

Branscombe, N.R., & Smith, E.R. (1990). Gender and racial stereotypes in impression formation and social

   decision-making processes. *Sex Roles: A Journal of Research, 22*(9-10), 627-

   647. https://doi.org/10.1007/BF00288239

Briscoe, M.E., Woodyard, H.D., & Shaw, M.E. (1967). Personality impression change as a function of

favorableness of first impressions. *Journal of Personality, 35*(2), 343-357. https://doi.org/10.1111/j.1467-

6494.1967.tb01433.x

Burton, N., Burton, M, Rigby, D., Sutherland, C.A.M., & Rhodes, G. (2019). Best-worst scaling improves

measurement of first impressions. *Cognitive Research: Principles and Implications, 4*(36), 1-10.

https://doi.org/10.1186/s41235-019-0183-2

Carney, D.R., Colvin, C.R., & Hall, J.A. (2007). A thin slice perspective on the accuracy of first impressions.

Journal of Research in Personality, 41(5), 1054-1072. https://doi.org/10.1016/j.jrp.2007.01.004

Casselden, P.A., & Hampson, S.E. (1990). Forming impressions from incongruent traits. *Journal of Personality*

and Social Psychology, 59(2), 353-362. https://doi.org/10.1037/0022-3514.59.2.353

Crant, J.M. (1996). Doing more harm than good: When is impression management likely to evoke a negative

response? *Journal of Applied Social Psychology, 26*(16), 1454-1471. https://doi.org/10.1111/j.1559-

1816.1996.tb00080.x

Croyle, R.T., & Cooper, J. (1983). Dissonance arousal: Physiological evidence. *Journal of Personality and Social*

Psychology, 45(4), 782-791. https://doi.org/10.1037/0022-3514.45.4.782

Czerlinski, J., Gigerenzer, G., & Goldstein, D.G. (1999). How good are simple heuristics? In G. Gigerenzer, P.M.

Todd, & the ABC Research Group (Eds.) *Simple Heuristics That Make Us Smart* (pp. 97-118). Oxford

University Press.

Dale, S. (2015). Heuristics and biases: The science of decision-making. *Business Information Review, 32*(2), 93-

99. https://doi.org/10.1177/0266382115592536

Davis, K.E., & Jones, E.E. (1960). Changes in interpersonal perception as a means of reducing cognitive

dissonance. *Journal of Abnormal and Social Psychology, 61*(3), 402-410.

https://doi.org/10.1037/h0044214

DeBruine, L.M., Jones, B.C., Unger, L., Little, A.C., & Feinberg, D.R. (2007). Dissociating averageness and

attractiveness: Attractive faces are not always average. *Journal of Experimental Psychology: Human*

Perception and Performance, 33(6), 1420-1430. DOI: 10.1037/0096-1523.33.6.1420

DeBruine, L.M., & Jones, B.C. (2017). *Face Research Lab London Set (Version 3)*.

    https://doi.org/10.6084/m9.figshare.5047666.v3.

Dermer, M., & Thiel, D.L. (1975). When beauty may fail. *Journal of Personality and Social Psychology, 31*(6),

    1168-1176. https://doi.org/10.1037/h0077085

Devine, P.G., Monteith, M.J., Zuwerink, J.R., & Elliot, A.J. (1991). Prejudice with and without compunction.

    Journal of Personality and Social Psychology, 60(6), 817-830. https://doi.org/10.1037/0022-

    3514.60.6.817

Dion, K., Berscheid, E., & Walster, E. (1972). What is beautiful is good. *Journal of Personality and Social

    Psychology, 24*(3), 285-290. https://doi.org/10.1037/h0033731

Dion, K.K., & Berscheid, E. (1974). Physical attractiveness and peer perception among children. *Sociometry,

    37*(1), 1-12. https://doi.org/10.2307/2786463

Eagly, A.H., Ashmore, R.D., Makhijani, M.G., & Longo, L.C. (1991). What is beautiful is good but . . .: A meta-

    analytic review of research on the physical attractiveness stereotype. *Psychological Bulletin, 110*(1), 109-

    128. https://doi.org/10.1037/0033-2909.110.1.109

Eisenthal, Y., Dror, G., & Ruppin, E. (2006). Facial attractiveness: Beauty and the machine. *Neural computation,

    18*(1), 119-142. DOI: 10.1162/089976606774841602

Elliot, A.J., & Devine, P.G. (1994). On the motivational nature of cognitive dissonance: Dissonance as

    psychological discomfort. *Journal of Personality and Social Psychology, 67*(3), 382-394.

    https://doi.org/10.1037/0022-3514.67.3.382

Ferguson, M.J., Mann, T.C., Cone, J., & Shen, X. (2019). When and how implicit first impressions can be

    updated. *Current Directions in Psychological Science, 28*(4), 331-336.

    https://doi.org/10.1177/0963721419835206

Festinger, L. (1957). A theory of cognitive dissonance. Evanston, IL: Row, Peterson, and Company.

Festinger, L., & Carlsmith, J.M. (1959). Cognitive consequences of forced compliance. *Journal of Abnormal and

    Social Psychology, 58*(2), 203-210. https://doi.org/10.1037/h0041593

Festinger, L. (1962). Cognitive dissonance. *Scientific American, 207*(4), 93-106.

    http://www.jstor.org/stable/24936719

Festinger, L. (1964). Aspects of the pre-decision cognitive process. In R.R. Sears, L. Festinger, & D.H. Lawrence

    (Eds.) *Conflict, Decision, and Dissonance* (pp. 129-151). Stanford University Press.

Fiske, S. T., & Taylor, S. E. (2013). Social Cognition: From brains to culture. London: Sage.

Forgas, J.P. (2011a). Can negative affect eliminate the power of first impressions? Affective influences on

    primacy and recency effects in impression formation. *Journal of Experimental Social Psychology, 47*,

    425-429. https://doi.org/10.1016/j.jesp.2010.11.005

Forgas, J.P. (2011b). She just doesn't look like a philosopher . . .? Affective influences on the halo effect in

    impression formation. *European Journal of Social Psychology, 41,* 812-817.

    https://doi.org/10.1002/ejsp.842

Forgas, J.P., & Laham, S.M. (2016). Halo effects. In R. F. Pohl (Eds.), *Cognitive illusions: Intriguing phenomena*

    in thinking, judgment, and memory (pp. 276–290). Routledge/Taylor & Francis Group.

Frymier, A. B., & Nadler, M. K. (2007). Consistency and cognitive dissonance theory. *Persuasion: Integrating*

    theory, research, and practice. Kendall Hunt Publishing.

Fulop, J. (2005). Introduction to decision making methods. *BDEI-3 workshop,* 1-15.

Gardner, W.L. (1996). Biases in impression formation: A demonstration of a bivariate model of evaluation (UMI

    Number: 9639240.) [Doctoral dissertation, The Ohio State University] OhioLINK ETD Center.

Gawronski, B., Rydell, R.J., Vervliet, B., De Houwer, J. (2010). Generalization versus contextualization in

    automatic evaluation. *Journal of Experimental Psychology: General, 139*(4), 683-701.

    https://doi.org/10.1037/xge0000079

Gibson, J.L., & Gore, J.S. (2016). Is he a hero or a weirdo? How norm violations influence the halo effect.

    Gender Issues, 33, 299-310. https://doi.org/10.1007/s12147-016-9173-6

Gigerenzer, G., & Goldstein, D. G. (1996). Reasoning the fast and frugal way: Models of bounded

    rationality. *Psychological Review, 103*(4), 650–669. https://doi.org/10.1037/0033-295X.103.4.650

Graefe, A., & Armstrong, J.S. (2012). Predicting elections from the most important issue: A test of the take-the-

    best heuristic. *Journal of Behavioral Decision Making, 25,* 41-48. https://doi.org/10.1002/bdm.710

Grant, P.R., & Holmes, J.G. (1981). The integration of implicit personality theory schemas and stereotype images.

    Social Psychology Quarterly, 44(2), 107-115. https://doi.org/10.2307/3033706

Grcic, J.M. (2008). The halo effect fallacy. *Electronic Journal for Philosophy, 15,* 1-6. http://**e-**

    logos.vse.cz/archiv.php

Guillory, J.J., & Geraci, L. (2010). The persistence of inferences in memory for younger and older adults:

    Remembering facts and believing inferences. *Psychonomic Bulletin & Review, 17*(1), 73-81.

    https://doi.org/10.3758/PBR.17.1.73

Hamilton, D.L., & Huffman, L.J. (1971). Generality of impression-formation processes for evaluative and

    nonevaluative judgments. *Journal of Personality and Social Psychology, 20*(2), 200-207. DOI:

    10.1037/h0031698

Hampson, S.E. (1998). When is an inconsistency not an inconsistency? Trait reconciliation in personality

    description and impression formation. *Journal of Personality and Social Psychology, 74*(1), 102-117.

    https://doi.org/10.1037/0022-3514.74.1.102

Harmon-Jones, E., & Harmon-Jones, C. (2007). Cognitive dissonance theory after 50 years of development.

    Zeitschrift für Sozialpsychologie, 38(1), 7–16. https://doi.org/10.1024/0044-3514.38.1.7

Haselton, M. G., & Funder, D. C. (2006). The Evolution of Accuracy and Bias in Social Judgment. In M.

    Schaller, J. A. Simpson, & D. T. Kenrick (Eds.), *Evolution and social psychology* (pp. 15–37).

    Psychosocial Press.

Hess, T.M., Follett, K.J., & McGee, K.A. (1998). Aging and impression formation: The impact of processing

    skills and goals. *Journal of Gerontology, 53B*(3), 175-187. https://doi.org/10.1093/geronb/53B.3.P175

Hillman, J.G., Fowlie, D.I., & MacDonald, T.K. (2022). Social verification theory: A new way to conceptualize

    validation, dissonance, and belonging. *Personality and Social Psychology Review, 0*(0), 1-23.

    https://doi.org/10.1177/10888683221138384

Hunt, C., Borgida, E., & Lavine, H. (2012). Social cognition. In V.S. Ramachandran (Second edition) *Encyclopedia of Human Behavior* (pp. 456-462), Academic Press. https://doi.org/10.1016/B978-0-12-375000-6.00331-1.

Hurwitz, D., Wiggins, N.H., & Jones, L.E. (1975). A semantic differential for face attribution: The face differential. *Bulletin of the Psychonomic Society, 6*(4A), 370-372. DOI:10.3758/BF03333204

Jones, E.E. (1990). Expectancy effects. In R.C. Atkinson, G. Lindzey, & R.F. Thompson (Eds.), *Interpersonal Perception* (pp. 77-112). W.H. Freeman and Company

Kaplan, R.M. (1978). Is beauty talent? Sex interaction in the attractiveness halo effect. *Sex Roles: A Journal of Research, 4*(2), 195-204. https://doi.org/10.1007/BF00287500

Keren, G., & Teigen, K.H. (2004). Yet another look at the heuristics and biases approach. In D.J. Koehler & N. Harvey (Eds.), *Blackwell Handbook of Judgment and Decision Making* (pp. 89- 109). Blackwell Publishing Ltd.

Klein, N., & O'Brien, E. (2016). The tipping point of moral change: when do good and bad acts make good and bad actors? *Social Cognition, 34*(2), 149-166. DOI: 10.1521/soco.2016.34.2.149

Krawczyk, D.C. (2018). Social cognition: Reasoning with others. In D.C Krawczyk (Eds.) *Reasoning* (pp. 283-311). Academic Press. https://doi.org/10.1016/B978-0-12-809285-9.00012-0.

Kuethe, J.L. (1962). Social Schemas. *The Journal of Abnormal and Social Psychology, 64*(1), 31-38. https://doi.org/10.1037/h0040529

Leuthesser, L., Kohli, C.S., & Harich, K.R. (1995). Brand equity: the halo effect measure. *European Journal of Marketing, 29*(4), 57-66. http://dx.doi.org/10.1108/03090569510086657

Lucker, G.W., Beane, W.E., & Helmreich, R.L. (1981). The strength of the halo effect in physical attractiveness research. *The Journal of Psychology: Interdisciplinary and Applied, 107*(1), 69-75. https://doi.org/10.1080/00223980.1981.9915206

Macrae, C.N., & Bodenhausen, G.V. (2000). Social cognition: Thinking categorically about others. *Anuu Rev Pscyhol. 51*, 93-120. https://doi.org/10.1146/annurev.psych.51.1.93

Mann, T.C., & Ferguson, M.J. (2015). Can we undo our first impressions? The role of reinterpretation in

      reversing implicit evaluations. *Journal of Personality and Social Psychology, 108*(6), 823-849.

      https://doi.org/10.1037/pspa0000021

Mayo, C.W., & Crockett, W.H. (1964). Cognitive complexity and primacy-recency effects in impression

      formation. *Journal of Abnormal and Social Psychology, 68*(3), 335-338.

      https://doi.org/10.1037/h0041716

McGrath, A. (2017). Dealing with dissonance: A review of cognitive dissonance reduction. *Soc Personal Psychol*

      Compass, 1-17. https://doi.org/10.1111/spc3.12362

McMaster, C., & Lee, C. (1991). Cognitive dissonance in tobacco smokers. *Addictive Behaviors, 16*(5), 349-353.

      https://doi.org/10.1016/0306-4603(91)90028-G

Medin, D.L., & Heit, E. (1999). Categorization. In Benjamin Martin Bly and David E. Rumelhart (Eds.),

      Cognitive Science (pp. 99-143)*.* Academic Press. https://doi.org/10.1016/B978-012601730-4/50005-6

Moore, F.R., Filippou, D., & Perrett, D.I. (2011). Intelligence and attractiveness in the face: Beyond the

      attractiveness halo effect. *Journal of Evolutionary Psychology,* 205-217.

      https://doi.org/10.1556/JEP.9.2011.3.2

Moore, C.D. (2015). Impression formation. In G. Ritzer (Eds.) *The Blackwell Encyclopedia of Sociology* (pp. 1-

      5). John Wiley & Sons, Ltd. https://doi.org/10.1002/9781405165518.wbeosi025.pub2

Newman, L.S. (1996). Trait impressions as heuristics for predicting future behavior. *Personality and Social*

      Psychology Bulletin, 22(4), 395-411. https://doi.org/10.1177/0146167296224006

Nida, S.A., & Williams, J.E. (1977). Sex-stereotyped traits, physical attractiveness, and interpersonal attraction.

      Psychological Reports, 41(3), 1311-1322. https://doi.org/10.2466/pr0.1977.41.3f.1311

Nisbett, R.E., & Wilson, T.D. (1977). The halo effect: evidence for unconscious alteration of judgments. *Journal*

      of Personality and Social Psychology, 35(4), 250-256. https://doi.org/10.1037/0022-3514.35.4.250

Orcullo, D.J.C., & San, T.H. (2016). Understanding cognitive dissonance in smoking behavior: A qualitative

      study. *International Journal of Social Science and Humanity, 6*(6), 481-484.

      http://doi.org/10.7763/IJSSH.2016.V6.695

Oshikawa, S. (1970). Consumer pre-decision conflict and post-decision dissonance. *Behavioral Science, 15*(2),

132-140. https://doi.org/10.1002/bs.3830150204

Petty, R.E., Tormala, Z.L., Brinol, P., & Jarvis W.B.G. (2006). Implicit ambivalence from attitude change: an

exploration of the PAST model. *Journal of Personality and Social Psychology, 90*(1), 21-41.

https://doi.org/10.1037/0022-3514.90.1.21

Porter, S., & ten Brinke, L. (2009). Dangerous decisions: A theoretical framework for understanding how judges

assess credibility in the courtroom. *Legal and Criminological Psychology, 14,* 119-134.

DOI:10.1348/135532508X281520

Porter, S., ten Brinke, L., & Gustaw, C. (2010). Dangerous decisions: The impact of first impressions of

trustworthiness on the evaluation of legal evidence and defendant culpability. *Psychology, Crime & Law,

16*(6), 477-491. doi:10.1080/10683160902926141

Radeke, M.K., & Stahelski, A.J. (2020). Altering age and gender stereotypes by creating the halo and horns

effects with facial expressions. *Humanities & Social Sciences Communications, 7*, 1-11.

https://doi.org/10.1057/s41599-020-0504-6

Reich, W.A., & Ray, S. (2006). Domain specific effects of central traits in impression formation. *Psychological

Reports, 98*(3)*,* 885-891. https://doi.org/10.2466/PR0.98.3.885-891

Reis, H.T., Nezlek, J., &Wheeler, L. (1980). Physical attractiveness in social interaction. *Journal of Personality

and Social Psychology, 38*(4), 604-617. https://doi.org/10.1037/0022-3514.38.4.604

Reis, H.T., Wheeler, L., Spiegel, N., Kernis, M.H., Nezlek, J., & Perri, M. (1982). Physical attractiveness in social

interaction: II. Why does appearance affect social experience? *Journal of Personality and Social

Psychology, 43*(5), 979-996. https://doi.org/10.1037/0022-3514.43.5.979

Sundar, A., Kardes, F., Noseworthy, T., & Clarkson, J.J (2014). Inferences on negative labels and the horns

effect. *Advances in Consumer Research*, *42*, 377-380.

Schneider, D.J. (1973). Implicit personality theory: A review. *Psychological Bulletin, 79*(5), 294-309.

https://doi.org/10.1037/h0034496

Schneider, D.J. (2004). Categories and categorization. In K.W. Fischer, E.T. Higgins, M. Johnson, and W.

Mischel (Eds.), *The Psychology of Stereotyping* (pp. 64-119). Guilford Press.

Secord, P.F., & Berscheid, E.S. (1963). Stereotyping and the generality of implicit personality theory. *Journal of*

Personality, 31, 65-78. https://doi.org/10.1111/j.1467-6494.1963.tb01841.x

Shany-Ur, T., & Rankin, KP. (2014). Cognition, social. *Encyclopedia of the Neurological Sciences, 1*, 814-817.

doi:10.1016/B978-0-12-385157-4.00461-9

Simmons, V.N., Heckman, B.W., Fink, A.C., Small, B.J., & Brandon, T.H. (2013). Efficacy of an experiential,

dissonance-based smoking intervention for college students delivered via the internet. *Journal of*

Consulting and Clinical Psychology, 81(5), 810-820. https://doi.org/10.1037/a0032952

Stangor, C. (2012). Perceiving others. *Social Psychology Principles* (pp. 293-350). Flat World Knowledge Inc.

Sutherland, C.A.M., Rhodes, G., & Young, A.W. (2017). Facial image manipulation: A tool for investigating

social perception. *Social Psychological and Personality Science, 8*(5), 1-14.

https://doi.org/10.1177/1948550617697176

Thorndike, E.L. (1920). A constant error in psychological ratings. *Journal of Applied Psychology, 4*(1), 25-29.

https://doi.org/10.1037/h0071663

Timmerman, K., & Hewitt, J. (1980). Examining the halo effect of physical attractiveness. *Perceptual and Motor*

Skills, 51(2), 607-612. https://doi.org/10.2466/pms.1980.51.2.607

Todd, P.M., Rieskamp, J., & Gigerenzer, G. (2008). Social Heuristics. In C.R. Plott & V.L. Smith (Eds.),

Handbook of Experimental Economics Results (pp. 1035-1046). North-Holland.

Tversky, A., & Kahneman, D. (1974). Judgment under uncertainty: Heuristics and biases. *Science, 185*, 1124–

1131. https://www.jstor.org/stable/1738360

Vonk, R. (1993). Individual differences and common dimensions in implicit personality theory. *British Journal of*

Social Psychology, 32, 209-226. https://doi.org/10.1111/j.2044-8309.1993.tb00996.x

Wetzel, C.G., Wilson, T.D., & Kort, J. (1981). The halo effect revisited: Forewarned is not forearmed. *Journal of*

Experimental Social Psychology, 17, 427-439. https://doi.org/10.1016/0022-1031(81)90049-4

Wicklund, R. A., & Brehm, J.W. (1976). Regret and other sequential processes. In L. Festinger & S. Schachter

(Eds.) *Perspectives on Cognitive Dissonance* (pp. 106-123). Lawrence Erlbaum Associates.

Wolffhechel, K., Fagertun, J., Jacobsen, U.P., Majewski, W., & Jarmer, H. (2014). Interpretation of appearance:

The effect of facial features on first impressions and personality. *PLOS ONE, 9*(9), 1-8.

https://doi.org/10.1371/journal.pone.0107721

Zebrowitz, L.A., & Franklin Jr., R.G. (2014). The attractiveness halo effect and the babyface stereotype in older

and younger adults: Similarities, own-age accentuation, and OA positivity effects. *Exp Aging Res., 40*(3),

375-393. https://doi.org/10.1080/0361073X.2014.897151

Appendix A: *Study Measures*

Assessment of Character

Directions: Rate the following items on a scale from 1 (does not describe me at all) to 7 (Describes

me exactly)

1. I am a good judge of character.
2. When I first meet a person, I get a pretty good feel for who they are.
3. I can tell if someone is a bad person or not.
4. I can tell if someone has the potential to be great.
5. I can tell if someone is lying.
6. I can read people well.
7. People rarely surprise me.

Young Adult White Faces with Manipulated Versions (DeBruine & Jones, 2017)

Randomly Assigned Target Photo
Figure 1: Manipulated by 50% distinctiveness.
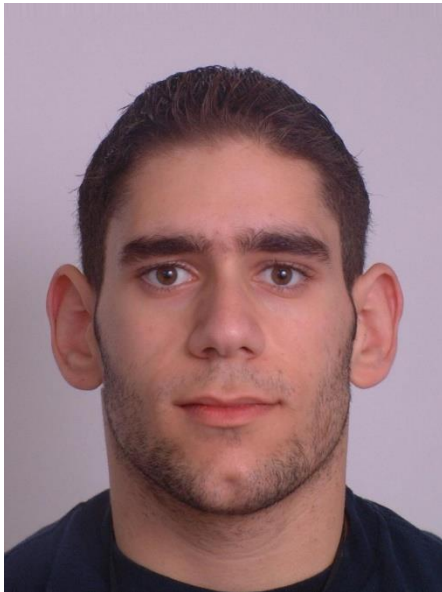
Figure 2: Manipulated by 100% symmetry.

Face Differential Scale (FDS1; Hurwitz et al., 1975)

Instructions: Read each statement and then circle the appropriate number for each of the statements to indicate how you feel. There are no right or wrong answers. Do not spend too much time on any one statement but give the answer which seems to describe your feelings best.

0   Intelligent - 100 Unintelligent

0   Naive   - 100 Sophisticated

0   Dirty- 100 Clean

0   Immature - 100 Mature

0   Kind - 100 Cruel

0   Pleasant- 100 Unpleasant

0   Warm   - 100 Cold

0   Crazy   - 100 Sane

0   Quiet   - 100 Loud

0   Strong - 100 Weak

0   Assured- 100 Unassured

0   Calm   - 100 Nervous

0   Afraid -   100 Unafraid

0   Hard   -   100 Soft

0   Alert   -   100 Sleepy

0   Sad   -   100 Happy

0   Sly -   100 Not sly

0   Cool -   100 Not cool

0   Friendly - 100 Hostile

0   Threatening-   100 Nonthreatening

0   Conceited- 100 Not conceited

0   Timid   -   100 Bold

0   Amusing-   100 Unamusing

0   Rural   -   100 Urban

0   Persistent - 100 Not persistent

0   Dishonest - 100 Honest

0   Sloppy -   100 Neat

0   Likeable- 100 Unlikeable

0   Attractive - 100 Unattractive

0   Aggressive- 100 Nonaggressive

Overall – Do you believe that the person is

0   Bad   -   100 Good

Incongruent Information

Attractive target: The man in the picture kidnapped and murdered three young children between

the ages of 5 and 7. He would encounter them in a local park. He then lured them into the words by

telling them that he needed their help to get a cat out of a tree. He was later arrested, found guilty by a

jury, and will be receiving a prison sentence next week.

   Unattractive target: While hiking through the woods, the man in the picture came across three

young children between the ages of 5 and 7. He gave them food and water, led them out of the woods and

kept them company for hours until the first responders came.

Congruent Information

   Attractive target: While hiking through the woods, the man in the picture came across three

young children between the ages of 5 and 7. He gave them food and water, led them out of the woods and

kept them company for hours until the first responders came.

   Unattractive target: The man in the picture kidnapped and murdered three young children

between the ages of 5 and 7. He would encounter them in a local park. He then lured them into the words

by telling them that he needed their help to get a cat out of a tree. He was later arrested, found guilty by a

jury, and will be receiving a prison sentence next week.

Think back to your rating of this person. What rating did you give this man previously? _____

Affect Scale (Devine, Monteith, Zuwerink, & Elliot, 1991)

Instructions: For each word, please indicate how much it describes how you are feeling by writing the corresponding number in the blank beside each word. Don't spend much time thinking about each word, just give a gut-level response.

1. **Doesn't apply at all   2   3   4   5   6   7. Applies very much**

1. __ Fearful

2. __ Angry at myself

3. __ Friendly

4. __ Guilty

5. __ Consistent

6. __ Angry at others

7. __ Uneasy

8. __ Depressed

9. __ Happy

10. __ Embarrassed

11. __ Bothered

12. __ Anxious

13. __ Frustrated

14. __ Annoyed at myself

15. __ Energetic

16. __ Regretful

17. __ Irritated at others

18. __ Disappointed with myself

19. __ Tense

20. __ Disgusted with myself

21. __ Threatened

22. __ Optimistic

23. __ Disgusted with others

24. __ Content

25. __ Low

26. __ Uncomfortable

27. __ Sad

28. __ Helpless

29. __ Shame

30. __ Neutral

31. __ Self-critical

32. __ Good

Face Differential Scale (FDS2; Hurwitz et al., 1975)

Instructions: Read each statement and then circle the appropriate number for each of the statements to indicate how you feel. There are no right or wrong answers. Do not spend too much time on any one statement but give the answer which seems to describe your feelings best.

1   Intelligent - 100 Unintelligent

1   Naive   - 100 Sophisticated

1   Dirty - 100 Clean

1   Immature - 100 Mature

1   Kind - 100 Cruel

1   Pleasant - 100 Unpleasant

1   Warm   - 100 Cold

1   Crazy   - 100 Sane

1   Quiet   - 100 Loud

1   Strong - 100 Weak

1   Assured - 100 Unassured

1   Calm   - 100 Nervous

1   Afraid - 100 Unafraid

1   Hard   - 100 Soft

1   Alert   - 100 Sleepy

1   Sad   - 100 Happy

1   Sly - 100 Not sly

1   Cool - 100 Not cool

1   Friendly - 100 Hostile

1   Threatening - 100 Nonthreatening

1   Conceited - 100 Not conceited

1   Timid   - 100 Bold

1   Amusing- 100 Unamusing

1   Rural   - 100 Urban

1   Persistent - 100 Not persistent

1   Dishonest - 100 Honest

1   Sloppy - 100 Neat

1   Likeable- 100 Unlikeable

1   Attractive - 100 Unattractive

1   Aggressive- 100 Nonaggressive

Overall – Do you believe that the person is

1   Bad   - 100 Good

Demographics

1.   How old are you? _____
2.   What is your biological sex?
     a.   Male
     b.   Female
3.   What is your sexual orientation?
     a.   Heterosexual
     b.   Homosexual
     c.   Bisexual
     d.   Other
4.   What is your race/ethnicity?

a.   African   b.   African American   c.   Asian/Pacific Islander

   d.   Bi/Multiracial   e.   Caucasian   f.   Hispanic

   g.   Middle Eastern   h.   Native American   i.   Other_____

Appendix B: IRB Approval Letter

MURRAY STATE
UNIVERSITY

Institutional Review Board

328 Wells Hall
Murray, KY 42071-3318
270-809-2916 • msu.irb@murraystate.edu

TO:	Jana Hackathorn, Psychology
FROM:	Jonathan Baskin, IRB Coordinator JB
DATE:	3/13/2023
RE:	Human Subjects Protocol I.D. – IRB # 23-125

The IRB has completed its review of your student's Level 1 protocol entitled *Impressions and Longevity*. After review and consideration, the IRB has determined that the research, as described in the protocol form, will be conducted in compliance with Murray State University guidelines for the protection of human participants.

The forms and materials that have been approved for use in this research study are attached to the email containing this letter. These are the forms and materials that must be presented to the subjects. Use of any process or forms other than those approved by the IRB will be considered misconduct in research as stated in the MSU IRB Procedures and Guidelines section 20.3.

Your stated data collection period is from 3/13/2023 to 8/31/2023.

If data collection extends beyond this period, please submit an Amendment to an Approved Protocol form detailing the new data collection period and the reason for the change.

This Level 1 approval is valid until 3/12/2024.

If data collection and analysis extends beyond this date, the research project must be reviewed as a continuation project by the IRB prior to the end of the approval period, 3/12/2024. You must reapply for IRB approval by submitting a Project Update and Closure form (available at murraystate.edu/irb). You must allow ample time for IRB processing and decision prior to your expiration date, or your research must stop until such time that IRB approval is received. If the research project is completed by the end of the approval period, then a Project Update and Closure form must be submitted for IRB review so that your protocol may be closed. It is your responsibility to submit the appropriate paperwork in a timely manner.

The protocol is approved. You may begin data collection now.

Opportunity
afforded

murraystate.edu

Equal education and employment opportunities M/F/D, AA employer. Murray State University supports a clean and healthy campus. Please refrain from personal tobacco use.