Manipulating Perceptions of Leadership Traits in Women through Cosmetic Combinations

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Abstract

The beauty and personal care market value in Western Europe was estimated at €87 billion in 2019 (Statista, 2019). Research showed that women believe that wearing cosmetics can improve people's perceptions of them in the workplace, and thereby increases their chances of financial stability during times of economic recession (Netchaeva & Rees, 2016). This research investigated the effect of cosmetic combinations – lipstick colour and eyebrow enhancement – on the perception of leadership traits in Caucasian women. 150 participants each judged four photos of blonde, blue-eyed women on effective leadership and four closely associated traits: intelligence, dominance, honesty & integrity, and self-confidence. Overall, the findings in this research confirmed that cosmetics can alter leadership trait perceptions. Results showed that red lipstick, compared to no lipstick, can increase dominance and self-confidence perceptions, while it can decrease ratings of honesty & integrity. However, the results varied greatly between the four photos, despite their very similar appearances. Brow enhancement was suggested to positively influence dominance and negatively influence honesty & integrity, but only for one photo. No interaction effect between eyebrow enhancement and lipstick colour was found for any of the photos. The differences in results imply that the effect of cosmetic combinations is complex and variant per individual. Although this research suggests that some women can indeed employ cosmetics to alter leadership trait perceptions of them, no evidence was found conclusively in favour of or against the use of brow enhancement and lipstick colour in a professional environment.

Keywords: cosmetic combinations, leadership traits, lipstick, eyebrows

Manipulating Perceptions of Leadership Traits in Women through Cosmetic Combinations

In "Wetenschap Havermoutpap" (VPRO Wetenschap Havermoutpap, 2017) a social experiment was conducted to invalidate the common conception that blond women are perceived as less intelligent based on their hair colour. Street passengers were asked to rate a blond woman on intelligence and to guess her profession based on her appearance before and after cosmetic enhancement of her eyebrows. With enhanced brows, the woman received an average intelligence rating of 8.6 out of 10, compared to a 7.6 out of 10 on average without brow enhancement. She was also assigned higher status jobs with brow enhancement – jobs such as a physician, than without enhancement – jobs such as cashier. Though the experiment was not conducted in a controlled environment and may be largely biased, it suggests that the belief about the intelligence of blondes is influenced by the colour and especially the prominence of the eyebrows and, moreover, that the use of cosmetics could alter the perception of intelligence.

The Lipstick Effect

Over the last few decades, a phenomenon referred to as the lipstick effect was found to have consistently taken place during times of economic recession. These times are characterized by major decreases in overall consumer spending, from household products to luxury products and spending on leisure activities. The opposite, however, was shown in sales reports from the beauty industry during the 2008 recession, which experienced increasing sales (L'Oréal, 2008). The lipstick effect is an abstract term conceived by and referred to by journalists (Psychology Today, 2015; South China Morning Post, 2016; The Guardian, 2017; The Times, 2018). It represents the theory alleging that during times of economic recession, women's spending on beauty products increases, whereas most other industries suffer majorly declining sales numbers. Hill et al. (2012) conducted studies with the objective to find evidence for this theory, linking economic recessions, female mating psychology, and consumer spending behaviour. When testing the relationship between economic conditions and consumer spending priorities using 20 years of naturally occurring data, they found that critical economic forecasts were related to a shift in consumer spending priorities from products unrelated to appearance to

appearance-enhancing products. Causal evidence for the lipstick effect was found in a set of their experimental studies. When primed with cues of an economic recession, women's desire to purchase appearance-enhancing products, including lipstick, increased, whereas the desire to purchase products unrelated to appearance decreased. An explanation for the lipstick effect is the desire of women to attract financially stable partners. Evidence for this explanation was found in their follow-up study on the mediating effect of mating psychology. They found that cues of an economic recession significantly increased the desire in women to find financially secure mates, independent of these women's level of resource needs. This mediating effect was much stronger when women were presented with, than without, slogans advertising the appearance-enhancing products as attracting mates. This suggests that in times of economic recession women are influenced by the belief that enhancing appearance can increase their attractiveness to financially secure men.

Further evidence for the lipstick effect was found by Netchaeva and Rees (2016). They first proved the mediating effect of economic concern, a more general factor than Hill et al. (2012) investigated, on the relationship between cues of an economic recession and women's increased desire for beauty products. Notably, both Netchaeva and Rees (2016) and Hill et al. (2012) found evidence for the lipstick effect even when only the forecast of a negative economic situation was presented to women, without the actual presence of an economic recession. This implies that merely cues of an unfavourable economic situation are of a high enough economic concern for women to shift their spending priorities to appearance enhancing products. In their following two studies, the authors differentiated between two approaches for women to mitigate this economic concern: ensuring financial security through a partner or through own professional effort. These studies confirmed the results on economic concern mitigation through a financially stable partner by Hill et al. (2012). Moreover, they found evidence for a second motivation behind the lipstick effect that originates from women's own professional role. When women were asked to express their interest in a tutorial focusing on enhancing appeal to professional decision-makers and a tutorial focusing on enhancing appeal to men, the former tutorial dominated their preferences. When given an either-or choice in an advertisement for lipstick, women significantly more often chose an advertisement with lipstick serving to get a dream job than an advertisement with lipstick serving to get a dream man. These results suggest not only that women

believe appearance-enhancing items to be tools for influencing perceptions of them in the workplace, but also that this belief dominates the belief rooted in mating psychology, which was found by Hill et al. (2012). Withal, these studies evince that the lipstick effect is more than just a term used in commercial media. It is evidently based on women's endeavour to avoid economic concern. Women believe that this cannot only be done by improving their attractiveness to men with cosmetics, but also by improving perceptions of them in the workplace with cosmetics.

Cosmetics and Impression Formation

A tenth of a second is enough for a person to form a judgment on personality traits based on a first impression of facial cues (Willis & Todorov, 2006). Exposure time to a face longer than 100 ms, according to the authors, does not significantly change judgments of attractiveness, likeability, trustworthiness, competence, and aggressiveness. Their findings suggest that people anchor their judgment on the first impression of a face, characterizing inference from facial cues as fast, intuitive, and based on minimal information. Can the use of cosmetics serve as a facial cue that can alter this judgment anchored on a first impression? In an attempt to quantify the benefit of applying cosmetic make-up on first impressions, Dayan, Cho, and Gutierrez-Borst (2015) showed pictures of 27 women with no make-up, their own make-up, or control cosmetics to respondents. Respondents had to evaluate the women on a 10-point first impression scale, 1 indicating a negative overall impression and 10 indicating a positive overall impression. The authors provide significant evidence that wearing cosmetics can improve the first impression of a face. They found that wearing make-up, compared to wearing no make-up, increased the rating of the first impression with 37%.

A factor that contributes to impression formation is attractiveness. The positive effect of cosmetics on attractiveness ratings has been a topic of investigation for numerous researchers. Russell (2009) found that the use of cosmetics enhanced facial contrast, an appearance cue that increases ratings of femininity and therefore attractiveness. Cox and Glick (1986) found increased ratings of attractiveness, sexiness, and femininity when women wore make-up compared to when they did not wear make-up, results that have been further investigated and endorsed in subsequent studies (Cash, Dawson, Davis, Bowen, & Galumbeck, 1989; Graham & Jouhar, 1981; Huguet, Croizet, & Richetin,

2004; Narang, 2013; Workman & Johnson, 1991). As a consequence of these increased ratings of attractiveness, cosmetics were found to have a significant influence on the behaviour of the perceiver as well. As such, women wearing make-up were found to be offered a ride when hitchhiking more often than women without cosmetics (Guéguen & Lamy, 2013). Women also received bigger tips as a waitress when wearing make-up – specifically lipstick, which was found in a study by Guéguen and Jacob (2012) about the effect of lipstick colour on tipping behaviour. They used different lipstick colours (red, pink, brown, and no lipstick) on waitresses and measured the size of the tip given, distinguishing between male and female tippers. The results showed that in particular red lipstick was a facial cue that increased tipping behaviour – significantly more of men than of women, which the authors explained by increased perceptions of attractiveness through cosmetics.

The academic evidence for the effect of cosmetics on attractiveness proves to be very conclusive in favour of their use. Additionally, the existence of a more profound effect of cosmetics than on attractiveness only, such as on perceptions of personality, has been frequently demonstrated. However, the evidence is still ambiguous on whether the effect on personality perceptions has a positive or negative nature. For example, Graham and Jouhar (1981) found significantly more positive ratings of personality for women wearing cosmetics compared to no cosmetics. Per contra, Huguet, Croizet, and Richetin (2004) found mixed, but predominantly more negative personality ratings with cosmetics. A notable topic of discussion in these studies, and throughout the rest of the literature, is whether attractiveness is the mediating factor for the effect on personality perception, or whether the effect is direct.

Graham and Jouhar (1981) tested both the effect of cosmetics on attractiveness and its effect on the favourability of personality ratings. They argued that an increased rating on physical appearance is paired with an increased positive rating of personality. Participants were asked to rate photos of women wearing either cosmetics (as worn on a regular basis) or no cosmetics on a 5-point scale for 6 appearance evaluations, among which feminine looking, pleasant looking, and physically attractive. They also had to rate the photos on a 7-point scale for 14 different personality traits, among which confidence, sociability, sincerity, and reliability. In line with findings by Cash, Dawson, Davis, Bowen, and Galumbeck (1989), Huguet, Croizet, and Richetin (2004), Narang (2013), and Workman and

Johnson (1991), the results showed that cosmetics had a positive effect on all six appearance ratings. Moreover, a positive effect of cosmetics was found on eight out of the 14 tested personality ratings, confirming the hypothesis that cosmetics can positively influence the perception of personality. Specifically, women wearing cosmetics were perceived to be more secure, sociable, interesting, poised, confident, organized, and popular, and they were perceived to make more effort. The study found no significant difference in ratings from males and females, suggesting that the effect of cosmetics on person perceptions is not influenced by the gender of the perceiver. However, no answer was given to the question of whether wearers of cosmetics were rated more favourable on personality due to a direct effect of cosmetics or whether the effect was mediated by the increased ratings of physical appearance.

Workman and Johnson (1991) investigated the effect that cosmetics use has on the formation of impressions, a process that starts with the selection of cues given by appearances, such as clothing, gender, and cosmetics. Contrarily to Graham and Jouhar (1981) evincing the positive effect of cosmetics on person perception, they found no significant effect on specific personality traits. However, they did find a positive effect on perceived attractiveness and femininity, consistent with the results from Graham and Jouhar (1981) and Russell (2009), and a negative effect on perceived morality. Their lack of evidence on a significant effect of cosmetics on impression formations was later contradicted by Huguet, Croizet, and Richetin (2006). They investigated the effect of cosmetics on the formation of impressions and the mediating effect of physical attractiveness on impression formation. They had participants rate pictures of women wearing either a moderate level of cosmetics or no cosmetics, in a manner similar to previous research, on physical attractiveness, five positive personality traits (honesty, intelligence, kindness, self-confidence, and sociability), and five negative personality traits (coldness, shallowness, submissiveness, unfaithfulness, and vanity). They found a significant effect of cosmetics, overall leading to the perception of a less positive personality. Women wearing make-up were perceived as more unfaithful, shallower, less honest, and less intelligent. Contrarily to the results found by Graham and Jouhar (1981), this suggests that cosmetics can also have a negative effect on personality traits. However, consistent with that research, higher perceived confidence ratings were found for someone wearing make-up than for someone wearing no make-up. Furthermore, the negative effects were significantly stronger when the wearer of cosmetics (or none) was young (median 25 years old) than

when she was old (median 42 years old). This suggests that when wearing make-up, others' perception of personality is influenced by the age of the wearer. Moreover, they found that physical attractiveness ratings did not mediate the effect of cosmetics on the personality ratings, suggesting a direct effect on perceived personality. This adds valuable insights to the research by Graham and Jouhar (1981), and the authors suggest that those effects on personality ratings can be considered independent of the physical appearance ratings.

The findings in these studies, albeit contradicting and tested using a very similar methodology, are not necessarily mutually exclusive. The differences in results might not only be attributable to the different dimensions of personality that were tested but could also be due to cosmetics attitudes and perceptions being time-sensitive. After all, the three studies were each published ten years apart. Whether trends in attitudes towards make-up have any influence on the perception of personality might prove insightful when the effect of cosmetics is tested in the future. Therefore, including analysis of the influence of attitude towards cosmetics on the effect of cosmetics in the present research can improve comparability with both past and future research.

Cosmetics in a Professional Setting

Nearly 15 years prior to any research on the lipstick effect, Dellinger and Williams (1997) conducted qualitative research that already provided early insights into women's beliefs, assumptions, and norms concerning cosmetics use in the workplace. They conducted in-depth interviews with 20 women from different ages and ethnicities, and who worked in a broad range of environments. They found that although no institutional rules exist regarding the use of cosmetics, the interviewees felt that certain norms constitute what is appropriate regarding cosmetics in the workplace and that adherence to these norms can affect how women are perceived with regard to health, sexuality, and credibility. According to Dellinger and Williams (1997), these qualities are associated with professional success. Several interviewees expressed that they believed wearing make-up makes women appear more competent and intelligent. Indeed, a positive perception of competence, an evaluation that is more strict when it concerns women than when it concerns men, may lead to women being perceived more favourably in an organization (Foschi, 2000). More recent research by Cuddy, Glick, and Beninger

(2011) supported the importance of trait perception in professional and organizational evaluations, especially in the personnel selection process and the assignment of promotions in organizations. They speculated that self-presentation, including the use of cosmetics, could influence professional perceptions. Studies already confirmed the "mate attraction" rationale behind the lipstick effect, showing that cosmetics can indeed alter ratings of attractiveness (Cash, Dawson, Davis, Bowen, & Galumbeck, 1989; Graham & Jouhar, 1981; Huguet, Croizet, & Richetin, 2004; Narang, 2013; Workman & Johnson, 1991) and personality (Dayan, Cho, Siracusa, & Gutierrez-Borst, 2015; Graham & Jouhar, 1981). However, researchers have also investigated the professional rationale behind the lipstick effect, testing whether there is truth to women's belief that cosmetics use can improve people's perceptions of them in a professional environment.

Throughout the literature, a general consensus exists on the significant effect of cosmetics on the perception of professional characteristics. However, contradicting results are found on whether the use of cosmetics in a professional setting is lucrative or prejudicial. Adverse effects were found by Cox and Glick (1986), who found decreased expected performance ratings with cosmetics, and Kyle and Mahler (1996), who found that perceived ability was negatively influenced by cosmetics use. Also James, Jenkins, and Watkins (2018) found that cosmetics decreased perceptions in their research on perceived leadership ability. However, the majority of prior research found favourable effects. For example, Etcoff et al. (2011) contradicted Kyle and Mahler (1996) with their findings of a positive relationship between cosmetics use and ability ratings, as well as competence. Further favourable effects, in line with Etcoff et al. (2011), were found by Mileva, Jones, Russell, and Little (2016). Their results suggested that cosmetics can increase perceived professional status, dominance, and prestige. This effect on prestige was endorsed by Nash et al. (2006), who also found evidence of an increase in perceived confidence and earning potential with cosmetics. Similar to studies on cosmetics and impression formation without the professional context, an explanation for the difference in results might be the moments in time at which the studies were conducted. Notably, Cox and Glick (1986) and Kyle and Mahler (1996), who argued against the use of cosmetics, published their results much earlier than any subsequent study – at least two decades and one decade respectively. The opposing results could, therefore, be attributable to various socio-economic factors that change with time, such as not only the

attitude towards women wearing make-up but also attitudes towards women in the workplace. The time factor, however, does not necessarily explain why James, Jenkins, and Watkins (2018) found a negative rather than a positive influence of cosmetics. Another reason for the contradicting results, therefore, could be the methodological inconsistency throughout the entire academic field on cosmetics use and person perception. A few researchers used a specific cosmetic product – lipstick – as an influencing factor (Guéguen & Jacob, 2012; McKeachie, 1952). The vast majority of the literature, however, is comprised of research that adopted a methodology in which the cosmetics variable is either binary – make-up or no make-up (Kyle & Mahler, 1996; Mileva et al., 2016; Nash et al., 2006) – or a categorical variable with three or four levels of make-up. However, the way in which cosmetics use was materialized differed largely across studies. For example, categorical variations included no/moderate/heavy make-up (Cox & Glick, 1986), no/natural/professional/glamorous make-up (Etcoff, Stock, Haley, Vickery, & House, 2011), and 0%/50%/100% colour manipulation. Moreover, in some studies, a professional cosmetician applied the make-up (Cox & Glick, 1986; Nash et al., 2006), whereas in other studies the make-up was applied with computer photo editing software (James et al., 2018; Mileva et al., 2016). Kyle and Mahler (1996) did not specify how the cosmetics were applied. This may have affected the kind of cosmetic products used, the amount of make-up, and the precision of application, which may have influenced how the make-up was perceived. The following elaboration on these studies describes their results and methodological choices in more detail. A discussion of the studies that found adverse effects of cosmetics is followed by a discussion of the studies that found favourable effects of cosmetics on professional characteristics. Finally, the study by James, Jenkins, and Watkins (2018) on leadership ability perceptions is discussed, as the present research investigates the effect of cosmetics on leadership traits.

Cox and Glick (1986) studied the effect of three levels of cosmetics on employment evaluations. They found that cosmetics had a significant negative impact when participants were shown resume photos to be evaluated for a stereotypical feminine job, such as a secretary position, whereas no significant impact was found when the resume was to be evaluated for a non-stereotypical accounting job. In the former case, women with increasing levels of cosmetics were rated lower on expected performance. The authors mentioned a corrective remark on the research by Heilman and Saruwatari

(1979), who based on their results argued that for women who want to progress to managerial positions in their careers it is best to appear as unattractive as possible. Since cosmetics application is repeatedly evinced to increase attractiveness, this would suggest that women should refrain from using cosmetics in a professional setting. However, the results found by Cox and Glick (1986) demonstrated that the benefits of appearing unattractive would only apply to the case in which the job position concerns a stereotypical feminine job and in which cosmetics thus strengthen the stereotyping. Kyle and Mahler (1996) used a similar methodology as Cox and Glick (1986) in investigating the effect of cosmetics on perceptions of ability. Likewise, their results showed an adverse effect of cosmetics, contradicting later studies that found favourable effects on professional characteristics. Participants in their experiment were shown the same resume of a female job applicant for the position of staff accountant, with a photo either with or without make-up and with different hair colours. They were given the tasks to rate the woman on capability and to assign her a beginning salary, both outcomes being indicative of perceived ability. The female wearing cosmetics on the resume photo, compared to the photo of the same female without cosmetics, was assigned a lower beginning salary and was also given a lower capability rating. The authors mentioned a limitation of their methodology, being that the negative effect that they found, could have been different if they had used another job position than that of staff accountant. This limitation was not applicable to studies that used only photographs for evaluations, without them being attached to a resume or being linked to a particular job (Etcoff et al., 2011; James et al., 2018; Mileva et al., 2016a; Mobius & Rosenblat, 2006; Nash et al., 2006). Kyle and Mahler (1996) argued that the underlying mechanism of the effect that they found, could be contributed to job stereotyping. They theorized that a stereotype associated with a particular job position may evoke ability evaluations that are congruent with the stereotypical appearance associated with that position, which was earlier investigated by Cox and Glick (1986). Although their results confirmed the by Kyle and Mahler (1996) theorized interaction between job position and employment performance evaluations, the particular position of accountant was contrastingly found insignificantly influenced by cosmetics use. The difference in results is likely attributable to the difference in methods used to examine the effect, such as the ages of the females being evaluated, which were higher in the research by Kyle and Mahler (1996). Another explanation could be that different results were found due to the difference in cosmetic

combinations applied in the studies. For example, the women in the study by Cox and Glick (1986) applied their own make-up, whereas in the study by Kyle and Mahler (1996) a professional cosmetician applied the make-up.

However, according to Mobius and Rosenblat (2006), the use of cosmetics indirectly increases perceptions of ability, contradicting Kyle and Mahler (1996), as well as competence ratings. They found evidence that attractiveness increased wages through increased confidence and that physically attractive workers were rated higher on ability by employers than less attractive workers. Much more recent research by Etcoff et al. (2011) on the relation between cosmetics and competence perceptions, showed a more direct effect on competence than Mobius and Rosenblat (2006). They argued that similar to animals evolutionarily changing visual features, women can employ cosmetics to alter their visual features in order to attract, intimidate, or protect themselves. During varying inspection times, they showed participants pictures of female faces with three levels of make-up and found a significant positive relationship between the use of cosmetics and judgments of attractiveness, competence, likeability, and trustworthiness. According to the authors, competency evaluation was positively influenced by cosmetics both at first glance and at longer inspection. Additionally, they argued that judgments of competence are closely associated with dominance and status. This raises the conjecture that if competence can be increased with cosmetics, dominance and status could also be increased. Whether this holds true for professional status, as well as dominance, was investigated by Mileva, Jones, Russell, and Little (2016). They studied the effect of cosmetics on status and two of its underlying factors: dominance and prestige. Similar to previous research, "cosmetics" was a binary variable and participants rated faces with or without make-up on the traits of interest. Confirming findings of a favourable effect of cosmetics in the preceding literature, results showed a significant positive relationship between the use of cosmetics and status. However, when looking at the two factors of status, they found that the effect depended on the gender of the rater, similar to Guéguen and Jacob (2012). The faces were only rated significantly higher on dominance by female raters and on prestige only higher by male raters. This difference in gender ratings was not found in other studies. However, these studies either did not test the same characteristics or did not make this specific distinction between dominance and prestige, which may be why such a gender effect is not found in other studies. A second

study showed that the gender effect for dominance could be contributed to a mediating factor of jealousy in women. Altogether, their results confirmed that cosmetics can indeed alter perceptions of status, but au contraire to, for example, Graham and Jouhar (1981), the effect for some traits – dominance and prestige – was suggested to depend on the gender of the perceiver. This research by Mileva et al. (2016) built on the earlier study by Nash et al. (2006). Nash et al. (2006) showed pictures of four Caucasian women either with or without cosmetics to elicit ratings on health, confidence, earning potential, and job prestige (professional status). Their results showed that compared to women without make-up, a higher rating was given to women with make-up on all four characteristics. This suggests that wearing make-up cannot only make women seem more confident but also increase ratings of prestige or status. Remarkably, these results also imply that, despite the finding that women are assigned a lower beginning salary when wearing cosmetics (Kyle & Mahler, 1996), they are estimated to have a higher earning potential with cosmetics. Generally, higher earnings are associated with higher-level jobs, i.e. leadership positions. Do these results, therefore, also imply that women wearing make-up can be perceived as having higher chances of obtaining leadership positions?

James, Jenkins, and Watkins (2018) investigated the effect of cosmetics on perceived leadership ability. Participants were shown paired combinations of Caucasian and African faces with either no make-up or one of two levels (50% and 100%) of make-up, with 100% being make-up for a social night out. The task required participants to rate each face on leadership ability relative to its paired face. A significant negative rating was found on leadership ability when it concerned 100% make-up relative to no make-up, but no significant effect was found when it concerned no make-up versus 50% make-up. The authors referred to the research by Mileva, Jones, Russell, and Little (2016), pointing out that the effect of cosmetics that was found in that research pertained to dominance in a mating context rather than in a professional context where social dominance is a trait of effective leadership. However, they acknowledged the view expressed by Kyle and Mahler (1996) that the effect of cosmetics may vary with the characteristics that pertain to different organizational roles. They considered that their findings do not exclude a positive effect of cosmetics in certain leadership roles where attractiveness may play a part. Moreover, this research suggests that the effect of cosmetics can be different for varying levels of make-up.

In summary, the mere existence of an effect of cosmetics on professional characteristics was abundantly evinced in prior research. However, the literature neither conclusively invalidated nor affirmed women's belief constituting the professional motivation behind the lipstick effect, i.e. whether women are benefitted or hindered by the use of cosmetics in a professional setting. Yet, the majority of prior research seems to evince a positive effect of cosmetics on professional trait perceptions (Etcoff et al., 2011; Mileva et al., 2016; Mobius & Rosenblat, 2006; Nash et al., 2006), especially on dominance, status, and prestige. Findings on competence and ability perceptions were ambiguous, whereas only adverse results were found on expected performance, beginning salary, and leadership ability (Cox & Glick, 1986; James et al., 2018; Kyle & Mahler, 1996). Delicate, yet crucial differences exist between the studies that decrease the comparability of the existing literature. For example, the timing of the studies and the different implementation of make-up – type of products, amount, application, and scale – may have contributed to the opposing results. According to the literature, other factors that may influence the relationship between cosmetics and trait perceptions include gender of the perceiver (Guéguen & Jacob, 2012; Mileva et al., 2016), age of the wearer (Graham & Jouhar, 1981), job stereotyping (Cox & Glick, 1986), and the characteristic to be perceived – each study covered a slightly different topic. In order to overcome the differences that are caused by the inconsistent implementation of cosmetics, the present research tested the effect of cosmetics more specifically, i.e. eyebrow enhancement and specific lipstick colours, using computer software. Furthermore, the women to be judged were of a similar age, the age and gender of the perceiver were included as possible moderators, and no specific job position was attached to the ratings to be elicited.

Traits of an Effective Leader

James et al. (2018) were the first and only to test the effect of cosmetics on leadership perceptions. Further investigation into the effect of specific cosmetic products on perceptions of leadership may prove expedient, especially for women who are trying to obtain management positions. Knowing if, how, and which cosmetics can improve people's perceptions of them as a leader, could benefit them in the workplace. Moreover, for women whose rationale behind the lipstick effect is

professional, further research on this particular relationship between cosmetics and leadership perceptions might provide insights into whether their spending on beauty products is worthwhile.

As Drath (2001) conveyed in his book, a leader is only acknowledged as a leader if he/she is perceived as one. Prior to exploring the effect of cosmetic combinations on leadership trait perceptions, an imperative subject to investigate is what constitutes a good leader; i.e. which specific traits are found to be representative of effective leadership. Zaccaro (2007) argued that effective leadership is made up of several elements: distal attributes that include personality, cognitive abilities, and motive values, and proximal attributes that include problem-solving skills, social appraisal skills, and expertise/tacit knowledge. Hollander and Julian (1969) argued that leadership is a two-way relationship between the followers and the leader and that the psychological basis to identify an effective leader depends on how the leader is perceived on leadership attributes by followers, a theory referred to as implicit leadership theory. The importance of how leadership traits are perceived is further stressed by Ciulla (2008), who agreed with Hollander and Julian (1969) that to a certain extent, there must be congruence between what followers expect from and desire in a leader and which characteristics (potential) leaders are perceived to possess. When considering implicit leadership theory in reviewing the literature, it becomes clear that the leadership attributes that are important for others' perceptions are distal attributes that fall within the factors personality and cognitive abilities.

The literature suggests a broad range of traits that are associated with leadership. Early research by Kirkpatick and Locke (1991) showed evidence of the importance of traits, among which (drive, the desire to lead, honesty/integrity, self-confidence, cognitive ability, and knowledge of the business) in leadership effectiveness. Throughout the literature, four important traits are repeatedly evinced to be positively associated with leadership: intelligence, honesty & integrity, dominance, and self-confidence. Notably, although these four traits alone do not amount to the full dimensionality of effective leadership, they are traits that have not only been investigated in relation to leadership but that have also recurrently been investigated in relation to cosmetics use. In other words, these traits are present in the literature on the relationship between cosmetics and personality traits, as well as in the literature on the relationship between personality traits and leadership perceptions. This allows for connecting the literature through the present research into the effect of cosmetics on leadership perceptions. For all four traits, the

terminology varied throughout the literature. To avoid confusion due to terms being used interchangeably, I refer to them as intelligence, honesty & integrity, dominance, and self-confidence. The following section describes the traits and how they relate to effective leadership in more detail.

Intelligence. Intelligence is a more general term than the subsequent three traits. Throughout the literature, it is also referred to as cognitive ability or competence. Even though the strength of the relationship between intelligence and leadership was found to be variant, the relation was consistently found to be significant and positive. For example, research by Offermann, Kennedy, and Wirtz (1994) suggested that if an individual is implicitly perceived as more intelligent, this individual should also be perceived as a more effective leader, given that all other factors are being held constant. Their results were cross-validated by Epitropaki and Martin (2004). Additionally, in a study by Nichols and Cottrell (2014) participants could "purchase" traits with tokens in order to design their most desired leader. The authors found that traits that are consistently "purchased", and which are hence desired in leaders, independent of the level of leadership, were intelligence and trustworthiness. A similar positive relationship between intelligence and perceived leadership was found by House, Hanges, Javidan, and Dorfman (2004), Judge, Colbert, and Ilies (2004), Lord, de Vader, and Alliger (1986), Mann (1959), and Nichols and Cottrell (2014). Considering the much more abundant evidence for this relationship than for the greater number of leadership traits, intelligence appears to be the most important trait that is desired in an effective leader.

Honesty & integrity. Honesty and integrity are two terms that are hardly found separate in studies relating these traits to leadership. Therefore, the traits will be referred to as one. Like intelligence, more than one term is used to express honesty & integrity. House, Hanges, Javidan, and Dorfman (2004) specified integrity as being honest, sincere, just, and trustworthy. In a study on leadership on a global dimension, they found that integrity was among the universally supported dimensions of effective leadership. Likewise, policy supervisors who were surveyed to elicit leadership effectiveness ratings on a number of traits were found to strongly associate integrity with effective leadership. A lack of integrity, on the other hand, was found representative of an ineffective leader (Schafer, 2010). Honesty & integrity were also specified by Offermann, Kennedy, and Wirtz (1994) and Epitropaki and Martin (2004) to be closely related to sensitivity, which is one of the six factors –

sensitivity, intelligence, dedication, dynamism, tyranny, and masculinity – that both found to be representative of employee's implicit leadership theory. Notably, Epitropaki and Martin (2004) found all of these six characteristics to be consistent over time. Nichols and Cottrell (2014) confirmed the results by previous studies that trustworthiness – i.e. honesty & integrity – is a positive trait that is desired in effective leaders. These studies implicate that people who are perceived to be more honest and integer, are also perceived to be more effective leaders.

Dominance. Dominance was found to be another important factor associated with effective leadership. Although generally perceived as a negative leadership trait, dominance is embedded in follower's implicit leadership theories (Ciulla, 2008). This suggests that followers perceive dominance to be representative of effective leadership, even though it might not necessarily make the leader more likeable. Drath (2001) argued in his personal dominance theory that a dominant leader sets the focus and direction for the group of followers, and influences the group to successfully reach goals. The author mentioned, however, that dominance is only a trait of effective leadership if the followers trust in the leader's qualities and capabilities. Still, that dominance is a trait that is highly desired in leaders was confirmed by Nichols and Cottrell, (2014). They investigated dominance as the sum of the traits ambition, assertiveness, confidence, and courage. Participants were asked to rate for different traits, including each the dominance traits, how important they thought it was that a leader possessed that trait. They found that all traits related to dominance were highly desired in leaders. In a subsequent study, the authors made a distinction between high-level leaders (e.g. company president) and low-level leaders (e.g. shift supervisor). Notably, their results showed that the dominance traits were desired more in high-level leaders than in low-levels leaders. The relation between the perception of dominance and effective leadership was further endorsed by Lord, de Vader, and Alliger (1986), Mann (1959), and Yoder (2001). Additionally, in research on dominance in relation to leadership, it was clear that the context of dominance was professional. However, in research on the effect of cosmetics dominance was sometimes defined more broadly, such that it could be interpreted beyond the professional scope. For example, the trait "dominance" in women can be interpreted as a leadership trait, but also as a trait associated with jealousy and male attraction (James et al., 2018; Mileva et al., 2016). Therefore, the

dominance trait for the purpose of this research signifies dominance in a professional context; i.e. dominance in the workplace.

Self-confidence. Leaders who project self-confidence are better at persuasion, communicating with self-assurance, and influencing followers (Ciulla, 2008). Especially in charismatic leadership, self-confidence is an important factor that contributes to the perception of effective leadership, because self-confidence communicates that the leader expects collective success in achieving goals, according to Cremer, Knippenberg, De Cremer, and Van Knippenberg (2004). They provided experimental evidence for the significant positive relationship between self-confidence and leadership effectiveness. Early research by Stogdill (1948) already supported that self-confidence was found to be a trait representative of effective leaders. Nichols and Cottrell (2014) confirmed that among the traits that are desired in an effective leader, was confidence, even more so in high-level than in low-level leaders. Further support for self-confidence as a positive trait was found by Kirkpatick and Locke (1991). They argued that the perception of self-confidence in a leader is crucial because a self-confident leader not only increases the perception of competence and good decision-making but is also is better at gaining trust from followers. Similar to the other traits of interest in the present research, a multivariate analysis to detect patterns between self-confidence ratings and the other trait ratings, rather than analysing all traits individually, seems important, as also argued by W. Drath (2001).

It appears that the effect of cosmetics in a professional framework largely depends on which specific characteristic perceptions are being measured. Moreover, whether a characteristic is being measured on a more generic level, i.e. status (Mileva et al., 2016) or leadership ability (James et al., 2018), or on a more detailed and sophisticated level, i.e. dominance and prestige (Mileva et al., 2016) or earning potential (Nash et al., 2006), seems to yield different results. Although these authors mentioned this limitation, none of them – except for Mileva et al. (2016) – tested the effect of cosmetics on both the generic characteristic and its elements. Therefore, this research not only investigates the effect of cosmetic combinations on individual leadership traits but also on the overarching characteristic to which they pertain, i.e. leadership effectiveness.

Present Research

This research attempts to give insights into the question of whether women can use their looks to manipulate people into thinking that they are better leaders through the use of cosmetic combinations. This may be relevant in professional situations where appearances and first impressions can affect how women are evaluated, for example in job interviews. The term "cosmetic combinations" describes the different combinations that are possible by applying individual cosmetic products; in this research precisely, the different combinations consist of eyebrow product and lipstick colour. This research is an exploratory study attempting to bridge the informational gap in the domain of cosmetic combinations and leadership by answering the main research question:

Can Caucasian women manipulate how people perceive their leadership traits by applying specific cosmetic combinations?

Specifically, this research investigates the effect that lipstick colour and eyebrow enhancement have on the perception of leadership effectiveness and four different leadership traits that are associated with effective leadership. Moreover, this research studies the effect of the individual application of brow enhancement and lip colour, as well as their combined effect. Considering the lack of research on the effect of specific cosmetic products rather than the general use of cosmetics, this is the first quantitative research to explore any effect of cosmetic eyebrow enhancement. Furthermore, although the effect of lipstick colour has been studied and found to have positive results on both male tipping behaviour (Guéguen & Jacob, 2012b) and on a first impression of personality (McKeachie, 1952), it has never been studied in relation to a professional context and particularly not in relation to leadership traits.

The literature repeatedly evinced that cosmetics can indeed alter perceptions of professional characteristics. Although prior research was not conclusive regarding the nature of this effect, the majority of the literature evinced a positive effect of cosmetics. Moreover, research findings of a negative effect dated much earlier in time than those of a positive effect, which may account for the ambiguity. Therefore, it was hypothesised that in the present research, perceptions of leadership traits

would differ significantly between combinations of eyebrow enhancement and lipstick colour. With regard to which specific traits would be affected by the cosmetic combinations, prior research only showed convincing evidence for a positive effect on dominance (Etcoff et al., 2011; Mileva et al., 2016) and confidence (Graham & Jouhar, 1981; Huguet et al., 2004; Nash et al., 2006). Therefore, it was predicted that perceptions of both dominance and self-confidence would be affected by the cosmetic combinations. Insufficient of inconclusive evidence was found in the literature to hypothesise about the effect on perceptions of honesty & integrity and leadership effectiveness, as well as about the specific cosmetic combinations from which an effect would originate. Furthermore, although Huguet, Croizet, and Richetin (2004) argued against a mediating effect of attractiveness, the greater part of the literature argued that attractiveness can be a mediating factor in the effect of cosmetics on impression formation. Whether this mediating effect exists in a professional setting is still unclear, and will, therefore, be included in this research analysis. In order to account for possible moderating factors and to improve comparability with future research, two additional factors were included in the present research. Firstly, the influence of the possibly changing attitude towards women wearing make-up with time was included. Secondly, the perceiver's own cosmetics usage was included. Although no academic evidence exists on such a moderator in the effect of cosmetics, it was considered that it might influence personality perceptions of others wearing cosmetics.

Investigating these four specific traits and leadership effectiveness in the present research allows for connecting the existing literature on cosmetics with the literature on effective leadership traits. Moreover, investigating the effect of cosmetics on traits that have already to some extent been tested, albeit in a slightly different context, increases the comparability of this research with the existing literature on cosmetics, and may thereby add valuable insights. Additionally, the importance of testing both the generic characteristic – leadership effectiveness – and its associated elements – the four aforementioned traits – became evident in reviewing the literature. Accordingly, this research investigates not only the effect of cosmetic combinations on these four traits that the literature showed to be important factors in determining effective leadership but also on leadership effectiveness as a general variable, in a similar way as the study by Mileva et al. (2016). Withal, to explore whether

cosmetic combinations can alter the perception of leadership traits, this research will attempt to answer the following five complementary questions:

- Which cosmetic combinations (lipstick colour & eyebrow product) affect the rating of perceived *leadership effectiveness* in Caucasian women?

- Which cosmetic combinations (lipstick colour & eyebrow product) affect the rating of perceived *intelligence* in Caucasian women?

- Which cosmetic combinations (lipstick colour & eyebrow product) affect the rating of perceived *dominance* in Caucasian women?

- Which cosmetic combinations (lipstick colour & eyebrow product) affect the rating of perceived *honesty & integrity* in Caucasian women?

- Which cosmetic combinations (lipstick colour & eyebrow product) affect the rating of perceived *self-confidence* in Caucasian women?

- What is the role of *attractiveness* in the effect of cosmetic combinations on leadership trait perceptions?

Methodology

Participants

An a priori power analysis was conducted to calculate the minimal sample size, using the statistical program G*Power (Faul et al., 2007). To find an effect size of 0.087, calculated with Pillai V = 0.4, with a 5% significance level ($\alpha = 0.05$) and a power of 95% ($1 - \beta = 0.95$), the desired total sample size was 90 people. Participants were recruited through the Social Media channels Facebook and WhatsApp. In total, 214 participants took part in the survey, which exceeded the minimum required sample size. 51 participants who did not complete all survey questions were excluded. Also, 13 participants who failed to answer an instructional manipulation check question correctly were excluded. The total sample size after exclusion included 150 participants.

The sample consisted of 33 males, 116 females, and 1 participant who identified as another gender. On average, participants' age was 40.0 years, ranging from 15 to 70, and with a standard

deviation of 15.7 years. The majority of the sample completed a university master or higher (40.7%), followed by a university bachelor (17.3%), HBO bachelor (15.3%), high school (10.0%), HBO master or university pre-master (8.7%), and a practical (MBO) education (8.0%). Furthermore, 82.0% of the sample was Caucasian, 1.3% African, 2.7% Asian, and 14% identified with another ethnicity. There were no participants in the sample who identified as Hispanic.

Design

The data was obtained through a web-based Qualtrics survey. Similar to (Nash et al., 2006), rather than showing participants photos of one woman, photos of four women were shown in a random order as to ensure that the effect of the cosmetic combinations was measured and not the effect of the appearance of one individual. Participants were shown photos that portrayed each of the women only once and in randomized treatment conditions. The factorial design included six different treatments for each photo, consisting of combinations of the two independent variables "*lipstick*", being the colour of lipstick worn by object (none/pink/red), and "*brows*", being a binary variable indicating whether eyebrows of object were enhanced or not (0 = natural brows, 1 = enhanced brows):

I   Lipstick = none, brows = 0

II   Lipstick = pink, brows = 0

III   Lipstick = red, brows = 0

IV   Lipstick = none, brows = 1

V   Lipstick = pink, brows = 1

VI   Lipstick = red, brows = 1

The dependent variables were the variables "*intelligence*", "*dominance*", "*honesty_integrity*", "*self_confidence*", and "*leader_effectiveness*", measured on a scale 1 to 7. The variables "*attractiveness*", "*attitude*" (the attitude towards women wearing make-up), and "*usage*" (participant's own make-up use) were also included to test for possible moderating effects.

Materials

Materials included four photos that were purchased from the online image webshops "iStockPhoto" and "Alamy", and which were manipulated for use in this study. It was considered that faces may be perceived differently on the traits of interest for women of different ages and different ethnicities. Moreover, the effect of different cosmetics and especially the colours being used can be very different for women of different ethnicities (James et al., 2018) and ages (Huguet et al., 2004b) as these women's appearances vary in skin colour, skin tone, brow colour, brow density, and overall colour contrast between facial features. Especially facial contrast was found to be an important factor for trait perceptions when applying cosmetics (Jones, Russell, & Ward, 2015; Russell, 2009; Russell et al., 2016). Furthermore, previous research showed ambiguous results on the interaction effect that hair may have on the relationship between the independent and dependent variables (Graham & Jouhar, 1981; Kyle & Mahler, 1996). Except in the study by James et al. (2018), who eliminated the hair in the pictures altogether using computer software, it is not evident in the remaining literature that a possible interaction effect with hair colour was controlled for.

The main objective of this thesis was to investigate the effect of cosmetic combinations on the perceptions of leadership in Caucasian women. To ensure internal validity and to decrease noise as much as possible, the four photos were chosen such that the women pictured had very similar appearances. This entailed that all four photos portrayed Caucasian women between the age of 25-35, who had blonde hair and blue eyes, and who had a neutral facial expression. Furthermore, the applied cosmetics in all photos included minimal eye make-up and a minimal amount of face cosmetics, such that the skin tone was evened out, but no heavy make-up base was detectable. The photos were cropped such that clothing and accessories were not or barely visible, in order to avoid their influence on impression formation (Gawronski, Ehrenberg, Banse, Zukova, & Klauer, 2003; Lennon, 1990; Stillman & Hensley, 1980; Walker Naylor, 2007). Using the computer photo editing software "Gimp", the photos were edited such that lighting effects were similar. For some photos, the eye colour and hair colour were manipulated to appear of a similar colour. Although the generalizability of the research was decreased by the choice of using such similarly looking women, the internal validity was increased by this

procedure. Moreover, the similarity of the stimuli allowed for aggregation and averaging of the data

collected on all four pictures in a specific treatment. For an overview of all 24 manipulated photos (4
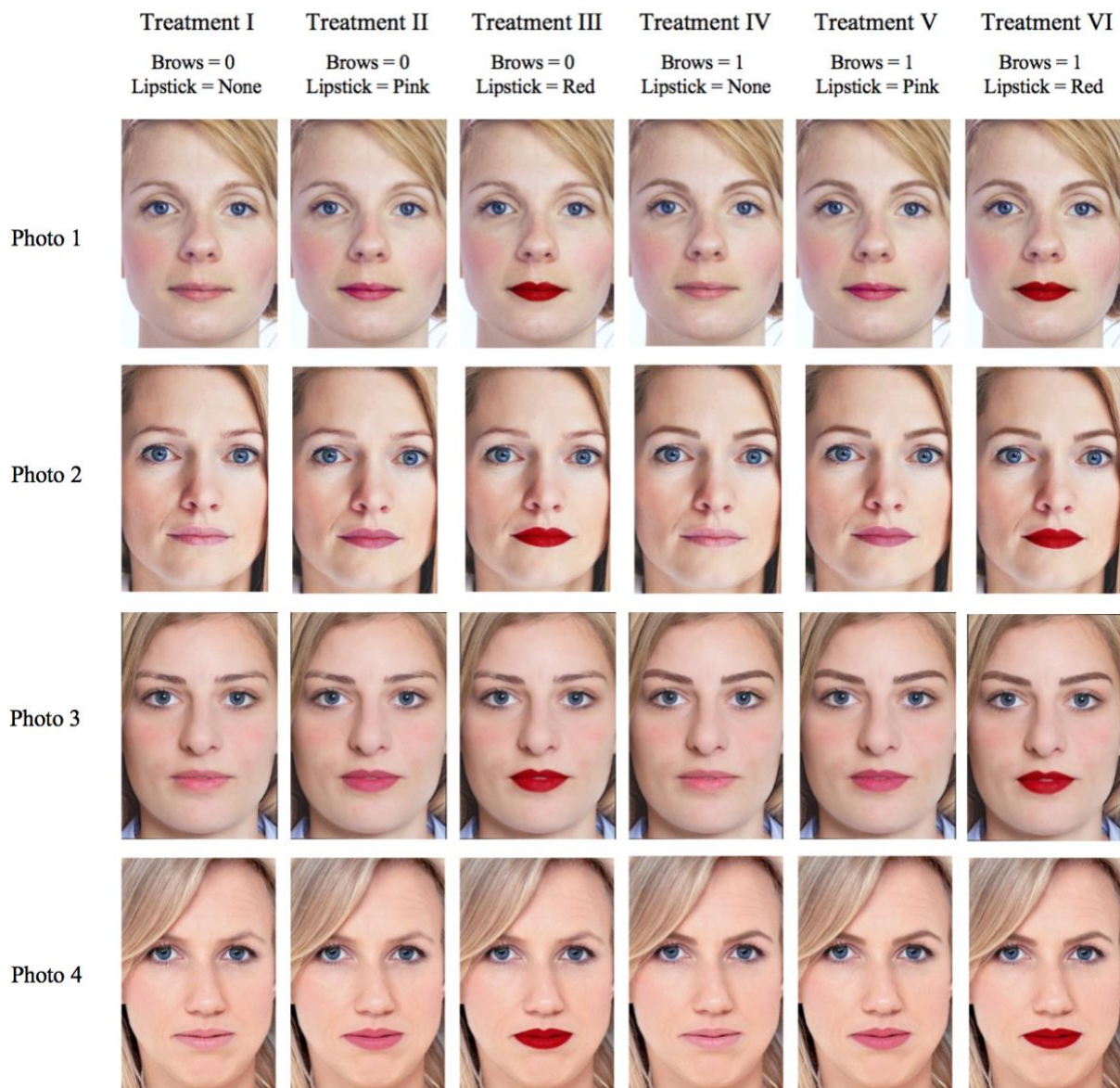
photos x 6 manipulations), please see Figure 1.

Figure 1. The four photos in each of the conditions with the combinations of eyebrow enhancement

and lipstick colour.

Additionally, cosmetics effects found in the literature may have been biased as a consequence

of the use of physically applicated make-up on the photographed women and the separate photos that

were taken before and after application (Cox & Glick, 1986; Etcoff et al., 2011; Graham & Jouhar,

1981; Huguet et al., 2004b; Kyle & Mahler, 1996b; Nash et al., 2006; Russell, 2009; Workman &

Johnson, 1991). By using photographs that were taken separately, small changes may have occurred in lighting and in the facial expression of the object. To control for the effect that wearing cosmetics may have on the confidence and facial expression of the wearer, as well as the effect that even small changes in facial expression may have on perception ratings, the pictures in all treatments were altered using the computer software, similar to the research by James et al. (2018) and Mileva et al. (2016). This ensured that all treatment pictures were identical except for the variables of interest ("*lipstick*" and "*brows*").

Procedure

Prior to data collection, ethics approval to conduct the research was given by the ERIM Internal Review Board, Section Experiments. Before the start of the survey, participants were informed about the research objective, participation duration (approximately 5 minutes), confidentiality, and contact details in case they had questions. It was specified that by continuing to the survey questions, participants would give consent to their answers being used for the purpose of this research. To avoid response bias arising from demand characteristics, the research objective was described as investigating how women are perceived on leadership characteristics, while the focus on cosmetic combinations was not explicitly mentioned. Participants then started the survey by answering questions about demographic characteristics, including gender, age, education level, and ethnicity. Next, each participant viewed four photos in a random order, each of a different woman in a randomly assigned treatment version. Each photo was shown alongside six questions in a randomized order, that elicited the ratings on participants' perception of the woman's intelligence, dominance in the workplace, honesty & integrity, self-confidence, leadership effectiveness, and attractiveness. For each image, participants indicated their ratings of the six characteristics on 7-point slider scales, ranging from 1 = "not at all" to 7 = "extremely/highly". In between two random photos, participants were asked to indicate a prespecified rating ("4") on a 7-point slider scale. This served as an instructional manipulation check used to increase statistical power and data reliability (Oppenheimer, Meyvis, & Davidenko, 2009). Finally, participants were asked to indicate their own cosmetics usage, choosing from never/only on special occasions/on a daily basis, and to indicate their general attitude towards women wearing make-up on a 5-point slider scale, where 1 was the most negative and 5 was the most positive. The

survey was completed with a debriefing statement thanking the participants for taking part in the experiment and, once more, with contact details in case participants had any questions.

Analysis

Four 2 (brows) x 3 (lipstick) two-way MANOVAs were used to analyse the data from a between-subject design that was repeated four times. The data consisted of the independent variables *brows* (brow enhancement/no brow enhancement) and *lipstick* (no lipstick/pink lipstick/red lipstick) and the dependent variables intelligence, dominance, honesty & integrity, self-confidence, effective leadership, and attractiveness. The data on the dependent variables consisted of Likert scale questionnaire response scores from 1 to 7, where 1 indicated the most negative rating and 7 the most positive rating. Compared to a series of factorial ANOVA tests, the two-way MANOVA also allowed for assessing patterns between the dependent variables. The data were analysed to test whether the groups significantly differed from each other on eyebrow enhancement and lipstick colour. The null hypothesis to be tested with the MANOVAs was that the multivariate means of all groups are equal for each dependent variable.

The experiment was initially designed as a within-subject design in which each participant viewed four photos, each in a randomized treatment. However, in order to analyse the conjoint data from all photos in one MANOVA, each participant would have had to judge six photos rather than four photos, such that they would have seen all treatment conditions once; i.e. each combination of eyebrow enhancement and lipstick colour. Otherwise, in order to aggregate the data from all four photos, each participant would have had to judge all four photos in the same treatment in a between-subject design. However, participants only viewed four photos in different treatments rather than in either one or in each of the six treatments. This was a particular flaw in the study design that violated the important assumption of a (M)ANOVA that observations must be independent. Since a between-subject design would need independent observations, the data from all four photos could not be combined in one model. Nonetheless, the complication was overcome by treating the photos as four independent between-subject designs. Performing separate MANOVA analyses for each photo still allowed for exploring all the data that was collected. Furthermore, comparing the results of the four analyses

allowed to some extent for assessing the reliability of the design and for considering design-related improvements for future research. However, notable consequences of this particular solution include decreased validity. The "limitations" section further elaborates on the implications of the adjusted study design.

Results

An initial MANOVA examined leadership effectiveness, intelligence, dominance, honesty & integrity, and self-confidence as dependent variables, brow enhancement and lipstick colour as independent variables, and make-up use, attitude towards women wearing make-up, gender, ethnicity, education, and age as covariates. All of these covariates were nonsignificant at the 5% significance level. This suggested that they did not influence the strength of the relationship between brow enhancement and lipstick colour and the leadership traits. Therefore, they were excluded from the model. A follow-up MANOVA examined associations between the five dependent variables, brow enhancement, and lipstick colour. Table 1 displays the means for the treatment combinations of brow enhancement and lipstick colour for all five leadership characteristics.

For photo 1 (see Figure 1), the multivariate effect for the five dependent variables as a group was significant for lipstick colour, Wilks' lambda = 0.860, F = 2.20, df = (10, 280), p = 0.018, indicating a difference in leadership trait perceptions between different colours of lipstick. No significant multivariate effect was found for brow enhancement, Wilks' lambda = 0.954, F = 1.35, df = (5, 140), p = 0.247 and the interaction between brow enhancement and lipstick colour, Wilks' lambda = 0.971, F = 0.41, df = (10, 280), p = 0.942. Post hoc Wald tests with Bonferroni correction showed a significant difference in dominance ratings (see Figure 2) between red lipstick and no lipstick, mean difference = 1.08, std. error = 0.261, p < 0.001, and between red lipstick and pink lipstick, mean difference = 0.66, std. error = 0.263, p = 0.039. A significant difference in self-confidence (see Figure 3) was found between red and no lipstick, mean difference = 0.67, std. error = 0.234, p = 0.014. Leadership effectiveness, intelligence, and honesty & integrity were not affected by either independent variable.

Taken together, these results suggest that wearing red lipstick increases perceived self-confidence and dominance compared to wearing no lipstick, and dominance also compared to pink lipstick.

Figure 2. Means for no, pink, and red lipstick for dominance with 95% confidence intervals (photo 1). Mean difference between groups significant at *p < 0.05, **p < 0.01, and ***p < 0.001.

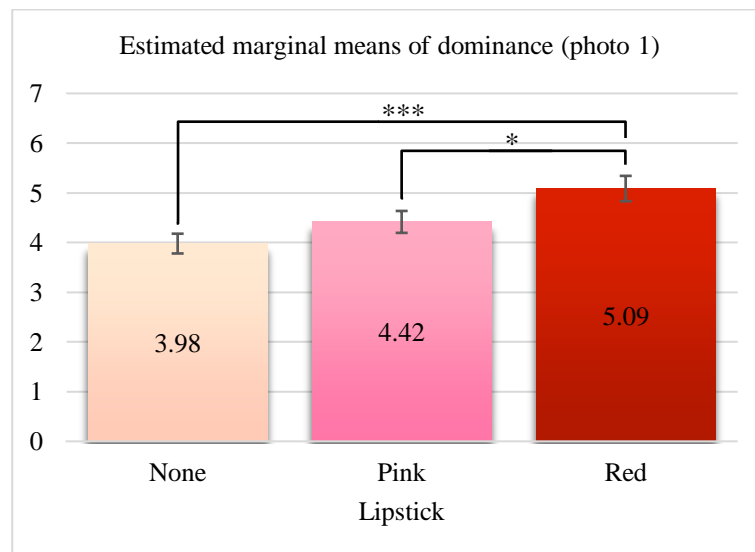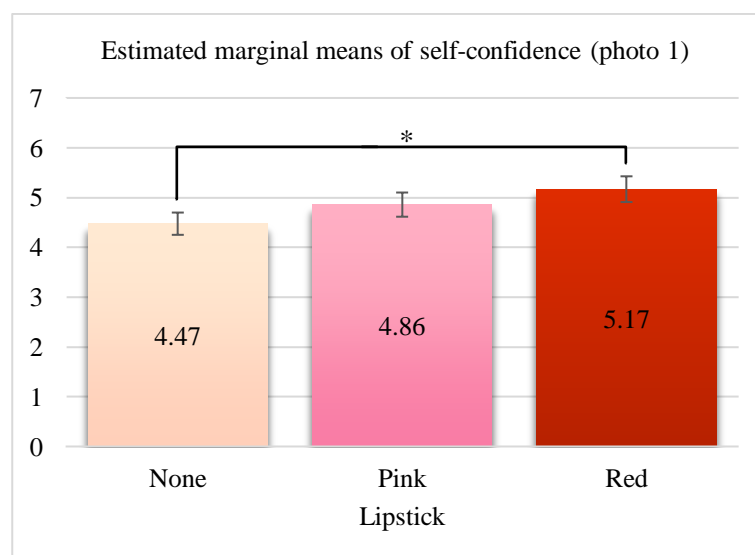*Figure 3.* Means for no, pink, and red lipstick for self-confidence with 95% confidence intervals (photo 1). Mean difference between groups significant at *p < 0.05, **p < 0.01, and ***p < 0.001.

For photo 2 (see Figure1), the multivariate effect for the five dependent variables as a group was significant for lipstick colour, Wilks' lambda = 0.876, F = 1.92, df = (10, 280), p = 0.042, indicating

a difference in leadership trait perceptions between different colours of lipstick. No significant multivariate effect was found for brow enhancement, Wilks' lambda = 0.972, F = 0.82, df = (5, 140), p = 0.539, and the interaction between brow enhancement and lipstick colour, Wilks' lambda = 0.915, F = 1.27, df = (10, 280), p = 0.249. The finding of a main effect of lipstick colour is in line with the results from photo 1. Post hoc Wald tests with Bonferroni correction showed a significant difference in honesty & integrity ratings (see Figure 4) between red lipstick and no lipstick, mean difference = -0.77, std. error = 0.240, p = 0.005. This suggests that compared to wearing no lipstick, wearing red lipstick decreases perceived honesty & integrity for photo 2. However, intelligence, dominance, self-confidence, and leadership effectiveness were not affected by either independent variable.

Figure 4. Means for no, pink, and red lipstick for honesty & integrity with 95% confidence intervals (photo 2). Mean difference between groups significant at *p < 0.05, **p < 0.01, and ***p < 0.001.

For photo 3 (see Figure 1), the multivariate effect for the five dependent variables as a group was significant for both lipstick colour, Wilks' lambda = 0.825, F = 2.83, df = (10, 280), p = 0.002, and brow enhancement, Wilks' lambda = 0.868, F = 4.24, df = (5, 140), p = 0.001. This indicates a difference in leadership trait perceptions between different colours of lipstick, which is in agreement with the results for photo 1 and 2. However, the results for this specific photo also suggest a difference between enhanced brows and unenhanced brows, which was not the case for any of the other photos. No

significant multivariate effect was found for the interaction between brow enhancement and lipstick colour, Wilks' lambda = 0.962, F = 0.55, df = (10, 280), p = 0.851. A significant difference was found for brow enhancement in dominance ratings (see Figure 5), mean difference = 0.67, std. error = 0.108, p = 0.002, and in honesty & integrity ratings (see Figure 6), mean difference = -0.41, std. error = 0.126, p = 0.033. Post hoc Wald tests with Bonferroni correction showed a significant difference in self-confidence ratings (see Figure 7) between red lipstick and no lipstick, mean difference = 0.78, std. error = 0.249, p = 0.006. Leadership effectiveness and intelligence were not affected by either independent variable, similar to the other three photos. Taken together, these results suggest that brow enhancement, compared to no brow enhancement, increases perceived dominance and decreases honesty & integrity. Furthermore, they suggest that wearing red lipstick, compared to wearing no lipstick, increases perceived self-confidence, which is in line with the result from photo 1.
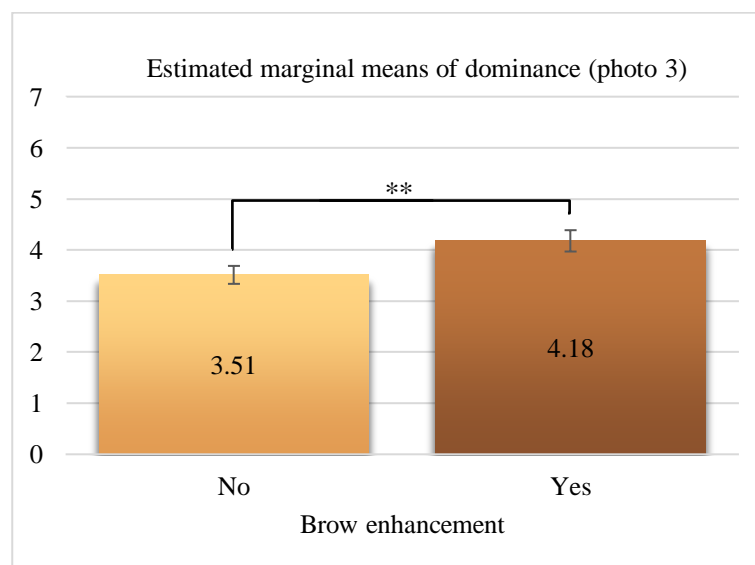
Figure 5. Means for no brow enhancement and brow enhancement for dominance with 95% confidence intervals (photo 3). Mean difference between groups significant at *p < 0.05, **p < 0.01, and ***p < 0.001.
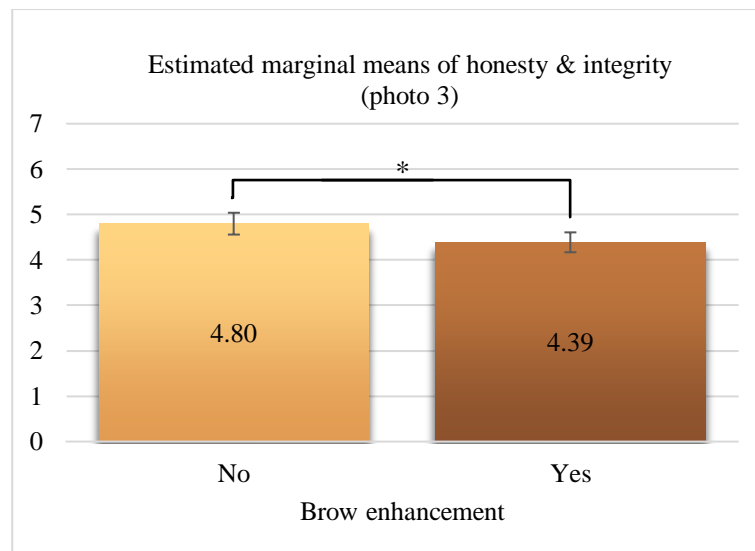
Figure 6. Means for no brow enhancement and brow enhancement for honesty & integrity with 95% confidence intervals (photo 3). Mean difference between groups significant at *p < 0.05, **p < 0.01, and ***p < 0.001.

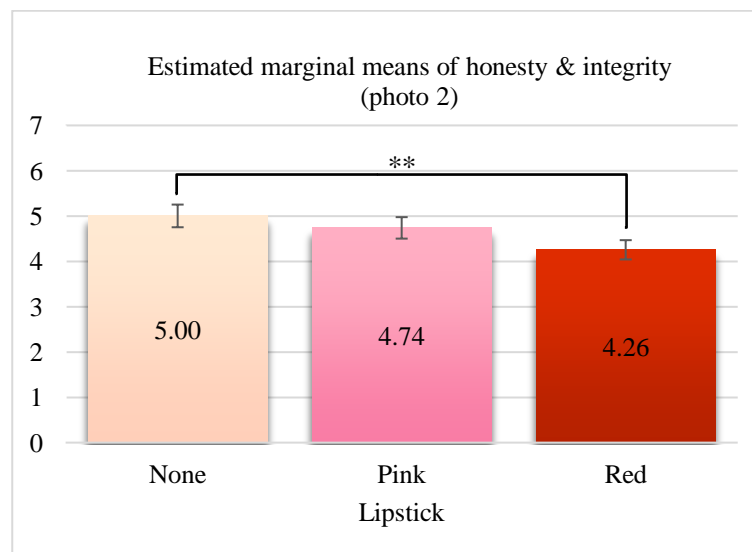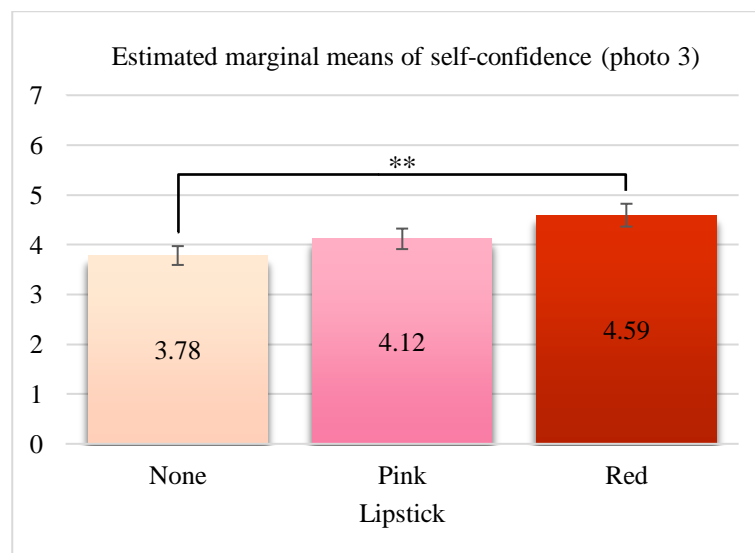*Figure 7.* Means for no, pink, and red lipstick for self-confidence with 95% confidence intervals (photo 3). Mean difference between groups significant at *p < 0.05, **p < 0.01, and ***p < 0.001.

For photo 4 (see Figure 1), no significant multivariate effect for the five dependent variables was found for either independent variable, indicating that there was no difference in leadership trait perceptions for lipstick, Wilks' lambda = 0.910, F = 1.36, df = (10, 280), p = 0.200, brows, Wilks' lambda = 0.965, F = 1.03, df = (5, 140), p = 0.404, or their interaction, Wilks' lambda = 0.961, F = 0.56,

df = (10, 280), p = 0.849. Contrarily to the other three photos, these results suggest that there is no effect of lipstick colour or eyebrow enhancement on the leadership traits as a group.

Table 2 displays the mean differences between the different lipstick colours for all five leadership characteristics. The results of the overall model for each of the photos are, in part, similar. Comparing the results of the four photos suggests an effect of lipstick colour on the dependent variables as a group for photo 1, 2, and 3. For photo 3 an effect of brow enhancement was found as well, whereas no cosmetic combination appeared to have an effect on the group of dependent variables for photo 4. The effect of lipstick for the three photos is suggested to originate mainly from an effect of red lipstick in comparison to no lipstick. However, the dependent variables that were affected by this lipstick colour vary per photo. More specifically, photo 1 showed an increase in both dominance and self-confidence perceptions, while photo 2 showed a decrease in honesty & integrity perception, and photo 3 showed an increase in self-confidence perception. The specific choice to use very similarly looking women with blonde hair, blue eyes, in the age range 25-35, and with both hairstyle and clothing barely visible, allowed for controlling on these specific factors. This similarity in features might lead to the presumption that few differences in results are likely to exist between the photos. However, the differences in the post hoc results suggest that as a matter of fact, there must be differences between the photos that were not accounted for, and that the effect of these particular cosmetic products is specific to each individual.

Attractiveness. This research, additionally, investigated whether attractiveness explains the effect of brow enhancement and lipstick colour on the dependent variables. First, a two-way between-subjects ANOVA was conducted for each photo to compare the effect of brow enhancement and lipstick colour on attractiveness. Table 3 displays the means for the treatment combinations of brow enhancement and lipstick colour for attractiveness. For none of the photos, a significant effect of either independent variable or their interaction on attractiveness was found. According to Baron and Kenny (1986), the direct effects of both the independent variable on the mediator and the mediator on the dependent variable need to be significant for a mediating effect. Since no significant effect of the independent variables was found on the mediator, there was no mediating effect of attractiveness on the dependent variables and no further analyses were conducted.

		Photo 1				Photo 2				Photo 3				Photo 4			
Brows	Lipstick	Mean	Std. Deviation	Wilks' lambda	Multivariate F	Mean	Std. Deviation	Wilks' lambda	Multivariate F	Mean	Std. Deviation	Wilks' lambda	Multivariate F	Mean	Std. Deviation	Wilks' lambda	Multivariate F
Brows x lipstick				0.971	0.41			0.915	1.27			0.962	0.55			0.961	0.56
Brows				0.954	1.35			0.972	0.82			0.868	4.24**			0.840	1.03
Lipstick				0.954	2.20*			0.876	1.92*			0.825	2.83**			0.910	1.37
Intelligence																	
No	None	5.185	1.075			5.042	1.122			4.778	1.219			3.895	1.197		
	Pink	5.000	0.980			5.259	1.095			4.067	1.258			4.440	0.961		
	Red	5.042	0.908			4.960	0.735			4.667	1.000			4.125	1.129		
Yes	None	4.750	0.847			5.435	0.843			4.400	1.231			3.966	1.322		
	Pink	5.000	0.978			5.276	0.841			4.208	1.285			4.360	1.186		
	Red	4.800	1.118			5.045	1.327			4.045	1.133			4.700	1.129		
Dominance																	
No	None	4.333	1.271			4.708	1.367			3.444	1.121			4.000	1.599		
	Pink	4.538	1.476			4.296	1.540			3.500	1.167			4.360	1.350		
	Red	5.333	1.049			5.040	1.172			3.593	1.309			4.656	1.382		
Yes	None	3.625	1.245			4.783	0.902			3.800	1.196			3.724	1.509		
	Pink	4.292	1.601			5.103	1.372			4.417	1.381			4.040	1.513		
	Red	4.840	1.106			5.136	1.082			4.318	1.673			4.500	1.504		
Honesty & integrity																	
No	None	4.704	1.613			4.875	1.076			4.815	1.039			4.158	1.385		
	Pink	4.885	1.479			4.926	1.072			4.767	1.357			3.880	0.833		
	Red	4.500	1.180			3.920	1.187			4.815	1.111			3.813	1.281		
Yes	None	4.750	1.073			5.130	1.217			4.350	1.268			4.172	1.167		
	Pink	4.875	1.227			4.552	1.213			4.542	1.179			4.360	1.075		
	Red	4.000	1.354			4.591	1.221			4.273	0.883			4.100	1.119		
Self-confidence																	
No	None	4.741	0.944			4.667	1.404			3.963	1.160			3.526	1.172		
	Pink	4.923	1.197			4.778	1.188			3.900	1.185			4.240	1.480		
	Red	5.375	1.013			5.200	0.913			4.593	1.248			4.438	1.413		
Yes	None	4.208	1.215			5.087	0.900			3.600	0.883			3.552	1.429		
	Pink	4.792	1.444			5.379	0.979			4.333	1.341			4.080	1.412		
	Red	4.960	1.172			5.091	1.269			4.591	1.403			4.450	1.395		
Effective leadership																	
No	None	4.296	1.265			4.875	1.076			4.074	1.357			3.368	1.422		
	Pink	4.462	1.140			4.630	1.573			3.567	1.357			4.000	1.080		
	Red	4.917	0.881			4.920	1.256			4.222	1.251			3.969	1.356		
Yes	None	4.000	1.285			5.217	1.043			3.700	0.923			3.552	1.502		
	Pink	4.292	1.574			4.897	1.291			4.000	1.319			3.760	1.363		
	Red	4.480	1.418			4.909	1.065			4.000	1.272			4.300	1.261		

*p < 0.05, **p < 0.01, ***p = 0.000

Table 1. A comparison of means (with std. deviations) for the treatment combinations of brow enhancement and lipstick colour for leadership effectiveness and four of its dimensions (N = 150).

	(I) Lipstick	(J) Lipstick	Photo 1		Photo 2		Photo 3		Photo 4	
			Mean Difference (I-J)	Std. Error	Mean Difference (I-J)	Std. Error	Mean Difference (I-J)	Std. Error	Mean Difference (I-J)	Std. Error
Intelligence	None	Pink	-.02	.197	-.03	.199	.49	.238	-.46	.235
	None	Red	.06	.198	.23	.207	.23	.243	-.41	.233
	Pink	None	.02	.197	.03	.199	-.49	.238	.46	.235
	Pink	Red	.08	.199	.27	.199	-.26	.235	.05	.230
	Red	None	-.06	.198	-.23	.207	-.23	.243	.41	.233
	Red	Pink	-.08	.199	-.27	.199	.26	.235	-.05	.230
Dominance	None	Pink	-.42	.260	.03	.251	-.31	.261	-.37	.297
	None	Red	-1.08***	.261	-.34	.262	-.32	.267	.76*	.294
	Pink	None	.42	.260	-.03	.251	.31	.261	.37	.297
	Pink	Red	-.66*	.263	-.37	.251	-.01	.258	-.40	.291
	Red	None	1.08***	.261	.34	.262	.32	.267	.76*	.294
	Red	Pink	.66*	.263	.37	.251	.01	.258	.40	.291
Honesty & integrity	None	Pink	-.15	.267	.27	.230	-.05	.231	.05	.233
	None	Red	.48	.268	.77**	.240	.05	.236	.24	.231
	Pink	None	.15	.267	-.27	.230	.05	.231	-.05	.233
	Pink	Red	.64	.270	.50	.230	.10	.228	.20	.229
	Red	None	-.48	.268	-.77**	.240	-.05	.236	-.24	.231
	Red	Pink	-.64	.270	-.50	.230	-.10	.228	-.20	.229
Self-confidence	None	Pink	-.37	.233	-.22	.221	-.28	.243	-.62	.282
	None	Red	-.67**	.234	-.28	.231	-.78**	.249	-.90**	.280
	Pink	None	.37	.233	.22	.221	.28	.243	.62	.282
	Pink	Red	-.30	.235	-.06	.221	-.50	.240	-.28	.277
	Red	None	.67**	.234	.28	.231	.78**	.249	.90**	.280
	Red	Pink	.30	.235	.06	.221	.50	.240	.28	.277
Effective leadership	None	Pink	-.22	.254	.27	.246	.16	.253	-.40	.271
	None	Red	-.54	.256	.13	.257	-.21	.259	-.62	.269
	Pink	None	.22	.254	-.27	.246	-.16	.253	.40	.271
	Pink	Red	-.31	.257	-.15	.246	-.36	.250	-.22	.266
	Red	None	.54	.256	-.13	.257	.21	.259	.62	.269
	Red	Pink	.31	.257	.15	.246	.36	.250	.22	.266

*p < 0.05, **p < 0.01, ***p = 0.000

Table 2. A comparison of mean differences (with std. errors) between lipstick colour groups for leadership effectiveness and four of its dimensions (N = 150).

	Brows	Lipstick	Image 1			Image 2		
			Mean	Std. Deviation	Univariate F	Mean	Std. Deviation	Univariate F
Brows x lipstick					1.59			1.23
Brows					3.74			1.92
Lipstick					0.10			1.40
Attractiveness	No	None	3.926	1.299		4.625	1.377	
		Pink	4.423	1.332		4.963	1.091	
		Red	4.375	0.970		4.360	1.254	
	Yes	None	4.042	0.859		5.261	1.010	
		Pink	3.750	1.422		4.828	1.391	
		Red	3.760	1.393		4.727	1.453	

	Brows	Lipstick	Image 3			Image 4		
			Mean	Std. Deviation	Univariate F	Mean	Std. Deviation	Univariate F
Brows x lipstick					0.27			0.06
Brows					0.39			0.01
Lipstick					1.62			2.13
Attractiveness	No	None	3.815	1.178		3.368	1.461	
		Pink	3.700	1.088		3.840	1.179	
		Red	3.963	1.372		3.688	1.230	
	Yes	None	4.000	1.170		3.310	1.168	
		Pink	3.625	1.377		3.840	1.281	
		Red	4.227	1.066		3.800	1.240	

$*p < 0.05, **p < 0.01, ***p = 0.000$

Table 3. A comparison of means (with std. deviations) for the treatment combinations of brow enhancement and lipstick colour for attractiveness (N = 150).

Discussion

The beauty and personal care market value in Western Europe was estimated at €87 billion in 2019 and is expected to grow to €89 billion in 2020 (Statista, 2019). Even in times of economic recession, the beauty industry tends to experience growth as women prioritize their spending on beauty products above other consumer goods – the lipstick effect. Women believe that the use of cosmetics will ensure financial security, not only by attracting a financially stable partner but also by improving their own professional image and, thereby, their chances of professional success. Numerous researchers have investigated the effect of cosmetics on factors such as an overall first impression and attractiveness, as well as on professional factors. Even so, there is still much that we do not know about the effect of cosmetics on how people perceive women, including the effect that specific cosmetic products have on perceptions of leadership traits and how their combinations interact. Knowledge of these effects could benefit women who want to increase their chances of professional success. For example, could red lipstick be the equivalent of the red "power tie" for men? In general, previous results on the effect of cosmetics on trait perception were ambiguous or even contradicting, especially

regarding professional characteristics. This ambiguity may be attributable to temporal factors like the evolution of the professional role of women and the attitude towards women wearing make-up. However, the apparent inconclusiveness on the effect of cosmetic most likely exists because of methodological differences in the studies, including the way in which make-up was materialized and the specific dependent variables that were tested. The particular methodology that was adopted in this study, namely the use of computer software for the cosmetic manipulations, improved ceteris paribus conditions. This benefitted the internal validity of the study, especially when compared to the methodology of physically applicating the make-up and using before- and after photographs.

Overall, the results for photo 1, 2, and 3 results suggest that eyebrow enhancement and lipstick colour can influence perceptions of leadership traits. As the leadership traits pertain to an individual's personality, this contradicts the nonsignificant effect of cosmetics on perceptions of personality found by Workman and Johnson (1991). However, it confirms findings by Dayan, Cho, Siracusa, and Gutierrez-Borst (2015), who found that cosmetics can alter ratings of an overall first impression, and Graham and Jouhar (1981), who found different personality ratings for females wearing cosmetics than for females without cosmetics. The results from the present research add insights to their studies by suggesting that the effect of cosmetics is not merely dependent on a binary factor (with or without cosmetics), but that it depends on which cosmetic product is applied. Specifically, lipstick appears to be a cosmetic product that can alter personality perceptions, both negative and positive, whereas brow enhancement only proved significant for photo 3. Apparent from the results is that especially red lipstick was found to significantly influence leadership trait perceptions, while pink lipstick only affected the rating of one trait – dominance – for one photo. To my knowledge, no literature exists on the effect of lipstick on personality and only little literature exists on the effect of lipstick on behaviour. Yet, the findings from Guéguen and Jacob (2012), who found an effect of specifically red lipstick on tipping behaviour, but not of brown and pink lipstick, are in line with the findings from the present research. Red lipstick, therefore, seems to have a larger effect than other lipstick colours such as pink or brown. Notably, they assumed that the effect that they found was attributable to a mediating effect of attractiveness. The present research contradicts this theory, as no effect of red or pink lipstick was found on attractiveness. Thereby, the present research suggests that the effect of lipstick in their study was

direct rather than indirect. With respect to why red lipstick had an effect on dominance, a possible explanation may be derived from the distinction between "heavy" and "light" make-up, which is a factor found to affect perceptions of personality (Huguet et al., 2004). When red lipstick is considered as heavier make-up than pink lipstick and even eyebrow enhancement, it may explain why red lipstick had an effect on trait perceptions more frequently than pink lipstick, and also why an effect was found more frequently than with eyebrow enhancement. Another explanation can be derived from Feltman and Elliot (2011), who found that the colour red increased perceptions of relative dominance in a competitive context. Although being used in a different context, wearing red lipstick may have a similar effect on the perception of dominance. No such an effect is found in the literature for the colour pink, which might be why the effect of lipstick appears to originate from red lipstick only, and not from pink lipstick. Additionally, similar to women believing that wearing cosmetics can improve their professional image, men believe that wearing a red tie can make them be perceived as more powerful and dominant. The effect of a red "power" tie was repudiated by Kramer (2016), who found that tie colour did not affect perceptions of dominance, leadership ability or credibility in male political leaders. However, when it comes to females wearing cosmetics, the results from the present study suggest that such a phenomenon might indeed exist for red lipstick. Yet, Kramer (2016) used videos rather than static images to test the effect of the tie colour. Therefore, future research could investigate the existence of a possible red "power lipstick" phenomenon using videos rather than static images.

Remarkably, the nature of the effect and the specific group element that was affected varied for each of the three photos. Moreover, the nonsignificant results from photo 4 are different from the other photos as they neither confirm nor contradict an effect of cosmetics in general on perceptions, but they suggest that not all women are perceived differently when they apply different lipstick colours or eyebrow product. A common result across all photos is the absence of an interaction effect between eyebrow enhancement and lipstick colour in each of the photos. This implies that the effect of lipstick colour does not depend on whether the eyebrows are enhanced and, mutatis mutandis, that the effect of eyebrow enhancement does not depend on whether the woman wears no lipstick, pink lipstick or red lipstick. Differences in results between the four photos on each of the leadership traits that were tested in the present research are likely due to factors that were not included in the analyses and, therefore, not

accounted for in this research. The photos were manipulated such that similarity was ensured in skin, hair, and eye colours, as well as in age, and face and eye make-up of the women in each of the photos. Yet, the photos did not seem to be similar enough, such that the results between the photos were similar. This raises the conjecture that the differences may originate from other individual features. For example, facial structure was found to have a relationship with personality traits (Squier & Mew, 1981) and may, therefore, have an effect on how individuals are perceived (Penton-Voak, Pound, Little, & Perrett, 2006). Also facial shape, skin texture, and viewing angle can affect perceptions of personality (Jones, Kramer, and Ward, 2012). It is recommended for future research to take into account the effect of such characteristics that are more unique to an individual than the characteristics accounted for in the present research. For example, future research could investigate a moderating effect of facial shape and skin texture on the relationship between cosmetic combinations and leadership traits.

The present research improves our understanding of the effect of cosmetic combinations on leadership traits on several dimensions. Firstly, the present research expands on the study by James et al. (2018), who found that wearing cosmetics negatively influenced perceived leadership ability, by testing the effect of cosmetic combinations on various leadership traits, of which one was overall leadership effectiveness. The results showed that, despite the significant results on some of the leadership traits, the explicit leadership effectiveness ratings were not significantly different for either brow enhancement or lipstick colour. None of the cosmetic products, thus, appeared to have an effect on leadership effectiveness. Importantly, although being a separate dependent variable in this research, leadership effectiveness is closely related to all four other dependent variables when it comes to people's implicit leadership theories, as theorized in the section "traits of an effective leader". As a group, the leadership traits were found significantly affected by the cosmetics products. Therefore, it would be expected that the trait leadership effectiveness was significantly affected as well. However, the results did not conform to this expectation. Although leadership effectiveness is a similar, yet different variable from leadership ability, to some extent the findings by James et al. (2018) may explain why no such an effect was found for cosmetic combinations. Indeed, they did find a significant negative effect on leadership ability for a 100% (heavy) make-up manipulation, which the results from the present research seemingly contradict. However, the effect of a 50% (subtle) make-up manipulation versus no make-up

was nonsignificant. An explanation may, therefore, be that eyebrow enhancement and lipstick colour are cosmetic changes that are too subtle to have an effect on women being perceived as an effective or ineffective leader, despite the effect that these factors may have on leadership traits that are associated with effective leadership.

Secondly, the results for the effect on intelligence were nonsignificant for all photos, suggesting that neither eyebrow enhancement nor lipstick affects how intelligent the women in the photos are perceived. Intelligence, and very closely related characteristics such as competence and ability, being one of the most frequently tested variables in studies on the effect of cosmetics, was consistently found affected by cosmetics use. The absence of a significant effect failed to repudiate the findings by Cox and Glick (1986), Huguet et al. (2004), and Kyle and Mahler (1996) that wearing make-up leads to a woman being perceived as less intelligent, less competent, and as having lower expected performance. However, it also failed to confirm that cosmetics make a woman appear more capable, a finding previously shown by Mobius and Rosenblat (2006). Additionally, the positive effect of cosmetics on job prestige, professional status, and earning potential (Etcoff et al., 2011; Nash et al., 2006) is in line with the street experiment by VPRO Wetenschap Havermoutpap (2017), which suggests that brow enhancement can increase perceived professional status and intelligence. However, the present research showed no empirical evidence for brow enhancement affecting intelligence. James et al. (2018) connected leadership ability to competence, which is why a similar explanation as for the nonsignificant effect of lipstick colour and eyebrow enhancement on leadership effectiveness may hold true for intelligence, be it in the context of leadership. This would imply that the visual changes in a woman's face caused by eyebrow enhancement and lipstick colour may not be substantial enough to cause an effect on intelligence perceptions.

Thirdly, regarding the effect of cosmetics on dominance, partial results from the present research seem to confirm the existing literature as well as the prediction that an effect on dominance would exist in the present research. Specifically, a significantly positive effect of red lipstick compared to both no lipstick and pink lipstick was found for photo 1, and of brow enhancement for photo 3. The effect on dominance varied per photo, likely due to the aforementioned reasons. Both Etcoff et al. (2011) and Mileva et al. (2016) found that wearing cosmetics makes a woman appear more dominant. An

important new insight from the present research is that the effect was found significant in the particular context of the workplace. As speculated by James et al. (2018), in a professional context the results by Mileva et al. (2016) might have been biased because of a flawed framing of the dominance trait. Namely, a woman can be perceived as dominant when it concerns female raters perceiving a woman as a threat when attracting males. However, the present research suggests that cosmetics cannot only alter dominance perceptions in a mating context but also explicitly when it concerns dominance in the workplace. Moreover, this is the first empirical study to show that these dominance ratings are suggested to depend on the particular cosmetic product – eyebrow product or lipstick.

Fourthly, the present research showed findings of decreased honesty & integrity ratings for lipstick colour and brow enhancement. While Etcoff et al. (2011) argued that cosmetics positively influence trustworthiness perceptions, the results in the present research are more in line with the findings by Huguet et al. (2004). They argued that the use of cosmetics can make a woman appear less honest, but that the effect depended on the age of the wearer as young wearers (median 25 years old) received more negative ratings compared to older wearers (median 42 years old). They theorized that a person who uses cosmetics is perceived as having the tendency to hide who she really is behind a veil of make-up and is therefore perceived as being less honest. Since the women in the four photos were estimated between 25 and 35 years old, the present results appear coherent with their research. Participants were found to judge women wearing lipstick (photo 2) or with brow enhancement (photo 3) as more dishonest and less integer than women without such make-up. However, considering that the effect was not only different for the cosmetic product but also nonsignificant in two of the photos, these results are not eminently convincing. Evident for this trait is that the effect of the cosmetic combinations is dependent on factors that were not included in the analysis. Indeed, age may be a factor in the present research, although the age range was not very broad (25-35) for the women in the photos, as well as the amount of make-up, as suggested by, for example, James et al. (2018). Considering these two factors, recommended to include in future research is a variable that represents how "heavy" the make-up is perceived on a person, a factor that may be closely related to age, amount of make-up, and individual facial features, and importantly, that may differ between individuals.

Finally, the results on the effect of cosmetics on self-confidence that were repeatedly found in the literature were confirmed by the results for two of the photos. This also confirmed the prediction that cosmetic combinations would have an effect on self-confidence in the present research. Graham and Jouhar (1981), Huguet et al. (2004), and Nash et al. (2006) all found evidence that the application of cosmetics makes women appear more confident. The results from both photo 1 and photo 3 suggest that compared to wearing no lipstick, wearing red lipstick is a specific manipulation that can increase self-confidence perceptions. Eyebrow enhancement did not have any effect on self-confidence perceptions. The particular methodology of using computer software to implement the cosmetic manipulations, allows for inferring the important notion that self-confidence perceptions can be altered not only because it could make the wearer herself feel more confident, which could consequently change the wearers appearance and facial expression, but that the perception can also be altered with the mere application of red lipstick. This not only suggests a direct effect of cosmetics on self-confidence perceptions but also that the effect seems to be driven by specific cosmetic products rather than cosmetics in general. Naturally, the findings from the present research only provide limited insights that concern the particular photos that were judged and can only be generalized to women with similar appearances as the women used as stimuli in this research. Additional research would have to be conducted to further explore the effect of cosmetic combinations on different types of women in order to gain a better understanding of the full effect than lipstick colour and eyebrow enhancement may have on women.

Furthermore, a topic of discussion in the existing literature is whether the effect of cosmetics on person perception is mediated by the effect on attractiveness, a question that was first raised in the study by Graham and Jouhar (1981). They theorized that the effect of cosmetics on personality ratings could be both direct as well as mediated by physical attractiveness, a finding that was later confirmed by Huguet et al. (2004). The present research first tested the effect of cosmetic combinations on attractiveness. Despite any methodological differences, the literature clearly and repeatedly demonstrated that women are perceived as more attractive when wearing make-up than when not wearing any make-up (Cash et al., 1989; Cox & Glick, 1986; Etcoff et al., 2011; Graham & Jouhar, 1981; Huguet et al., 2004a; Narang, 2013; Workman & Johnson, 1991). The present research, however,

did not find a significant effect of any cosmetic combination on perceived attractiveness for any photo. This consequently ruled out the possibility of a mediating effect of attractiveness in the present research. The results from the present research suggest that even though cosmetics use as a general factor appears to increase attractiveness ratings (Cash et al., 1989; Cox & Glick, 1986; Etcoff et al., 2011; Graham & Jouhar, 1981; Huguet et al., 2004b; Narang, 2013; Workman & Johnson, 1991), the specific use of red and pink lipstick, as well as eyebrow enhancement products, are not independently contributing to this effect when it concerns blonde, blue-eyed women between 25 and 35 years. A possible explanation can be derived from the study by Russell (2009), who contributed the effect of cosmetics on attractiveness to facial contrast by suggesting that cosmetics increase facial contrast, which increases femininity and attractiveness. In the present research, the mere alteration of lipstick colour and eyebrow enhancement might not have the same impact on facial contrast – and, therefore, attractiveness – as the combined effect of multiple cosmetic products such as foundation, blush, heavy eye make-up, eyebrow enhancement and lipstick in comparison to no cosmetics. However, other causes of the absence of an effect of either independent variable on attractiveness in this research may concern methodological differences such as the use of computer software rather than the physical application of make-up or the specific cosmetic products that were tested. For example, the effect of cosmetics on attractiveness may be attributable to the specific effect that foundation might have on the appearance of healthy and clear skin, or to the effect that specific eye make-up might have on the visual saliency of a women's eyes. Whether other cosmetic combinations than lipstick and eyebrow enhancement do have an effect on attractiveness, whether such an effect is mediated by facial contrast, and, moreover, which cosmetic combinations underlie the mediating effect of attractiveness on person perception, would be relevant questions for future research.

In reflecting on the present research in the context of the existing literature, it is apparent that some results are in agreement, while others differ. Several explanations contribute to the differences that exist between some results. First and foremost, the variables that were tested and included in the model are different from those in the existing research. Whereas the literature investigated cosmetics as a general variable, the present research investigated more narrowly focused independent variables, namely the effect of two specific cosmetic products – eyebrow product and lipstick. Also, the present

research investigated characteristics that were evinced to be embedded in people's implicit leadership theories and to be closely associated with the overarching concept of how people perceive an effective leader. Although all of these characteristics had been previously tested in studies on the effect of cosmetics, either in isolation or along with other variables, they were never investigated as a group or in the leadership construct. Moreover, the field of behavioural economics taught us that linguistic framing can have a significant impact on results, for example on perceptions of power and gender stereotypes (Bruckmüller, Hegarty, & Abele, 2012) or on self-ratings (Löckenhoff, Terracciano, Ferrucci, & Costa, 2012). This is an important aspect to consider in comparing the present research findings to those of the existing literature since a broad range of different terminology was used throughout the literature for the variables that were investigated. For example, intelligence was also referred to as competence and capability, and honesty & integrity was also referred to as trustworthiness. Despite addressing similar concepts, the broad use of the terms and their placement in different contexts make the dependent concepts subjective to interpretation, which may lead to differences in results. This was, consequently, the main reason why the present research specifically referred to dominance as "dominance in the workplace".

Another cardinal explanation for the different findings between studies covers methodological intricacies. Firstly, the materialization of make-up varied throughout the literature, as well as the way in which the cosmetics were applied. Some studies had professional cosmeticians apply the make-up, whereas other studies had the subjects apply their own make-up, and yet other studies, like the present research, used computer software to implement the cosmetic manipulations. Secondly, the quantity of the photos that were judged and rated by participants varied greatly. For example, Kyle and Mahler (1996) used only one photo, while Etcoff et al. (2011) and Mileva et al. (2016) had participants judge a much greater number of photos and aggregated the results. Important to consider here is the imperfection in the study design, i.e. showing only four of the treatments in a within-subject design rather than all six treatments, of the present research pertaining to the independent analyses of the photos rather than the statistical aggregation of their results.

Lastly, the timing of the study may have had a considerable impact on the differences in results. Research on the effect of cosmetics was timed as early as 1952 with research by McKeachie, and the

academic field on this topic has continued to expand over the last six decades. Not only may the attitude towards women wearing make-up have evolved over time, but also the physical changes in cosmetic products have evolved into the nowadays widely accepted make-up use and the excessive variety in product choice. Moreover, relevant to the present research and the literature on the effect of cosmetics in a professional framework is the evolution of the attitude towards women in the workplace, which may have led to substantial changes in results and has to be taken into account. Nonetheless, some differences are still left unexplained and may be explained by the limitations of this research.

Limitations and Recommendations for Future Research

With regards to the methodology of the study, possible drawbacks originate from the sample, the procedure, and the study design. As described in the methodology section, the study was designed such that participants viewed not all, but only four of the treatment conditions. This would have violated the independence of observations assumption in case the data from the four photos would have been analysed together in one MANOVA. Therefore, the data were analysed independently as between-subject data for each photo, using four independent MANOVAs for the leadership traits, and four independent ANOVAs for attractiveness. This allowed for exploiting the full dataset, i.e. the data on each of the four photos, but did not allow for aggregation of the results as done by, for example, Nash et al. (2006). Apart from the disadvantage of not being able to statistically compare the results between the four photos, this choice had several implications. Firstly, possible bias may have resulted from a learning effect. Multiple photos were shown, which meant that in the adopted study design, participants repeated the judging part of the experiment four times. This may have led participants to judge the first photo that they saw in a different manner than the subsequent photos due to the obtained practice and knowledge of judging the photos on the leadership traits. However, the randomization of the viewing order, as well as the randomization of the order in which the traits were presented, leads to the expectation that any consequences of a learning effect are equal for each of the four images. Secondly, analysing the photos independently meant that it was possible that the appearance of an individual was measured rather than the effect of the cosmetic combinations. This also implied that the generalizability of the results was reduced. The findings are only applicable to a very particular group of women –

Caucasian, blonde, blue-eyed, and between 25 and 35 years old, and within this group of women, results were found to vary. Moreover, the effect on women of other ethnicities, and with different appearances, hair colour and eye colour, was not tested and might be interesting for future research to investigate.

Another possible bias in the study, of which we cannot test the effect, might have arisen from an experimenter demand effect. An attempt was made to minimize this effect by not explicitly mentioning the focus of the present research on cosmetics, and only describing the research as investigating the perception of leadership traits in women. However, participants might still have guessed in viewing four photos with different cosmetic combinations, that the research was focused on cosmetics. Also, despite being asked to answer as truthfully as possible, participants might have paid more considerate attention when judging the photos than might have been the case in real life, where snap-judgment is more likely to occur if no attentional focus is placed on the rating of leadership traits. Furthermore, in research by Guéguen and Jacob (2012) and Mileva et al. (2016), the effect of cosmetics was suggested to depend on the gender of the perceiver. In the present research, the gender of the perceiver was excluded from the model as a nonsignificant covariate, suggesting that the results did not depend on gender. However, the sample consisted of predominantly female (119) participants, which may have affected the moderating influence of gender. Further research is, therefore, suggested to ensure a more balanced sample regarding the gender of the perceiver. Also, the vast majority of the sample identified as Caucasian (82%) and a large proportion of the sample graduated a university master or higher (40.8%). This implies that the sample might not be a perfect representation of the population, even though the sample included participants from a wide variety of ages (15-70, mean 40 years old).

With respect to the analysis, the choice to treat the 7-point Likert scale ratings as continuous data with a two-tailed normal distribution might be considered controversial by researchers like, for example, Jamieson (2004). However, this choice was reasoned by using 7 points of which the intervals between the points are approximately equal, and with an underlying concept that is continuous.

Additional constraints of the present research pertain to both the dependent and the independent variables that were tested. Considering the specific cosmetic combinations that were tested, the abundant number of product choices for both variables lead to the connotation that, even though the present research investigated a much more specific effect of cosmetics than all previous research, make-

up was still somewhat generally materialized in the present research. There are numerous eyebrow products, such as pencil, pomade, gel, and powder, and endless lipstick variations on the market, such as different shades of red, shades of pink, other colours and their shades, and different textures (glossy, pearl, metallic, matte, glittery, opaque, transparent). Besides, each colour might suit a person better or worse depending on skin tone (warm/neutral/cool) and skin colour. For example, a red lipstick may appear "heavier" on a person with very fair skin than on medium-dark skin. This may have accounted for some of the differences in results between the photos. Another factor that was not taken into account includes whether eyebrow enhancement had an effect on the perception of whether a woman is a natural blonde or a dyed blonde and an interaction of such an effect with the perception of the dependent variables were not tested. Future research into this factor might prove insightful.

Regarding the dependent variables, a possible limitation might concern construct validity, being the extent to which the dependent variables were appropriate measures in the leadership construct. Even though the choice of leadership traits led to increased comparability between the present research and the literature on cosmetics, it also meant that the group of variables did not grasp the full effect on leadership trait perceptions. Personality is a truly multidimensional factor. The same accounts for (effective) leadership. Leadership effectiveness and implicit leadership theories are much more complicated than the mere summation of the traits intelligence, dominance, self-confidence, and honesty & integrity. Not only are traits built from various other traits but they are also all intertwined such that it is very difficult – if not impossible – to comprehensively review and discuss the personality traits and their contextual relationships to other traits. For example, intelligence is closely linked to competence and capability. Competence is associated with status and dominance (Etcoff et al., 2011), which, in turn, implies that intelligence is also associated with dominance and status. Yet, intelligence is not exactly the same as competence. Moreover, as became clear in the research by Mileva et al. (2016) on dominance perceptions, the traits are highly dependent on the context in which they are presented. As such, it cannot be excluded that intelligence was interpreted in the present research as referring to, for example, emotional intelligence.

A final topic of consideration concerns the extent to which the results from the present research are generalizable to the real world. Even though the effect of make-up was mimicked as realistically as

possible using the computer software, it might still not have looked identical to the physical application of both lipstick colour and eyebrow enhancement. Despite the major benefits that resulted from this methodological choice, it must be taken into consideration that the effect might have been different if the products were applicated by either the subjects themselves or a professional cosmetician. Moreover, the present research results are based on evaluations of static photos. It remains unclear how cosmetic combinations can influence perceptions in a real-life setting, where the product is viewed in 3-dimensionality and the wearer is moving. For example, product texture might be of importance in the evaluation of the amount of make-up. Furthermore, in real life a face is not viewed and judged in isolation, but together with factors of influence such as clothing choice and accessories. Upon longer inspection in a real-life setting, nonverbal cues such as the facial expression of the wearer, gestures, and body language might become of influence. These factors might cause people to alter their initial perceptions. How these factors would interact with the effect of cosmetics has never been tested. Therefore, the results of the present research are much more reliably interpreted within the timeframe of a first impression (100ms), a judgment that better resembles a static image.

Given the limitations and constraints of the present research, several recommendations apply to future research on the effect of cosmetics on leadership traits. Firstly, many other cosmetic combinations can be tested, as well as their effect on a wide variety of important leadership traits; relationships that were not explored in this research. Importantly, the traits should be defined such that they are not subjective to a wide range of interpretations. Furthermore, future research might investigate the effect of cosmetics on women with different appearances and of different ages and ethnicities. To increase comparability across the literature and to avoid the influence of temporal factors, it is recommended to include measurements of both the attitude towards women wearing make-up and the attitude towards the professional role of women. Being a very subjective factor, how "heavy" the make-up is perceived, is also recommended to be included as complementary data or covariate. Additionally, future research might investigate the effect that cosmetics have on the confidence of the wearer, as well as its mediating role on perceptions, although a direct effect was suggested by the present research. Overall, the present research provides some insights into the multidimensionality of the effect of cosmetics on leadership traits perceptions. However, this is merely a small step in understanding the

unwieldy complex effect that cosmetic combinations can have on the perception of leadership. Therefore, there is much room for future research to improve our understanding of this topic.

Conclusion

The present research sought to answer the question of whether Caucasian women can manipulate how people perceive their leadership traits by applying cosmetic combinations, specifically lipstick colour and eyebrow enhancement. It was hypothesised that leadership trait perceptions are affected by cosmetic combinations. The results showed that for some women, indeed, perceptions of leadership traits can be altered by applying red lipstick or by enhancing eyebrows. In which specific combinations these products are applied, however, is suggested not to be of importance. The results suggest that red lipstick can increase dominance and self-confidence perceptions, while it can decrease ratings of honesty & integrity. Also, they suggest that enhancing eyebrows can positively influence dominance perceptions, while it can negatively influence the perception of honesty & integrity. Leadership effectiveness and intelligence perceptions were not affected by either lipstick colour or eyebrow enhancement. The results further suggest that attractiveness ratings are not affected by either cosmetic product and, consequently, that any effect on these leadership traits is not mediated by attractiveness. The findings, however, were not consistent across all photos that were judged by participants, which implies that the effect of cosmetic combinations is variant per individual. Moreover, although this research suggests that some women can indeed employ cosmetics to alter leadership trait perceptions of them, no evidence was found conclusively in favour of or against the use of brow enhancement and lipstick colour in a professional environment.

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