University of Glasgow

School of Education

University of Glasgow School of Psychology

ID NUMBER:

DATE: 24/08/2018

WORD COUNT: 11 775

SUPERVISOR: Dr Joanna Wincenciak

MSc Psychological Studies
Dissertation 2017-18
Delivered jointly:

Education (EDUC5839) and
Psychology (PSYCH5040)

Trustworthiness, Morality, and Sociability: Examining the Relationship Between Face and Social Perception Models

Declaration: I have read and understand the University of Glasgow guidelines on plagiarism (found in the MSc Psychological Studies handbook) and declare that this piece of work is entirely my own work. All sources have been acknowledged in the text and included in the reference section. All quotations from other authors are marked as such in the text

I have submitted to Urkund an electronic copy of this coursework that matches exactly this hard copy submission; and have read through the University of Glasgow's declaration of originality, located here:
https://www.gla.ac.uk/media/media_100977_en.docx

I realise that I ticked my acceptance of the above declaration on Urkund during the electronic submission.

Please tick here that the above statement is true [x]

NB. Almost all work, wherever practical, is anonymously marked, so please do not sign the declaration.

Acknowledgements

I would like to express deep gratitude to my supervisor, Dr Joanna Wincenciak, for her support, encouragement, and guidance throughout the dissertation process.

Table of Contents

Abstract

While research on person perception has developed dimensional models of person perception limited to one type of information, real-life person judgements rely on a variety of modalities which are simultaneously processed to form social impressions. What some of these models share is a functionalist framework. The current study set out to explore the relationship between the dimensions of trustworthiness of the facial models, and morality and sociability of the social psychological models of face perception as these dimensions have been suggested to share the same functionality. 199 participants took part in an online experiment, where they formed impressions of a single individual based on facial and textual cues. Across the analyses of several types of impressions, morality information was the most influential, while the effect of sociability information was dependent on morality. However, there was no effect of the face on any of the measures used. Additionally, there was a positive relationship between self-perceived dominance and global impressions. Taken together, these results do not support the similarities between the facial and social psychological models of social perception. However, by identifying methodological caveats, further research of integration of these models is suggested.

Keywords: social perception, face perception, morality, sociability, trustworthiness

1. Introduction

Social perception research deals with how people process information about others. Indeed, social perceptions are complex, dynamic processes during which we have to selectively process relevant information in order to arrive at conclusions about others in a limited time. This can result in a lot of biased and inaccurate perceptions, but from an evolutionary perspective this can be seen as an adaptive response. Impression formation is one of the essential everyday processes which are subject to these features.

Historically, studies of impression formation have been limited to one type of information source at a time. These were the studies of trait and social descriptions of targets (Rosenberg, Nelson, & Vivekananthan, 1968). More recently, functional dimensional explanations have become predominant in this research, hypothesizing the existence of two underlying dimensions of person perception based on perceptions of other people's intentions and their ability to carry these out (see reviews Abele & Wojciszke, 2014; Fiske, Cuddy, & Glick, 2007; Wojciszke, 2005; Fiske, 2018; also journal editorials Abele, Cuddy, Judd, & Yzerbyt, 2008; Abele & Wojciszke, 2013). In recent years, investigations have looked at other sources of information used in person perception than social and trait descriptions. For example, since the original article by Oosterhof & Todorov (2008), who established a two-dimensional functionalist view of face perception, there has been a huge boom in face research.

After all, social perception is a multimodal and complex process, where individuals use several cues from their environment to make person judgements (Todorov et al., 2015; Aviezer, Trope, & Todorov, 2012) and finding out how these different cues interact in the formation of general impression should be the further aim of social perception research. In this vein of thinking, Sutherland, Oldmeadow and Young (2016) have suggested that the way

we judge the intentions of others based on social and facial cues is similar. However, even this research has only looked at facial stimuli. It would seem that there is enough evidence to warrant an investigation into how different sources of information interact with each other and contribute to people's impressions of others in a more ecologically valid way. Therefore, this study aims to investigate the similarities between the face and social psychological models of person perception further, utilizing not one, but two sources of information – social descriptions and faces. Evidence for each of the two models will be examined, followed by a discussion of their similarities, making a case for a cross-modal examination of impression formation.

1.1 Social perception models

An extensive line of research in social cognition has postulated models consisting of two fundamental dimensions of person and group perception (Abele & Wojciszke, 2013, 2014; Fiske, Cuddy, & Glick, 2007; Wojciszke, 2005; Fiske, Cuddy, Glick, & Xu, 2002). Researchers used a variety of names for these dimensions, such as *communion* and *agency* (Bakan, 1966; Abele & Wojciszke, 2007; Abele & Wojciszke, 2014) or *warmth* and *competence* (Fiske, 2018; Fiske et al., 2002; Fiske et al., 2007). This line of research utilizes a functionalist framework, which highlights how evolutionary pressures lead to the need to appraise threat in the environment. Social warmth is stressed as a crucial dimension in assessing other people's intentions (is this person harmful or friendly?), while competence is related to their ability to carry these intentions out (how serious are these intentions?).

These two dimensions have also been found to cover an absolute majority of variance in person perception, with some finding them to account for 89% (Abele & Wojciszke, 2007), and others finding them to account for 66% of the variance (Ybarra et al.,

2008). Additionally, warmth seems to be especially crucial in person perception. Out of the 66% overall variance reported by Ybarra and colleagues (2008), 87% was attributed to warmth information (also Abele & Wojciszke, 2007). These researchers also showed that there is a very strong relationship in perceptions of warmth across culture (r = .77), whereas this relationship was low for competence perception (r = .33). Indeed, warmth information has been found to be processed, categorized, inferred, assessed, and used faster and more often than competence information (Abele & Bruckmüller, 2011; Ybarra et al., 2008), and this was the case regardless of participant age (Ybarra, Chan, & Park, 2001). It has also been shown that people are more sensitive to warmth disconfirming information, in that they need less negative warmth information to perceive the person negatively (Fiske et al., 2007; Tausch, Kenworthy, & Hewstone, 2007; Cuddy, Glick, & Beninger, 2011). This negativity bias helps to highlight how crucial intention and threat appraisal are for survival. Overall, it seems that warmth trait information is a better predictor of overall impression than competence. However, it should also be noted that when context favours competence traits over warmth traits, competence can carry a bigger weight in impression formation (Cuddy et al., 2011), additionally resulting in a stronger halo effect stemming from this type of information (Gräf & Unkelbach, 2018).

1.1.1 Role of warmth and competence

When it comes to judging groups and individuals, the distinctiveness between competitive and cooperative conditions must be made. Under competitive/comparative conditions (zero-sum game situations, e.g. choosing a job candidate from a group) there is a negative compensatory relationship between warmth and competence judgements (Cuddy, Fiske, & Glick, 2008; Judd, James-Hawkins, Yzerbyt, & Kashima, 2005; Kervyn, Yzerbyt, Judd, & Nunes, 2009; Cuddy, Glick, & Beninger, 2011). Once a person or a group is perceived to be

warm, they are perceived as incompetent, and vice versa. However, this relationship disappears when the comparative aspect is taken away (Judd et al., 2005; Kervyn et al, 2009), and instead a halo effect is observed, which extends the (especially positive) perceptions from one of the dimensions of person perception to the other (Gräf & Unkelbach, 2016, 2018).

Another aspect of the relative saliency of warmth and competence information is related to the distinction between self-perceptions and other-perceptions. It has been argued that self-perceptions relate more to competence terms, as these are crucial to achieving our goals, while warmth is more relevant to other-people perception and helps us assess the goals of others (Abele & Wojciszke, 2007; Cislak & Wojciszke, 2008). This has also been subject to cross-cultural study, by showing that competence traits are relevant to self-esteem more than warmth traits in a sample spanning over 11 cultures, even though different competence traits contribute to such perceptions differently across these cultures (Wojciszke & Bialobrzeska, 2014; Gebauer, Wagner, Sedikides, & Neberich, 2013).

1.1.2 Distinct role of morality

Despite strong empirical support for the two-dimensional warmth and competence model, Wojcizske (1994; Wojcizske, Bazinska, & Jaworski, 1998) proposed a two-dimensional model consisting of *morality* and *competence*. Their findings mirror those of the warmth and competence model discussed above, but instead of warmth, morality is assumed to be the driving force in assessing the intentions of others. Indeed, moral character has a distinct role in person perception. It's been shown that moral character traits were perceived more central to identity than any other mental characteristic (Strohminger & Nichols, 2014), were categorized faster (van Leeuwen, Park, & Penton-Voak, 2012) and were observed to have a high overlap with notions of goodness/badness and

morality/immorality, pointing at their key role in impression formation (Goodwin, Piazza, & Rozin, 2014). Furthermore, people tend to evaluate themselves as more moral than others, and this self-enhancement bias is bigger than in other domains of positive self-evaluation (Tappin & McKay, 2017). Additionally, moral traits such as trustworthiness are the most desirable traits people look for in others (Cottrell, Neuberg, & Li, 2007). Individuals perceived to possess these traits are expected to be more cooperative, while the perceivers are more willing to cooperate and help such individuals (de Bruin, & van Lange, 1999; Pagliaro, Brambilla, Sacchi, D'Angelo, & Ellemers, 2013). Moreover, the opportunity to make moral evaluations was observed to foster interpersonal liking, trustworthiness, and cooperation in group settings (Simpson, Willer, & Harrell, 2017). In this sense, moral evaluations of ourselves and others tend to have more serious repercussions than negative evaluations in other domains as they are deemed as dispositional, long lasting, and central to self and intra-group views and tend to have a mediating role in justifying and explaining our own (Pagliaro, Ellemers, Barreto, & Di Cesare, 2016).

Moreover, some propose that perceptions of moral acts are dyadic, with an *intentional agent* on one hand and a *moral victim* on the other (Gray, Young, & Waytz, 2012). Indeed, when the immoral behavior of a target is perceived as intentional (i.e. dispositional), the target is judged as immoral, but when this behavior is perceived as purely coincidental, this negative view disappears (Reeder, Kumar, Hesson-McInnis, & Trafimow, 2002; Ames & Fiske, 2013). However, even if the acts of the target are moral, but threaten our positive self-perceptions, this target is also viewed as immoral and negative (Monin, Sawyer, & Marquez, 2008). In sum, information of other person's moral character is a dominant source of intentionality, threat, goodness, and morality perceptions, which are

central to person perception (also see reviews of this research Brambilla & Leach, 2014; Goodwin, 2015).

1.1.3 Three-dimensional model of person perception

Essentially, supporters of the two-dimensional models do not see a fundamental difference between morality and warmth at the cost of conflating moral and social (warmth) traits under one label (Fiske et al., 2007). However, others point at the distinctive nature of moral (or morality) and social traits (or sociability), even including some previous supporters of the two-dimensional model (Abele & Wojciszke, 2014; Bruckmüller & Abele, 2013). Under a three-dimensional perspective, morality is argued to retain the role of warmth from two-dimensional models in being the main source of intention information, sociability and competence were stipulated to serve in evaluations of likelihood of intention accomplishment. While competence relates to one's own actions, sociability is an indirect measure of competence related to the mobilization of one's social networks in order to accomplish a goal (Landy et al., 2016, pp. 1273-1274). In this way, sociability is a desirable attribute in both interpersonal and intergroup circumstances (Curry & Dunbar, 2011; Fessler & Holbrook, 2013).

There is now an ever-growing body of evidence in support of the 3-dimensional model consisting of morality, sociability, and competence. The first to formally investigate it were Leach, Ellemers, and Barreto (2007), who found support for a clear three-factor solution in group perception settings. This study identified morality as the most decisive domain in in-group pride perception. Others also found support for a 3-dimensional solution (e.g. Brambilla, Sacchi, Pagliaro, & Ellemers, 2013; Brambilla, Sacchi, Rusconi, Cherubini, & Yzerbyt, 2012). However, it was until a series of studies by Goodwin (et al., 2014) who utilized a bottom-up approach to establish the distinctiveness of the three domains by

asking their participants to indicate the importance/relevance of 170 traits to person judgements, subjecting the data to factor analyses. They found a clear three-factor solution to fit the data better than a two-factor warmth/competence one. However, they noted that some traits were highly relevant to both morality and sociability (Study 1, Goodwin et al., 2014).

Two important assumptions underlie the relationship among the three domains: *Morality Dominance* and *Morality Dependence* hypotheses (Landy et al., 2016). The first one refers to the universal positive nature of morality traits (in general impressions formation), while the second refers to the conditional nature of positive sociability and competence traits on morality – when the target is moral, sociability/competence is seen positively, but when the target is immoral, positive sociability or competence information is negative. In a key article by (Landy et al., 2016), this was demonstrated in several experimental studies where domain related traits were manipulated in target descriptions and their effect on global impressions was observed. Additionally, there is other support for these hypotheses – immoral targets are seen more negatively and deserving of schadenfreude, especially when they are competent (Brambilla & Riva, 2017); moral traits are processed in an asymmetrically disconfirming (negativity bias) way, needing less negative evidence to condemn a target, whereas sociability and competence traits are processed in an asymmetrically confirming ways (Brambilla, Rusconi, Sacchi, & Cherubini, 2011); trusting targets are also seen as more sociable (Evans & van de Calseyde, 2018); targets committed to immoral goals are perceived more negatively as uncommitted targets (Piazza, Goodwin, Rozin, & Royzman, 2014). Moreover, analyses of obituaries suggest morality traits are used more than competence traits (Study 7, Goodwin et al., 2014) and that moral traits are desired across a variety of relationships varying in interdependence (Study 5, Goodwin et

al., 2014). These hypotheses acknowledge that different contexts/ target goals influence the desirability and diagnostic value of traits from different domains (e.g. competence traits at a job interview, see Study 1 Brambilla et al., 2011). Overall, there seems to be solid evidence behind a 3 dimensional model of person perception composed of morality, sociability, and competence, which is able to describe the function, relationships, and importance of each of its domains.

1.2 Face perception models

Besides using social and trait descriptions as stimuli, a different line of research in person perception looks at how people create impressions from other people's faces (see Todorov, Olivola, Dotsch, & Mende-Siedlecki, 2015 for a current review). Indeed, facial stimuli hold a plethora of information used in everyday social judgements, such as trustworthiness, youthfulness, dominance, or competence Oosterhof & Todorov, 2008; Sutherland et al., 2013; Wolffheche et al., 2014). Additionally, such judgements have been found to have real-life consequences in areas such as electoral behavior (Olivola, Funk, & Todorov, 2014; Antonakis & Dalgas, 2009; Rule et al., 2010), CEO selection (Graham, Harvey, & Puri, 2017), or even the justice system (Blair, Judd, & Chapleau, 2004; Swami, Arthey, & Furnham, 2017).

Similar to the line of research on social perception in social psychology discussed above, face perception researchers have also postulated dimensional models of such perception. First to do so were Oosterhof and Todorov (2008) who developed an influential two-dimensional model of face perception which utilised an evolutionary functional framework to explain its dimensions. Their model was derived from faces with neutral emotional expressions from the Karolinska Directed Emotional Faces (KDEF) database

(Lundqvist, Flykt, & Öhman, 1998), the ratings of which were subjected to Principal Component analysis. The two factors which emerged accounted for 63.3% and 18.3% of the variance, respectively (Oosterhof and Todorov, 2008). The first and the dominant factor was termed *trustworthiness* and was theorised to be involved in appraisals of target intentions and threat perceptions (Oosterhof and Todorov, 2008). Ratings of trustworthiness (r = .94), warmth, attractiveness, friendliness, extraversion, or caring correlate highly with this factor (Oosterhof and Todorov, 2008; Hehman et al., 2015; Todorov, Dotsch, Porter, Oosterhof, & Falvello, 2013). The second factor of *dominance* is suggested to be involved in assessing the ability of the target to carry these intentions out stemming from the physical attributes of the target. Ratings of dominance (r = .93), meanness, aggressiveness, perceived threat, and confidence all correlate highly with this factor (Oosterhof and Todorov, 2008; Todorov et al., 2013). This two-factor solution closely resembles warmth/competence models from social psychology discussed above (Abele & Wojciszke, 2014; Fiske et al., 2007; Wojciszke, 2005; Fiske et al., 2002). Due to the relatively homogenous sample of images used in their work, Oosterhof and Todorov (2008) did not find a third dimension of face perception, which emerged in later research - *youthfulness/attractiveness* (Sutherland et al., 2013; Wolffheche et al., 2014). This dimension describes the diminishing attractiveness of a target with increasing age, and as such provides useful information related to mating (Sutherland et al., 2013; Wolffheche et al., 2014). Further research into dimensional models of face perception has investigated the properties of these perceptions including their source, development, processing, or accuracy. These will be examined next.

1.2.1 Characteristics and sources of dimensional judgements

In general, trait and character judgements from faces are found to have a high inter-rater agreement cross-culturally (Walker, Jiang, Vetter, & Sczesny, 2011; Rule et al., 2010;

Zebrowitz et al., 2012). This agreement is especially high for trustworthiness ratings (Cogsdill, Todorov, Spelke, & Banaji, 2014; Rule, Krendl, Ivcevic, & Ambady, 2013; Willis & Todorov, 2006; Engell, Haxby, & Todorov, 2007). However, more recent research found high agreement only for trustworthiness and youthfulness ratings, finding more cross-cultural variability in dominance/competence ratings as these seem to be influenced by cultural differences the most (Sutherland et al., 2016). Furthermore, the agreement of trustworthiness ratings among children as young as 7 years reaches adult levels (Cogsdill et al., 2014; Caulfield, Ewing, Bank, & Rhodes, 2016; Antonakis & Dalgas, 2009). Moreover, somewhat reliable facial judgements of trustworthiness, dominance, or competence can be made in as little as 33ms (Todorov, Pakrashi, & Oosterhof, 2009), with reliability reaching peak levels even after a 100ms exposure (Willis & Todorov, 2006; Olivola & Todorov, 2010). However, the accuracy of all facial judgements are abysmal, i.e. usually at chance levels and such judgements do not reflect people's character well (Rule et al., 2013). Even in situations where people have access to base-rate information, they still rely on the face which results in suboptimal performance (Olivola & Todorov, 2010; Olivola et al., 2014).

The high cross-cultural agreement in face judgements suggests that people systematically use facial cues to make very similar judgements. These types of cues can be of two types: invariant (stable) or transient (temporary), and can affect judgements of both trustworthiness and dominance (cf. Hehman, Flake, & Freeman, 2015). When it comes to static/ structural aspects of the face, facial width-to-height (fWTH) ratio has become a popular facial feature associated with dispositional dominance judgements (Stirrat & Perrett, 2010; Valentine, Li, Penke, & Perrett, 2014; Hehman et al., 2015) and has also been suggested to predict aggressive behavior in males (Carré, McCormick, & Mondloch, 2009), however only in those low in social status (Goetz et al. 2013). It should be noted that even

such a static face trait can be dynamic – e.g. tilting one's head can change the fWTH ratio and alter threat perceptions (Hehman, Leitner, & Gaertner, 2013).

One of the well-studied and influential transient cues is emotional expression. Happy faces are perceived as trustworthy and dominant, while angry faces elicited perceptions of high dominance but low trustworthiness which were perceived as stable character attributes (Knutson, 1996; Hess, Blairy, & Kleck, 2000; Willis, Palermo, & Burke, 2011; Sutherland, Young, & Rhodes, 2017). These findings can be explained by the *temporal extension* effect (Zebrowitz & Montepare, 2008) which accounts for situations when a momentary perceived characteristic of a face (the target is smiling) is not understood in circumstantial/situational terms, but attributed as a non-changing/ dispositional character of the target (therefore he/she must be cheerful or kind).Additionally, even faces with a neutral facial expression which nevertheless seems to express happiness tend to be perceived as both trustworthy and dominant (Montepare & Dobish, 2003; Said, Sebe, & Todorov, 2009). This can be explained by the *emotion-face overgeneralization hypothesis* (but also baby-face, similar-face, and unfit-face overgeneralizations – see Zebrowitz & Montepare, 2008 for review), which argues that emotion cues have such strong evolutionary adaptive significance in the assessment of other people's character, that even when someone does not possess these character traits, but their physical facial features resemble someone who does, people still tend to perceive the target to possess these characteristics (Zebrowitz & Montepare, 2008; Zebrowitz, 2017; Todorov et al., 2015). Indeed, these findings fit well with a model put forth by Over and Cook (2018) who proposed a mental mapping between "face" and "trait" spaces developed throughout life, which allows us to perceive others, but also to control our own facial expressions in order to communicate specific information.

People also extract cultural and societal stereotype information from faces of others such as age, gender, sex, or ethnicity which moderate our social perceptions (e.g., Hess, Blairy, & Kleck, 2000). Sexually dimorphic perceptions of masculine/feminine character traits are also strong cues in social perception. In general, data-driven models of face perception show that when the dominance of a generated face increases, so does its masculinity (Oosterhof & Todorov, 2008), while the more trustworthy the generated face is, the more feminine it looks – and this is present even when such manipulation is done on the faces of the same gender (Todorov & Oosterhof, 2011; Todorov et al., 2013). These perceptions are linked to gender/sex stereotypes – e.g. a non-stereotypical masculine female is perceived more negatively than a stereotypical feminine female face (Sutherland, Young, Mootz, & Oldmeadow, 2015). Gender, age, and trait stereotypicality have also been shown to interact when it comes to perceived occupational target suitability – e.g. an old trustworthy male is perceived to be more likely to be a banker than a young or untrustworthy male, or a female of any age or character (Oldmeadow, Sutherland, & Young, 2013). Additionally, the interaction between ethnicity/race and the quantity of time spent with other than own ethnicity affects our social perceptions as well – there is some evidence that residents of countries which are almost purely mono-ethnic show own-ethnicity positivity bias in trustworthiness ratings (especially for low to medium trustworthy faces), while residents from countries which are diverse and where cross-ethnic contact is frequent, such bias is minimal (Birkás, Dzhelyova, Lábadi, Bereczkei, & Perrett, 2014). Better knowledge of the other culture can also alleviate these effects (Rule et al., 2010). Besides stereotypical information, even our own cognitive states can affect face judgements – if people feel threatened, they tend to perceive targets as bigger and more dominant (Fessler & Holbrook, 2013a, 2013b). Additionally, the desirability/suitability of subtle facial features also changes

as a function of what a facial picture is intended for, e.g. online dating, CV, or social media, which results in different character judgements of the same person (Todorov & Porter, 2014).

What these last couple of findings show is that besides the well-studied effects of target facial characteristics, perceivers' idiosyncratic characteristics can also affect judgements of faces in significant ways, and for some judgements they are more influential than the manipulated target facial characteristics (see Hehman, Sutherland, Flake, & Slepian, 2017). The research on perceiver characteristics is, however, sparse, and more research is needed.

In sum, we make a plethora of instant yet inaccurate social judgements based on faces with high agreement among raters. These judgements can be clustered into judgments of trustworthiness, dominance, and youthfulness/attractiveness, which all have distinct adaptive evolutionary functions. While mostly static characteristics of a face affect these judgements (such as the structure of a face), even momentary characteristics can be attributed as dispositional to a target (such as emotional expression). Additionally, people's own idiosyncratic characteristics such as past experiences and societal stereotypes can influence these judgements in significant ways as well.

1.3 Model comparison

There are several striking similarities between the two models of person perception described above, and these will be reviewed now. Firstly, the two-dimensional models from both fields share the same evolutionary functional basis of their dimensions. Warmth/trustworthiness are related to intent/threat perceptions while competence/dominance are utilized in ability judgements (Fiske et al. 2007; Wojciszke,

2005; Oosterhof & Todorov, 2008). Secondly, the first factor also covers an absolute majority of variance in people's judgements from faces and social/trait descriptions (60-70%) with the second factor explaining a much smaller portion of judgement variance (18-30%) (Ybarra et al., 2008; Abele & Wojciszke, 2007; Oosterhof and Todorov, 2008; Sutherland et al., 2013). Moreover, warmth/trustworthiness information is recognised and processed very fast (Abele & Bruckmüller, 2011; Ybarra et al., 2008; Ybarra, Chan, & Park, 2001; Todorov, Pakrashi, & Oosterhof, 2009; Olivola & Todorov, 2010). While even dominance/competence information is processed fast (in faces), the judgements of trustworthiness show higher reliability than dominance ratings, even under time-constraint (Willis & Todorov, 2006), and even children as young as 3-4 make basic approach/avoidance judgements with adult levels of reliability (Cogsdill et al., 2014). The context-dependent preference/desirability of specific traits has also been established for both models – even though warmth traits are preferred in general impression situations, contexts highlighting competence/dominance importance, such as politics or occupational stereotypes, can increase the favourability of those traits (Todorov & Porter, 2014; Sutherland et al., 2015; Oldmeadow et al., 2013; Cuddy et al., 2011; Gräf & Unkelbach, 2018). Lastly, it should be noted that even though the strongest cues for trustworthiness/warmth judgements are only momentary, such as emotional expression and (im)moral behavior, they are perceived to be the most idiosyncratic to the perceived target – this is the temporal extension effect (Fiske et al., 2007; Tausch, Kenworthy, & Hewstone, 2007; Cuddy, Glick, & Beninger, 2011; Zebrowitz & Montepare, 2008; Zebrowitz, 2017). This is probably related to the importance of such judgements in social interactions, and the necessity to form such judgements early on.

These parallels between the social psychological and face perception models of person perception discussed above led several researchers to suggest further research of their integration (Todorov et al., 2015; Sutherland et al., 2016; Dotsch & Todorov, 2011; Sutherland et al., 2015). To test the similarity of the two models, Sutherland and colleagues (2016) asked their participants to rate 1000 natural pictures of faces on the dimensions of warmth, trustworthiness, dominance, and competence, finding warmth and trustworthiness to correlate highly, while the dominance/competence judgements shared significantly less variability (see also Zebrowitz et al., 2012). Additionally, when trying to replicate the 3-dimensional Western model o face perception in China (i.e. cross-culturally), only trustworthiness and youthfulness/attractiveness correlated highly compared to British participants' judgements, suggesting that perceptions of dominance/competence seem to be culture dependent (Sutherland et al., 2015, but also see Rule et al., 2010). Indeed, even in social psychological models of person perception, specific characteristics seen as vital to competence judgements seem to vary cross-culturally, at least in their relevance to self-esteem, which has been shown to critical to self-perceived competence (Wojciszke & Bialobrzeska, 2014; Gebauer, Wagner, Sedikides, & Neberich, 2013).

1.4 Current Study

The above findings suggest that the dimensions of warmth/trustworthiness both serve a very similar function when it comes to intent appraisal, with competence and dominance dimensions varying from each other systematically. However, recent research in social psychology distinguishes between morality and sociability as two distinct dimensions, instead of conflating them under the dimension of warmth (Landy et al., 2016; Goodwin et al., 2014). Morality is hypothesized to serve in intention appraisals while sociability is

conceptualised in social competence terms (Landy et al., 2016). Additionally, two important hypotheses are tied to these two dimensions: *Morality Dominance* and *Morality Dependence hypotheses* (Landy et al., 2016).

H_1: *Morality Dominance Hypothesis: positive morality information will always be evaluated positively*

H_2*: Morality Dependence Hypothesis: the positivity of sociability information will be conditional on the positive nature of morality information – sociability will be evaluated positively when the target is moral, but not when the target is immoral.*

As was noted already, facial ratings of trustworthiness simultaneously contain information about both morality and sociability characteristics and as such can be expected to affect both perceptions of morality and sociability (Oosterhof and Todorov, 2008; Hehman et al., 2015; Todorov, Dotsch, Porter, Oosterhof, & Falvello, 2013).

H_3: *Trustworthy targets will be perceived as more moral, sociable, and also somewhat more competent, while untrustworthy targets will be perceived as immoral, unsociable and somewhat more incompetent.*

Altogether, this study aims to investigate the relationship between morality, sociability, and trustworthiness information when presented together and their relative effect on the perceptions of general impression, perceptions of target intentions (morality), their social ability (sociability), and how information of the three domains can influence perceptions of task-specific and general competence. These interaction will be investigated in an environment of limited information, to additionally examine how this limited information generalises to its (i)respective domain.

The influence of perceiver characteristics on social perception can be significant (Hehman et al., 2017), yet this area is understudied. Therefore, additional to the main

investigation, self-perceived dominance will also be explored as a perceiver characteristic with possibly influences person judgements. It's been shown that self-perceived dominance/ability are crucial to self-esteem and self-efficacy (Wojciszke & Bialobrzeska, 2014; Gebauer, Wagner, Sedikides, & Neberich, 2013). Additionally, the more threatened we feel, the more dominant and harmful other people seem to us (Fessler & Holbrook, 2013a, 2013b). From this it is hypothesized (H_4) that people who perceive themselves as more dominant should feel less threatened – i.e. even *under conditions when faced by targets with negative intentions, people should rate them less negatively than people who are low on self-perceived dominance/ability and perceive themselves to be more vulnerable*.

1.4.1 Methodological overview

To carry out this investigation, experimental approach is utilised, manipulating the study stimuli on the aforementioned dimensions. To avoid compensatory effects in social judgements, a between-subject design is used (Rule et al., 2013; Cuddy et al., 2011). The manipulation of perceptions of social psychological model dimensions is a common tool in this research, achieved by changing trait or social description of the target individual (). When it comes to manipulating face perception, the method which produces the strongest manipulation is that which uses standardised images of individuals, who are asked to pose in specific ways (Hehman et al., 2017), as computer-generated faces can lead to different impressions than natural faces (Balas & Pacella, 2017). To this end, many standardised databases exist for the purpose of being used in research. For example, the database used in the current study has been used as the initial input for the data-driven face model of Oosterhof and Todorov (2008), but also in plenty other research (e.g. Sutherland et al., 2017; Todorov & Duchaine, 2008; Engel et al., 2007). To capture more variance in cues

signalling specific traits, face averaging techniques through specialised software are utilised (e.g. Oldmeadow et al., 2013; Sutherland et al., 2013).

Although self-perceived dominance has been previously measured by 1-item Likert scale items (Puts, Gaulin, & Verdolini, 2006; Mazur, Halpern, & Udry, 1994), this study opts in for a pictorial version of self-perceived dominance – self-assessment manikin (SAM) (Bradley & Lang, 1994). This tool has been originally developed to assess transient emotional states of valence, disgust, and dominance after a presentation of objects (such as marketing purposes). It has been chosen for this study as the tool's depiction is free from language and cultural influences, thus making it a more direct and immediate measure of dominance.

2. Methods

2.1 Participants

A snowball convenience sample of *N* = 199 participants aged 18 and above was recruited via social media (including Facebook, Instagram, Twitter, Reddit, and blogs) between the 21st June and 25th July 2018. The age of the sample ranged from 18 to 64 years (*M* = 27.14, *SD* = 7.11, 4 missing). 59% of the participants were female, 40% male, 2% other or preferred not to say. The majority were Caucasian/ white (88%), with the remainder being split among Asian (5%), Hispanic (4%), Black, mixed, and other. Nationality-wise, 22% were Slovakian, 13.5% American, 11% British, 10.5% Finnish, 5% both German and Estonian, with the remainder split among other countries. Participants were allocated to one of the 8 experimental conditions based on their date of birth, aiming for a balanced distribution.

2.2 Materials

2.2.1 Face stimuli

The face stimuli consisted of two photographs, which were digitally altered using Psychomorph (Tiddeman, Burt, & Perrett, 2001) to express high and low levels of trustworthiness, respectively. The original photographs were obtained from The Karolinska Directed Emotional Faces (KDEF) database (Lundqvist et al., 1998) and were pre-rated on numerous social traits, including trustworthiness. Three of the original 33 male faces with neutral face expression were excluded due to them being of different luminance than the rest of the photographs. The remaining 30 faces were delineated, horizontally aligned and scaled to the same interpupillary distance. Next, the 15 most trustworthy faces (M = .35, SD = .42) and the 15 most untrustworthy faces (M = -.64, SD = .49) were averaged (Rowland & Perrett, 1995; Oldmeadow et al., 2013) to create prototypes of a trustworthy and an untrustworthy face, respectively. Masked versions of the faces were used (i.e. only the face is shown, with no hair or background), to avoid the effect of extra-facial information. These prototypical images were resized to 415 x 553 pixels to make them of suitable size for the online survey. The face stimuli used in the experiment are depicted in Figure 1 below.

Figure 1. Masked trustworthy (left) and untrustworthy (right) prototype face stimuli.

2.2.2 Vignettes

The vignette consisted of a short textual social description of an individual. The vignettes used in this study have been used and validated in research by Landy, Piazza, & Goodwin (2016, Study 3). Of the 5 vignettes in the original study, the "co-worker" scenario was selected as it was situated in an environment most participants should relate with, i.e. the workplace. Compared to the original vignettes, the name of the described person was changed, in order to remove their gender identity. The vignettes varied in their level of morality and sociability. The level of the target morality is reflected by his goal of either helping a co-worker to get a raise (high morality) or getting the co-worker fired (low morality). Sociability is reflected in whether the target's personality is warm and friendly (high sociability) or cold and unfriendly (low sociability). Here is an example of a description with high levels of morality and sociability: "Steven felt that one of his co-workers was very good at their job and was not being appropriately rewarded. Steven wanted to help this co-

worker get a raise. To do this, he tried to convince several of his other co-workers to pressure their boss with him. Steven is a warm and friendly person. In trying to convince his fellow co-workers, he approached them with his typical warmth and friendliness." See Appendix A for the full list of vignettes.

Just like in the original study of Landy and colleagues (2016), after being exposed to the vignettes, participants were asked to assess the likelihood of Steven succeeding in his goals (i.e. goal related competence), with wording base on his vignette goal. This was followed by the participants assessing their overall positive or negative impression of Steven. Compared to the original research, this was assessed on a 7-point Likert scale, instead of a 9-point one. Subsequently, ratings of 18 character traits were acquired. These traits are based on previous research by Goodwin, Piazza, and Rosin (2014), who used a list of 170 traits to assess their perceived relevance to character judgements of various dimensions, and later adapted by Landy (et al., 2016) who chose 6 traits per each of the social cognition domains of person perception - morality traits: "*moral", "principled", "honest", "trustworthy", "fair",* and *"responsible"* (α = .95), sociability traits: "*sociable", "warm", "friendly", "easy-going", "extroverted",* and *"playful" "* (α = .87), and competence traits: "*competent", "capable", "intelligent", "effective", "skilful",* and *"talented" "* (α = .86). These traits were presented in a random order. Lastly, participants' self-perceived dominance was assessed with the Self-Assessment Manikin (SAM), originally developed by Bradley and Lang (1994) to serve as a non-verbal pictorial way of gauging people's affective states. The original 5-point scale was adapted into a 9-point scale, to allow for more precise measurement.

2.3 Design and Procedure

The study was approved by the Ethics Board of the School of Education at the University of Glasgow (Appendix B) and was distributed online and hosted on SmartSurvey. A pilot study with 4 participants was carried out to ensure the instructions were clear and the survey worked as intended. This data was not analysed. The first page of the survey included the Plain Language Statement and a digital consent form (Appendix C). Once participants provided informed consent, they were allocated into one of the 8 conditions based on their date of birth (i.e. ranging from 1st – 31st). In this way, the study utilised a between-subjects design, in which participants were exposed to only one of the 8 possible vignettes. These consisted of the face stimulus manipulated on its level of trustworthiness (high vs low) followed by a textual social description manipulated for morality (high x low) and sociability (high x low), coupled with. See Table 1 for an overview of the 8 conditions, including the distribution of participants among the conditions. Once one of the 8 conditions corresponding to the birth date acquired the desired number of participants (~20, which has been established to be sufficient to make accurate judgements (Oosterhof & Todorov, 2008)), the survey was adjusted to redirect the participants to a different condition.

Table 1.

Description of the conditions of the current study with participant distribution

Condition #	Face trustworthiness	Vignette morality	Vignette sociability	*N*
Condition 1	high	high	high	23
Condition 2	high	high	low	27
Condition 3	high	low	high	21
Condition 4	high	low	low	27

Condition 5	low	high	high	23
Condition 6	low	high	low	21
Condition 7	low	low	high	27
Condition 8	low	low	low	26

Following the presentation of the vignette, participants were asked to give social judgement of the target individual, which gauged: goal related competence, overall impressions, the ratings of the 18 character traits, and lastly participants self-perceived dominance measured by the Self-Assessment Manikin. Before finishing the survey demographic data were collected, including age, sex, race/ethnicity, and nationality. All participants received a debrief after the completion of the survey. The entire experiment lasted approximately 10 minutes.

2.4 Analysis

For each participant in each of the conditions, I obtained a rating of perceived global impression, goal-related competence, the ratings of 18 character traits, and a rating of self-perceived dominance. The ratings of perceived global impression were subjected to an analysis of covariance (ANCOVA) with self-perceived dominance as the covariate. The goal related competence was tested with an ANOVA. The ratings of the 18 character traits were subjected to a confirmatory factor analysis, to examine the presence of a three-factor solution composing of morality, sociability, and (trait) competence. The mean ratings of each of these factors were used in subsequent ANOVA analyses. The dependent variables were also subjected to correlation analysis. The (co)variances between the ratings of each of these dependent variables were analysed with a 2 (trustworthiness: low & high) X 2

(morality: low & high) X 2 (sociability: low & high) between subject AN(C)OVAs. All visualisations were created with the ggplot2 R package (Wickham, 2016).

3. Results

3.1 Data screening

The initial data (*N* = 266) was screened for potential outliers and excluding criteria. Forty-six participants were removed from the analysis due to fulfilling one of the following criteria: the duration of the study was longer than 15 minutes, they were not at least 18 years old, they did not complete the whole study. Subsequently, for each of the dependent variables, the data were visualised with boxplots and analysed for outliers. After the individual review of these outliers, 21 were removed due to them being invalid responses (some participants have used the same response for all the question, while others clearly answered the questions in a reversed or incoherent order, indicating a misunderstanding of the rating scale or a lack of focus, respectively). Non-white/Caucasian participants were retained in the analysis, as controlling for them did not change the results. Thus the final sample consisted of *N* = 199 participants.

3.2 Global Impression analysis

Assumption checks for the ANCOVA were met with the exception of the Levene's Test of homoscedasticity. However, when the independent variable of face trustworthiness was collapsed, the test was non-significant. As it will be shown, there was no effect of face trustworthiness manipulation in any of the analyses, therefore the condition was assumed to be met. Preliminary analyses confirmed that self-perceived dominance did not moderate

the effects of the experimental manipulations on the dependent measure of global impression. Descriptive statistics for the ratings of global impression can be seen in Table 2.

Table 2.

Descriptive statistics for global impression ratings per condition

		Trustworthiness			
		low		high	
Morality	Sociability	*M*	*SD*	*M*	*SD*
low	low	2.15	1.12	2.3	.91
low	high	2.23	.61	2.81	1.3
high	low	3.89	1.12	4.09	.68
high	high	4.92	1.21	4.92	1.02

A between-subject ANCOVA was used to test the effects of target morality (low vs. high), sociability (low vs. high), trustworthiness (low vs. high), on global impressions controlling for self-perceived dominance. As predicted, there was a significant effect of self-perceived dominance on the global impression rating $F(1, 190) = 7.12$, $p = .008$, $\eta^2 = .036$, $r = .1$. The higher the self-perceived dominance, the more positive the global impression was in this sample. Additionally, there was a significant and large main effect of target morality $F(1, 190) = 205.5$, $p < .001$, $\eta^2 = .52$, and a significant and medium effect of target sociability $F(1, 190) = 18.48$, $p < .001$, $\eta^2 = .089$. Global impressions of moral targets were more positive ($M = 4.44$, $SD = 1.13$) than impressions of immoral targets ($M = 2.38$, $SD = 1.05$), and this difference was large, $d = 1.88$. Targets high on sociability were judged more positively as well ($M = 3.72$, SD = 1.61) than targets low on sociability ($M = 3.07$, $SD = 1.31$), with this difference being relatively smaller, $d = .44$, and non-significant. There was also a significant interaction between morality and sociability $F(1,191) = 4.30$, $p = .039$, $\eta^2 = .022$, which highlights the conditional nature of sociability upon morality and highlights the morality

dependence hypothesis postulated by Landy (et al. 2016). While target sociability made large contributions to the global impressions of sociable moral targets (M = 4.92, SD = 1.11) compared to non-sociable moral targets (M = 3.98, SD = .95), d = .91, the contribution to the perceptions of sociable non-moral targets (M = 2.55, SD = 1.08) compared to non-sociable non-moral targets (M = 2.23, SD = 1.01) was small, d = .31. All the effects are illustrated in Figure 2. There was no effect of face trustworthiness, $F(1,191) = 2.19$, p = .141, or any other interaction. All the reported effects were also found after conducting a 3-way ANOVA without the covariate.

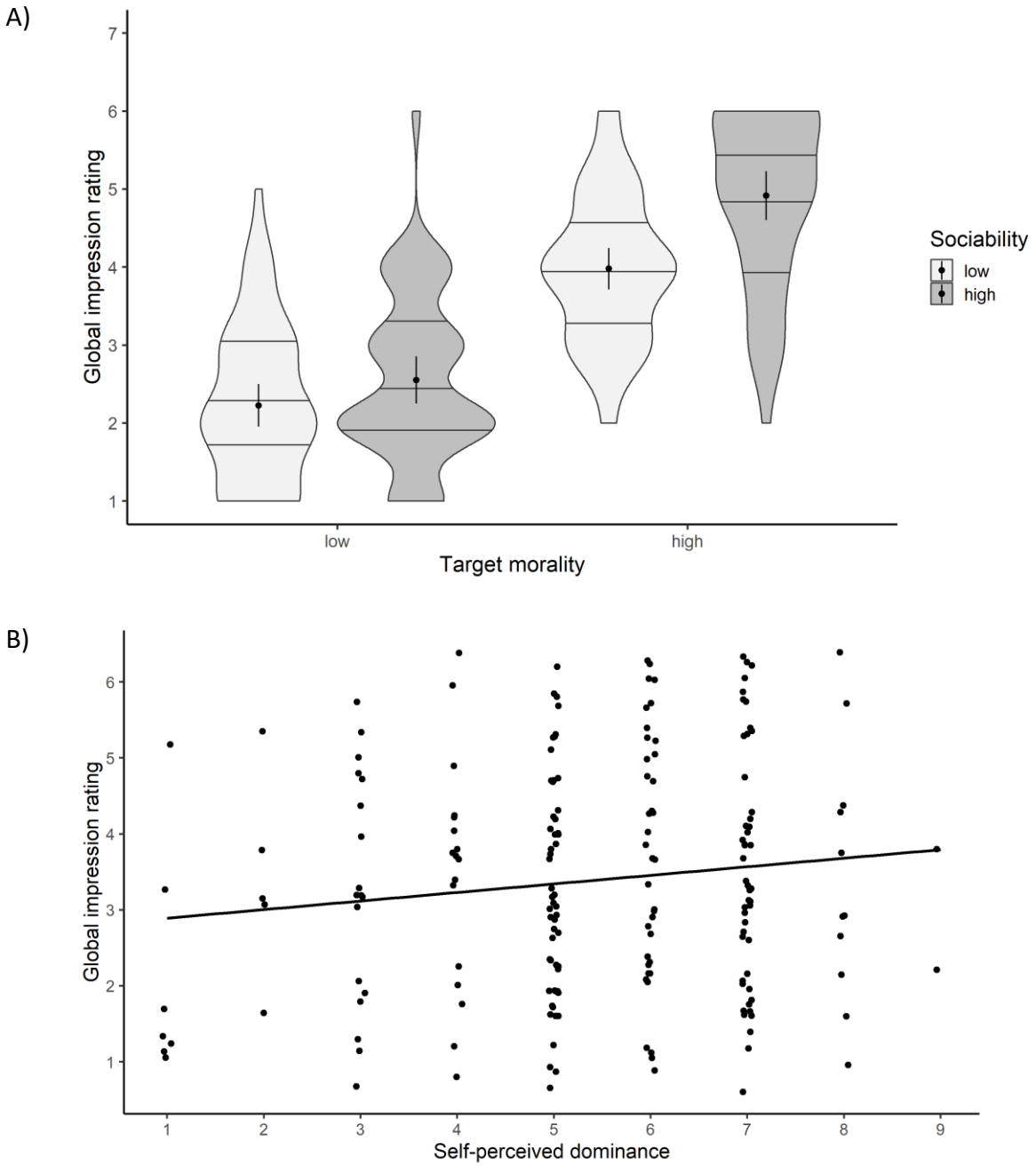

Figure 2. Visualisation of the results of the ANCOVA for global impression ratings. (A) Violin plots with means, 95% CIs, and quantiles (25%, 50%, 75%) illustrating effects found in the analysis of ratings of global impressions, (B) scatterplot illustrating the relationship between global impression ratings and self-perceived dominance. A slight amount of jitter is used to better visualise the frequencies of the data.

3.3 Goal-related competence

Once again, the Levene's Test of homoscedasticity was violated, even when the data were collapsed for face trustworthiness. Additionally, the normality of residuals assumption was also violated. Therefore, a robust ANOVA was conducted, with 20% trimmed means using the WSR2 package (Mair & Wilcox, 2018). These trimmed means are used in the presentation of the ANOVA results. The descriptive statistics for each of the 8 conditions can be found in Table 3.

Table 3.

Descriptive statistics for goal related competence

		Trustworthiness			
		low		high	
Morality	Sociability	*M*	*SD*	*M*	*SD*
low	low	2.42	1.39	2.63	1.33
low	high	3.64	1.89	3.74	1.23
high	low	2.81	1.18	3.14	1.17
high	high	4.42	1.10	4.46	1.14

This variable was used to directly gauge people's perceptions of competence related to the target goal. It was hypothesized that sociability will be the main source of competence information. Indeed, a significant, large main effect of sociability was found, $Q = 42.31$, $p = .001$. The sociable target was judged as more likely to achieve his goal ($M = 4.19$, $SD = 1.44$, CI_{95}[3.9, 4.47]) than the non-sociable target ($M = 2.68$, $SD = 1.7$, CI_{95}[2.35, 3.01]). Furthermore, a relatively smaller, but significant main effect of target morality was found, $Q = 7.26$, $p = .009$. The moral target was judged to be more likely to achieve his goal of getting a raise for his co-worker ($M = 3.73$, $SD = 1.73$, CI_{95}[3.38, 4.07]) than the non-moral target who tried to fire his co-worker ($M = 3.03$, $SD = 2.3$, CI_{95}[2.59, 3.48]). No other effect

was found. This profile of results was the same for a regular ANOVA. These effects are illustrated in Figure 3.

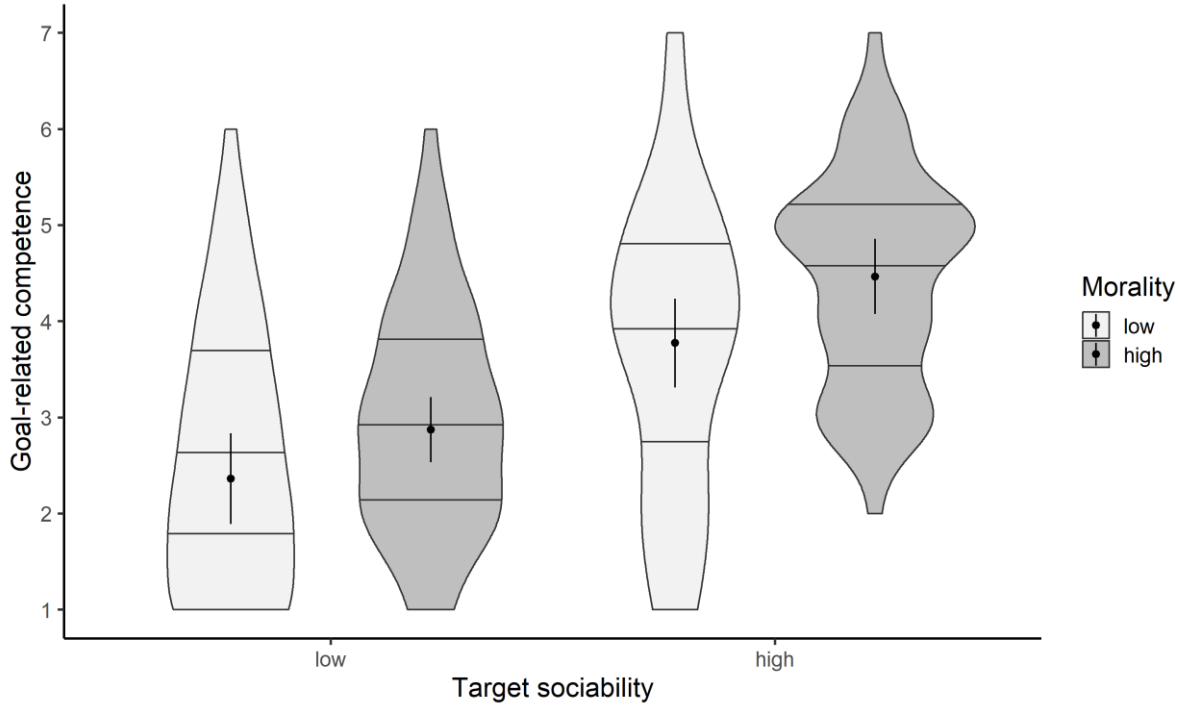

Figure 3. Violin plots with trimmed means (20%), 95% CIs, and quantiles (25%, 50%, 75%) illustrating effects found in the analysis of goal-related competence perceptions.

3.4 Confirmatory factor analysis of 18 character traits

Next, I tested whether there is a three-factor solution to be found in the data for the 18 trait judgements. There was an expectation to find a three-factor solution, in which 6 specific traits contributed to their respective factors of morality, sociability, and competence (see the full list of traits in Methods, 2.2.2). These three latent factors were allowed to correlate. The main goal was to confirm these factors from prior research (Landy et al., 2016), and to gain further support for the distinctive nature of morality and sociability domains. Therefore, a confirmatory factor analysis using the lavaan R package (Rosseel, 2012) was conducted. As the data was ordinal (7-point Likert scale) and non-normally distributed, the weighted least squares means and variance (WLSMV) estimator was used,

which is a recommended estimator for the analysis of categorical data, as it was found to outperform the robust most likelihood (RML) estimator in situations such as those of this study, even though it is known to overestimate the CFI and TLI values (Li, 2016). Although it is noted that the sample used was suboptimal in size, therefore the conclusions of this analysis should be interpreted with a reasonable amount of caution.

The hypothesized three-factor model fit the data somewhat well. Some indicators suggest a good fit, while others have questionable values. The model did not adequately reproduce the observed variance, as the chi-square statistic was quite big and significant $\chi^2(132, N = 199) = 205.68$, $p < .001$. More telling is that the χ^2/df ratio (1.56) was below 2.5. Good fit was suggested by some fit indices, such as the comparative fit index (CFI) = .982 and Tucker-Lewis index (TFI) = .979. Additionally, the factor loadings for morality (.91-1), sociability (.49-1.14), and competence (.78-.97) were all quite high and significant (all *ps* < .001), except for the competence item "intelligence" (only .08, $p = .754$). All the standardized factor loading can be found in Table 4. The residual indices, however, were not indicating good fit, as their values were even above .1 which is considered the upper limit of poor fit: standardized root mean square residual (SRMR) = .284 and root mean square error of approximation (RMSEA) = .181, CI_{90}[.131, .228].

Further analysis showed the hypothesized three-factor measurement model fit better than the alternative theoretical model, which postulates a two-dimensional approach to social perception consisting of warmth and competence ($\chi^2(135, N = 199) = 231.51$, $p < .001$, residual indices RMSEA = .207, CI_{90}[.161, .251] and SRMR = .258, CFI = .976, TLI = .973). Four of the six sociability traits even had negative loadings onto this broad warmth factor. A one factor model of general person evaluation had the worst fit from all the models, χ^2(135,

N = 199) = 273.89, $p < .001$, residual indices RMSEA = .246, CI_{90}[.131, .228] and SRMR = .311 both higher than the two and the three-factor models.

Overall, there was some limited evidence for the 33factor-factor solution, which provides some validation for the morality, sociability, and competence scores. These were analysed in the remainder of the results section.

Table 4.

Standardized loadings of each of the traits on their respective factors

Morality		Sociability		Competence	
moral	1	sociable	.89	competent	.97
principled	.99	warm	.86	capable	.9
honest	.98	friendly	.49	intelligent	**.08**
trustworthy	.97	easy-going	.67	effective	.84
fair	.98	extraverted	1.14	skilful	.78
responsible	.94	playful	.91	talented	.93

Note. The loading for "intelligence" is in bold as it is the only predictor item not fitting its predicted factor

3.5 Correlation analysis

Due to the data being ordinal, Spearman's correlation was used. All the correlations of all the dependent variables can be seen in Table 5. There are several noteworthy correlations. The relationship between the global impression rating and the morality score was the strongest, compared to sociability and competence scores, $r_s = .78$, $p < .001$. This is in line with the ANCOVA findings reported above. Additionally, morality scores were related more with competence ($r_s = .5$, $p < .001$) than sociability scores ($r_s = .38$, $p < .001$), which adds further support to the idea of morality and sociability being distinct dimensions of social perception. Indeed, the bigger relationship between morality and competence was expected, as I predicted a carryover effect of morality onto competence, a halo effect if you

will, as the vignette was lacking any information about trait competence. These initial results were further explored by conducting separate ANOVAs on the morality, sociability, and competence scores reported below. Perceptions of goal-related competence were also related more to sociability (r_s = .5, p < .001) and competence (r_s = .45, p < .001) scores which supplements the results of the robust ANOVA of this variable reported above.

Table 5.

Correlation table for all of the study variables (Spearman's rho)

Measure	1.	2.	3.	4.	5.
1. Global impression	–				
2. Goal related competence	.34**	–			
3. Morality	.78**	.23*	–		
4. Sociability	.48**	.50**	.38**	–	
5. Trait competence	.48**	.45**	.50**	.42**	–
6. Self-perceived Dominance	.10	-.01	.04	.01	0

*p < .01, **p < .001.

3.6 Morality ratings

A 2 x 2 x 2 ANOVA was conducted on the morality scores. All the assumptions of the test were met. The descriptive statistics for morality scores can be found in Table 6.

Table 6.

Descriptive statistics for the mean ratings of morality per condition

		Trustworthiness			
		low		high	
Morality	Sociability	*M*	*SD*	*M*	*SD*
low	low	2.46	1.19	2.69	1.16
low	high	2.02	.72	2.6	1.22
high	low	4.98	1.08	5.11	.96
high	high	5.21	1.12	5.01	1.24

There was no significant interaction between any of the independent variables. As can be seen on Figure 4, the analysis revealed a significant and a very large main effect of target morality, $F(1, 191) = 281.06$, $p < .001$, $\eta^2 = .594$. Moral targets were judged to be significantly more moral ($M = 5.07$, $SD = 1.09$) than immoral targets ($M = 2.46$, $SD = 1.12$), with the difference being large $d = 2.36$. Although obvious, this result shows that the crucial manipulation of target morality was successful. No main effect of sociability, $F(1, 191) = .39$, $p = .533$, $\eta^2 = .002$, nor trustworthiness, $F(1, 191) = 1.45$, $p = .231$, was found.

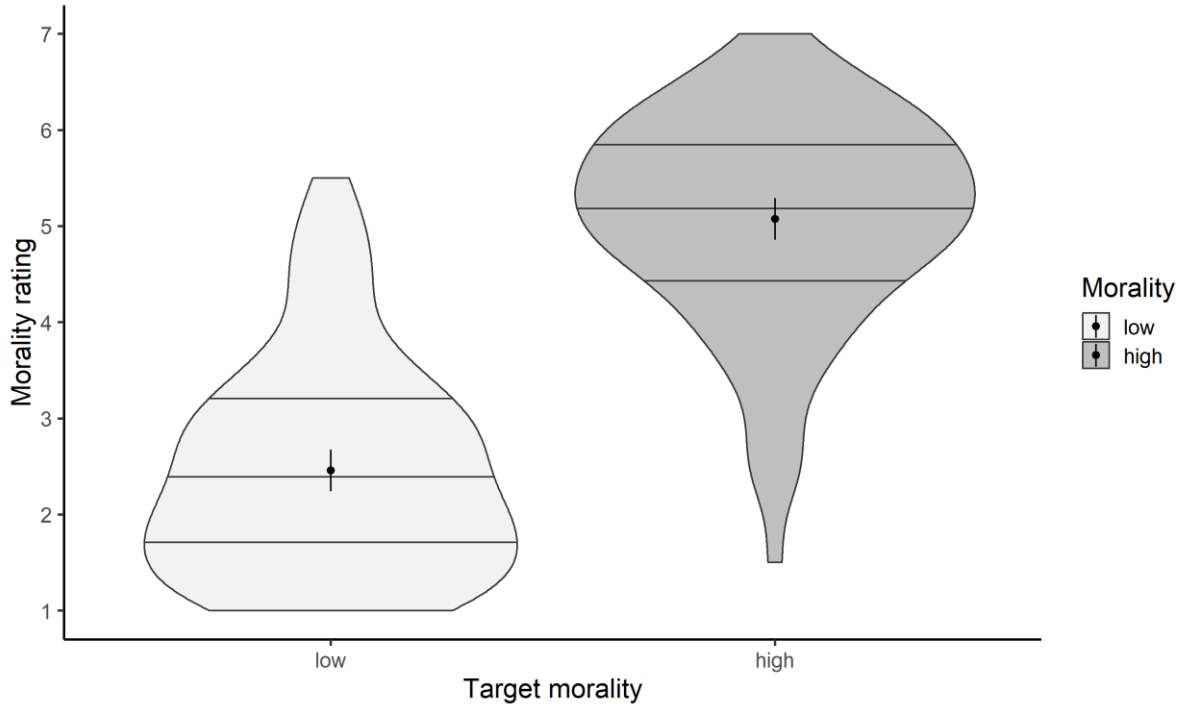

Figure 4. Violin plots with means, 95% CIs, and quantiles (25%, 50%, 75%) illustrating effects found in the analysis of average ratings of morality traits.

3.7 Sociability ratings

A 2 x 2 x 2 ANOVA was conducted on the sociability scores. All the assumptions of the test were met. The descriptive statistics for sociability scores can be found in Table 7.

Table 7.

Descriptive statistics for the mean ratings of sociability per condition

		Trustworthiness			
		low		high	
Morality	Sociability	*M*	*SD*	*M*	*SD*
low	low	2.8	.96	2.79	.75
low	high	3.87	1.3	3.88	1.12
high	low	2.82	1.05	3.22	.87
high	high	4.99	.82	5.04	1.08

No effect of face trustworthiness was found $F(1, 191) = .59$, $p = .44$. However, a large significant main effect of target sociability was found $F(1, 191) = 116.18$, $p < .001$, $\eta^2 = .377$. Sociable targets were perceived to be more sociable ($M = 4.44$, $SD = 1.22$) than unsociable targets ($M = 2.89$, $SD = .92$). This difference was large, $d = 1.44$. Additionally, a significant medium-to-large main effect of target morality was found, $F(1, 191) = 22.99$, $p < .001$, $\eta^2 = .111$. Moral targets were perceived as more sociable ($M = 4$, $SD = 1.4$) than immoral ($M = 3.31$, $SD = 1.16$) targets. This difference was smaller, $d = .54$. Crucially, a significant, somewhat medium sized interaction between target morality and sociability was observed $F(1, 191) = 10.37$, $p = .002$, $\eta^2 = .051$. Just as in the analysis of global impression, this result highlights the conditional nature of sociability upon morality and the morality dependence hypothesis (Landy et al., 2016). While target sociability made significantly large contributions to the sociability perceptions of moral targets ($M = 5.02$, $SD = .95$) compared to non-sociable moral targets ($M = 3$, $SD = .94$), $d = 2.09$, this contribution to the perceptions of sociable non-moral targets ($M = 3.87$, $SD = 1.19$) compared to the non-sociable non-moral targets ($M = 2.8$, $SD = .85$), was smaller, $d = 1.04$. No other effects were found. All the described effects can be found in Figure 5.

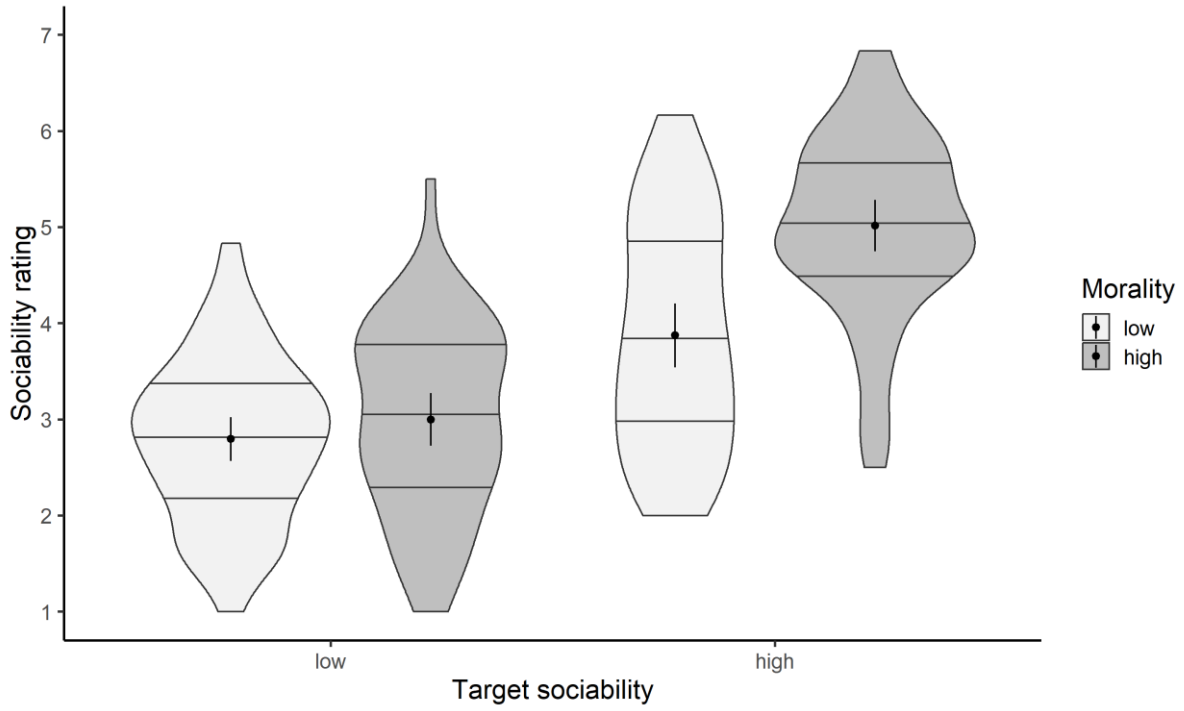

Figure 5. Violin plots with means, 95% CIs, and quantiles (25%, 50%, 75%) illustrating effects found in the analysis of average ratings of sociability traits.

3.8 Competence ratings

Lastly, a 2 x 2 x 2 ANOVA was used to analyse the competence ratings. All test assumptions were met. The descriptive statistics per each condition are in Table 8.

Table 8.

Descriptive statistics for the mean ratings of competence ratings per condition

		Trustworthiness			
		low		high	
Morality	Sociability	*M*	*SD*	*M*	*SD*
low	low	3.53	.88	3.88	1
low	high	4.11	1.1	4.02	1.17
high	low	4.6	.81	4.55	.48
high	high	5.06	.68	4.77	.82

Here, it was predicted to see a main effect of morality due to the lack of information about competence traits in the vignette, as a hypothesized main driving force behind the halo effect. As can be seen on Figure 6, there indeed was a significant large effect of morality $F(1, 191) = 44.02$, $p < .001$, $\eta^2 = .19$. Moral targets ($M = 4.73$, $SD = .73$) were perceived as more competent than immoral targets ($M = 3.88$, $SD = 1.05$), $d = .94$. Moreover, there was a significant small effect of sociability as well $F(1, 191) = 6.83$, $p = .01$, $\eta^2 = .003$. Sociable targets were judged as more competent ($M = 4.47$, $SD = 1.05$) than non-sociable targets ($M = 4.13$, $SD = .93$), $d = .34$. Once again, there was no main effect of face trustworthiness $F(1, 191) = .05$, $p = .82$.

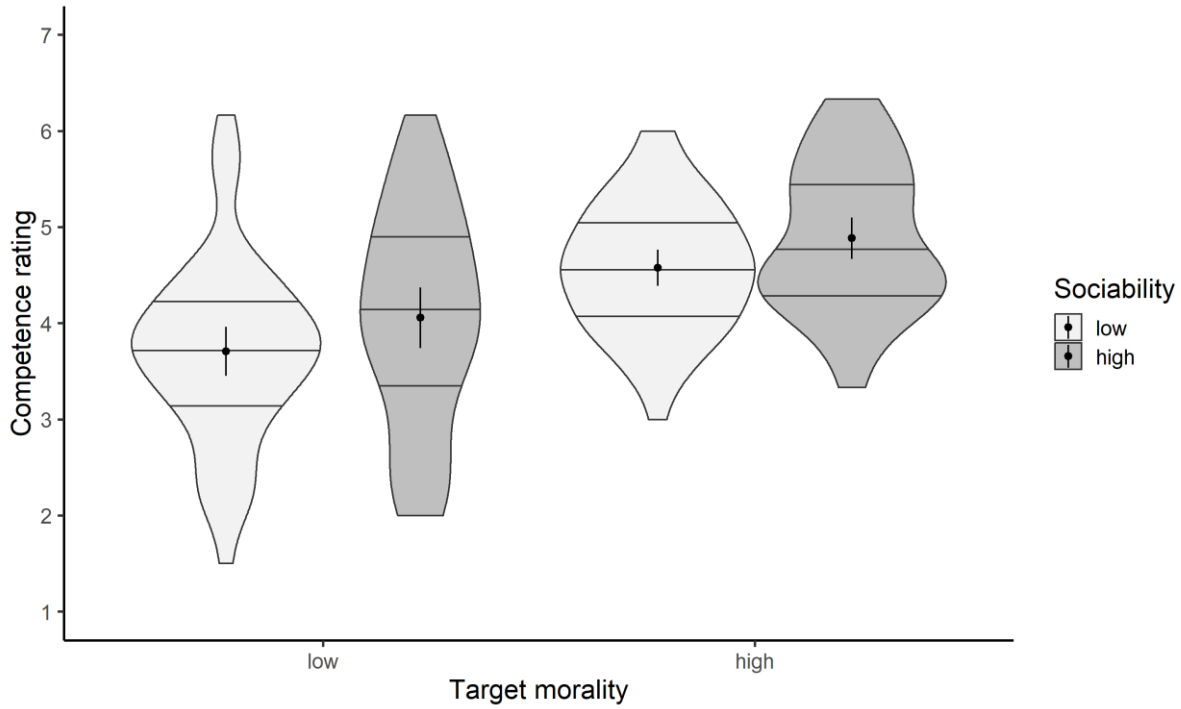

Figure 6. Violin plots with means, 95% CIs, and quantiles (25%, 50%, 75%) illustrating effects found in the analysis of average ratings of competence traits.

4. Discussion

Person perception is a complex process in which people use a variety of information sources of different types (e.g. faces, words, body language) to create judgments about other people. Even though person perception is a research topic with a long research history, unfortunately, the complex nature of this process is often ignored with investigations focusing solely on one source of information at a time. To remedy this, I argued that the dimensions of morality and sociability (Landy et al., 2016; Goodwin et al., 2014) from the social psychological models of person perception and the dimension of trustworthiness from face perception models (Oosterhof & Todorov, 2008) are conceptually similar (Sutherland et al., 2016), and these similarities across modality should be examined further. Using a between-subject design I investigated the relationship between these dimensions employing various measures of social perception their effects. Surprisingly, there was no difference in perceptions of faces varying in trustworthiness. Furthermore, morality was found to be the main driving force behind most of social perceptions, including those which were not manipulated in this study, while sociability did influence perceptions of social competence. This provides further evidence in support of morality and sociability being distinct dimensions of social perception. Lastly, more dominant people rated the same target more positively than less dominant ones, even though this relationship was small. People had to generalise their judgements based on a limited amount of information, which they readily did, with the exception of intelligence. The implications of these findings to previous research will be discussed.

4.1 Face trustworthiness

As ratings of several attributes relating to both morality and sociability, such as friendliness, caring, trustworthiness, warmth, and extraversion correlate highly with trustworthiness ratings (Oosterhof and Todorov, 2008; Hehman et al., 2015; Todorov, Dotsch, Porter, Oosterhof, & Falvello, 2013) I predicted face trustworthiness to have an influence on those perceptions. Further, facial trustworthiness and warmth judgements were highly related, as was shown by Sutherland (et al., 2016). Counter to my expectations, the manipulation of facial trustworthiness did not have an influence on any of the social judgements participants were asked to make, not corroborating the findings of Sutherland (et al., 2016). There are several possible explanations of this null findings.

Firstly, it could be that the utility/diagnostic value of the face trustworthiness was not strong enough compared to the textual information. This fits well with dyadic conceptualisations of person judgements (Gray et al., 2012), which argue that people have a strong drive to find the cause and effect in human social interactions. Current results support this argumentation, as intentionality was strongly expressed in the textual vignette, and it's been shown that perceived intentionality is crucial for social judgements (Reeder et al., 2002; Ames & Fiske, 2013). While not only relevant to judgements of intent, textual information can seem more concrete in other cases, too. One such case was a study by Brambilla (et al., 2011) who used both textual and facial information to cue group identity, yet only the textual manipulation was successful in eliciting group stereotype perceptions. A similar pattern of different information weighing was shown by Aviezerm, Trope, and Todorov (2012) who found people to rely on body cues instead of facial cues in their judgements of target emotions, even though people thought they relied on facial cues. Therefore, the perception task can alter the saliency of information of different modality

and it could be that morality is an especially strong cue in person perception, at least across social-descriptive and facial type of information. It is known that facial judgements have very poor accuracy (e.g. Rule et al., 2013; Todorov & Porter, 2014; Olivola et al., 2014) which potentially makes them an unreliable source of information in impression formation when other more reliable sources of information, such as morality/ intentionality are present. Indeed, morality has been shown to be an especially strong cue to social perceptions (Goodwin, 2015; Goodwin, Piazza, & Rozin, 2014; Brambilla & Leach, 2014) of others (Abele & Wojciszke, 2007; Cislak & Wojciszke, 2008). The current results only support its critical role in this process.

An alternative explanation is that the differences between facial stimuli used here were too subtle to elicit different perceptions. I used faces with neutral facial expression, as even faces subtly resembling emotions were shown to elicit different perceptions of trustworthiness (Montepare & Dobish, 2003; Said, Sebe, & Todorov, 2009). Furthermore, the difference between the ratings of trustworthiness between the two prototypes was about 1 standard deviation, which is lower than differences found in other studies (e.g. Oosterhof & Todorov, 2008; Swami et al., 2017; Todorov et al., 2013). While I had access to faces exhibiting strong positive and negative emotions, there were no available trustworthiness ratings of those faces. Further research on this topic could use stimuli exhibiting strong emotional expressions related to trustworthiness. This also has the benefit of increasing the effectiveness of the face manipulation while also reducing perceiver bias (Hehman et al., 2017). Additionally, the KDEF database used here (Lundqvist et al., 1998) does not capture age-related variance very well (Sutherland et al., 2013). Indeed, based on a large database of natural images capturing a larger variety of cues compared to KDEF, Sutherland and colleagues (2015) have shown that a prototypical trustworthy male face is

that of an elderly smiling man, whereas a young fair-skinned male with a neutral expression is the prototype of an untrustworthy male face. Both of these hypothetical explanations need to be empirically tested to resolve this issue.

4.2 Morality dominance hypothesis

The current results further support the unconditional positive nature of morality information found in previous work (Landy et al., 2016; Goodwin, 2015) - morality information always improved people's impressions of each of the dependent variables in the direction of the manipulation, even those unrelated to morality. Indeed, this is a direct replication of Study 3 of the critical Landy (et al., 2016) paper, but it is extended by the investigation of morality and sociability in the presence of cue of other modality – facial information. As predicted, it had the strongest positive effect on global impressions and perceptions of target morality. This complements findings from other research which found morality to be crucial in judgements of others, especially under circumstances of general impression formation (Goodwin et al., 2014; Landy et al., 2016; Goodwin, 2015) and in a non-comparative evaluation context (Judd et al., 2005; Kervyn et al, 2009). Morality also had a positive influence on the impression of target sociability and goal-related competence. This result concurs with the findings of Evans and van de Calseyde (2018) who also found trustworthy targets to be perceived as more sociable.

This last finding is connected to the observed halo effect driven by morality information. I also found morality produced the biggest (both positive and negative) halo effect when it came to participants' ratings of trait competence, which was otherwise missing in the study stimuli. This result supports the argument of trait desirability being driven by context (Abele & Wojciszke, 2007; Cislak & Wojciszke, 2008) with morality being

the most desirable trait in the context of first impression formation (Cottrell et al., 2007; Landy et al., 2016). Furthermore, as current research suggests only that positive information should drive stronger halo effects (Gräf & Unkelbach, 2016, 2018), another novel finding of this analysis is that morality and sociability information have different influence in driving this effect. To find even more detailed findings, future research should look at specific aspects of morality, and not treat it as a unified concept. Just like in person perception, there are also dimensional models of morality. One such example is the Moral Foundations Theory by Jonathan Haidt (2012), which claim morality consists of 6 distinct functional domains.

4.3 Morality dependence hypothesis

While sociability improved overall impressions of moral targets, it did not improve these impressions of immoral targets. Additionally, sociability improved the perceptions of moral targets more than immoral targets. Both of these results highlight the dependent nature or sociability upon morality. They are also understood well through a functionalist perspective utilised by models of person perception (e.g. Oosterhof & Todorov, 2008; Landy et al., 2016; Fiske, 2018) – if someone has bad intentions (low morality), we should not prefer them to be able to carry them out (high sociability). Once again, this is a direct replication of Study 3 of Landy and colleagues (2016), with the added value of it being tested in an environment where facial cues were also available as sources of information. Furthermore, sociability was the strongest source of information for goal related competence judgements, being a direct measure of social competence, just as previous research has conceptualised it (Landy et al., 2016; Altogether, these results add to the already existing evidence in support of morality and sociability being as two distinct

dimensions of person perception (e.g. Leach et al., 2007; Brambilla et al., 2011, 2012, 2013; Brambilla & Leach, 2014; Goodwin et al., 2014; Goodwin, 2015; Landy et al., 2016) instead of conflating them under one label (Abele & Wojciszke, 2007; Fiske, 2018). Instead of morality and sociability being processed in the same way, my results suggest they are distinct sources of information affecting different judgements. The analysis of the composite ratings of morality, sociability, and competence also show this distinctiveness, as strong, dimension related halo effects were observed – from a short target description of a person's behavior and two character traits people successfully generalised this information to their respective domains (with some cross-dimensional effects, as discussed above) when they were judging the target on 18 character traits.

Furthermore, these generalizations were better explained by a model composed of morality, sociability, and competence, instead of a two-factor model. Although previous research found intelligence to be related to competence perceptions strongly (Cuddy et al. 2008; Wojciszke, 2005; Brambilla & Riva, 2017, Landy et al., 2016) and it was used as it was found to be a strong indicator of competence perceptions (Goodwin et al., 2014), in this study it was a surprisingly very poor predictor of competence perceptions. In a study by Goodwin and colleagues (2014) who used factor analysis to derive the relatedness of intelligence to competence, they used the same 18 adjectives for this analysis. However, in their case the 18 adjectives were derived from participant's judgements of people they already know, i.e. they had full knowledge of their character. In this study, it seems that in the absence of explicit information on target intelligence, participants found it hard to systematically extend their generalisations onto intelligence. This is a curious finding, possibly suggesting that intelligence is a specific and special kind of competence. Further

testing the relationship between intelligence and other competence indicators should be investigated further.

4.4 Self-perceived dominance

While largely understudied, perceiver effects do influence a big part of social judgements (Hehman et al., 2017), therefore I decided to test the effects of self-perceived dominance, which is crucial from a functionalist evolutionary perspective. As competence/dominance is crucial to self-perceptions of ability (Wojciszke & Bialobrzeska, 2014; Gebauer, Wagner, Sedikides, & Neberich, 2013), and increased threat drives our perceptions of other's dominance (Fessler & Holbrook, 2013a, 2013b), I hypothesised that people perceiving themselves higher in dominance will feel less threatened, and therefore would rate targets more positively than less dominant and more threatened people. Indeed, the results support this hypothesis, although this relationship was small very small, r = .1.

The only somewhat similar study which tested the effects of self-perceived dominance was that of Stirrat and Perret (2010) who looked at how it is related to people's judgements of trustworthiness under a forced choice paradigm. they found women's self-perceived dominance to be negatively related to their preference for a less dominant male face (r = -.17), I.e. the less dominant they perceived themselves to be, the less they preferred the less dominant face but perceived the more dominant male face as more trustworthy instead. Compared to this study, I did not find any gender differences in the self-perceived dominance effect. Moreover, it would be expected that less dominant females would be more sensitive to dominance/threat cues (as in the current study), but instead, they could have utilised gender stereotypical knowledge instead. This relationship between self-perceived dominance and social perception is yet unclear and demands

further testing. Testing the effects of self-perceived dominance under conditions of varying degree of threat would be an interesting avenue for further research – one would expect its effects to manifest more under extreme threat.

There is an abundance of other perceiver characteristics which can have influence, just as these were discussed in the literature review. Another idiosyncratic characteristic which is related to the functionalist perspective is self-perceived morality (also raised by Landy et al., 2016). As the scatterplot of Figure 2 shows, most people exhibit a positivity bias when it comes to self-perceived dominance – the same yet stronger bias has been shown with people's self-perceptions of morality/goodness (Tappin & McKay, 2017). It could be interesting to explore how this variable influences the perceptions of other people's character.

Methodologically speaking, the investigation of self-perceived dominance in the current study also shows an alternative way of using the Self-Assessment Manikin in research. Instead of using it to gauge transient feelings elicited by the presentation of objects, it can be used to gauge stable self-perceptions. I encourage the use of such measures in further research as an easy to administer and direct measure of self-perceptions.

4.5 Strengths, limitations, and further research

As it was the purposeful aim of this research to investigate impression formation in a more ecologically valid environment, it is its inherent strength. Additionally, the sample size was large enough to detect the quite sizeable main effects of this analysis, with the exception of the factor analysis. The nature of facial stimuli is discussed above. However, there were some potential conceptual issues with this study.

While I found further support for the distinctiveness of morality and sociability, it has to be acknowledged that this support was achieved using the same experimental materials as Landy and colleagues (2016) used in their study. While the current results can certainly comment on the reliability of these materials, the results should still be interpreted within this framework. Indeed, while there is growing support for the three dimensional social psychological model of person perception, the model composed of warmth and competence is still respectable and very useful (Fiske, 2018). Indeed, it should be noted that while in this study I used character traits which are supposed to be relevant to morality and sociability respectively, there are also traits which are highly relevant to both of these dimensions (Study 1, Goodwin et al., 2014). Why this happens is poorly understood and is a challenge which future research on this topic needs to tackle before this model becomes superior in explanatory power than its predecessor.

Another potential methodological limitation are the tools used in this study to measure people's perceptions. As was noted by Sutherland (et al., 2016), research on social psychological and facial person perception uses different stimuli, and it is not clear whether judgements people make are conceptually the same or whether they map similarly onto people's social judgements. The measures used in the current study were all from social psychological research and were designed to gauge impressions of the three-dimensional model (Study 3, Goodwin et al., 2014; Studies 1a & 1b, Landy et al., 2016). While Sutherland found high overlap in judgements of trustworthiness and warmth made from faces, which suggests some conceptual similarity between the two dimensions, no one has yet established this for judgements based on verbal target descriptions. Therefore, further research should strive to further investigate the conceptual similarity between facial and social psychological models, by asking participants to provide ratings for warmth (or

morality and sociability), competence, trustworthiness, and dominance based on verbal character descriptions. Overall, it is still not clear whether these two fields can be integrated as there are still some methodological barriers preventing this from happening. Future research should further identify and investigate these.

5. Conclusion

The results of the present study speak to the complexity of human social judgement. Exploring the similarities between social psychological and facial models of person perception, participants were asked to make first impression judgements based on facial and textual character cues which were presented together. The results of these judgements suggest people rely on language cues, while largely ignoring facial cues. More specifically, information about other people's moral character is the biggest driving force behind our overall impressions of people, as perceptions of other than moral attributes are often dependent on our perceptions of morality. The social ability of others also plays a role under these circumstances, but it is much more limited to perceptions of social ability. Additionally, our idiosyncratic self-perceptions of dominance also influence how we judge the threat others pose to us, and the more dominant we see ourselves the less threatened we feel. While no relationship between the social psychological and facial models of person perception was found, several potential barriers preventing integration were identified. Social perception research should strive to understand these barriers in order to truly investigate whether different models of social perception are similar enough to be integrated, or are fully distinct from each other.

6. References

Abele, A. E., & Bruckmüller, S. (2011). The bigger one of the "big two"? preferential processing of communal information. *Journal of Experimental Social Psychology, 47*(5), 935. doi:10.1016/j.jesp.2011.03.028

Abele, A. E., & Wojciszke, B. (2007). Agency and communion from the perspective of self versus others. *Journal of Personality and Social Psychology, 93*(5), 751-763. doi:10.1037/0022-3514.93.5.751

Abele, A. E., & Wojciszke, B. (2013). The big two in social judgment and behavior. *Social Psychology, 44*(2), 61-62. doi:10.1027/1864-9335/a000137

Abele, A. E., Cuddy, A. J. C., Judd, C. M., & Yzerbyt, V. Y. (2008). Fundamental dimensions of social judgment. *European Journal of Social Psychology, 38*(7), 1063-1065. doi:10.1002/ejsp.574

Abele, A., & Wojciszke, B. (2014). Communal and agentic content in social cognition: A dual perspective model. *Advances in Experimental Social Psychology*, *50*, 198-255.

Abele, A., & Wojciszke, B. (2014). Communal and agentic content in social cognition: A dual perspective model. *Advances in Experimental Social Psychology*, *50*, 198-255. doi: 10.1016/B978-0-12-800284-1.00004-7

Ames, D. L. & Fiske, S. T. (2013). Intentional Harms Are Worse, Even When They're not. *Psychological Science, 24*(9), 1755-1762. doi: 0956797613480507

Antonakis, J., & Dalgas, O. (2009). Predicting elections: Child's play!. *Science*, *323*, 1183. doi:10.1126/science.1167748

Antonakis, J., & Dalgas, O. (2009). Predicting elections: Child's play! Science, *323*, 1183. doi:10.1126/science.1167748

Aviezer, H., Trope, Y., & Todorov, A. (2012). Body Cues, Not Facial Expression, Discriminate Between Intense Positive and Negative Emotions. *Science*, *338*(6111), 1225-1229. doi:10.1126/science.1224313

Aviezer, H., Trope, Y., & Todorov, A. (2012). Body Cues, Not Facial Expression, Discriminate Between Intense Positive and Negative Emotions. *Science*, *338*(6111), 1225-1229. doi:10.1126/science.1224313

Bakan, D. (1966). *The duality of human existence*. Reading, PA: Addison-Wesley.

Balas, B., & Pacella, J. (2017). Trustworthiness perception is disrupted in artificial faces. *Computers in Human Behavior, 77*, 240-248. doi:10.1016/j.chb.2017.08.045

Birkás, B., Dzhelyova, M., Lábadi, B., Bereczkei, T., & Perrett, D. I. (2014). Cross-cultural perception of trustworthiness: The effect of ethnicity features on evaluation of faces' observed trustworthiness across four samples. *Personality and Individual Differences, 69*, 56-61. doi:10.1016/j.paid.2014.05.012

Blair, I. V., Judd, C. M., & Chapleau, K. M. (2004). The influence of Afrocentric facial features in criminal sentencing. *Psychological Science, 15*, 674–79. doi:10.1111/j.0956-7976.2004.00739.x

Bradley, M. M., & Lang, P. J. (1994). Measuring emotion: The self-assessment manikin and the semantic differential. *Journal of Behavior Therapy and Experimental Psychiatry, 25*(1), 49-59. 10.1016/0005-7916(94)90063-9

Brambilla, M., & Leach, C. W. (2014). On the Importance of Being Moral: The Distinctive Role of Morality in Social Judgment. *Social Cognition*. *32*(4), pp. 397-408. doi:10.1521/soco.2014.32.4.397

Brambilla, M., & Riva, P. (2017). Predicting pleasure at others' misfortune: Morality trumps sociability and competence in driving deservingness and schadenfreude. *Motivation and Emotion, 41*(2), 243-253. doi:10.1007/s11031-016-9594-2

Brambilla, M., Rusconi, P., Sacchi, S., & Cherubini, P. (2011). Looking for honesty: The primary role of morality (vs. sociability and competence) in information gathering. *European Journal of Social Psychology*, *41*(2), 135-143. doi:10.1002/ejsp.744

Brambilla, M., Rusconi, P., Sacchi, S., & Cherubini, P. (2011). Looking for honesty: The primary role of morality (vs. sociability and competence) in information gathering. *European Journal of Social Psychology, 41*(2), 135-143. doi:10.1002/ejsp.744

Brambilla, M., Sacchi, S., Pagliaro, S., & Ellemers, N. (2013). Morality and intergroup relations: Threats to safety and group image predict the desire to interact with outgroup and ingroup members. *Journal of Experimental Social Psychology, 49*(5), 811-821. doi:10.1016/j.jesp.2013.04.005

Brambilla, M., Sacchi, S., Rusconi, P., Cherubini, P., & Yzerbyt, V. Y. (2012). You want to give a good impression? be honest! moral traits dominate group impression formation. *The British Journal of Social Psychology, 51*(1), 149-166. doi:10.1111/j.2044-8309.2010.02011.x

Bruckmüller, S. & Abele, A. E. (2013). The density of the Big Two: How are agency and communion structurally represented? *Social Psychology*, *44*, 63-74. doi: 10.1027/1864-9335/a000145

Carré, J.M., McCormick, C.M., & Mondloch, C.J. (2009). Facial structure is a reliable cue of aggressive behavior. Psychological Science, *20*, 1194–1198. doi:10.1111/j.1467-9280.2009.02423.x

Caulfield, F., Ewing, L., Bank, S., & Rhodes, G. (2016). Judging trustworthiness from faces: Emotion cues modulate trustworthiness judgments in young children. *British Journal of Psychology, 107*(3), 503-518. doi:10.1111/bjop.12156

Cislak, A. & Wojciszke, B. (2008). Agency and communion are inferred from actions serving interests of self or others. *European Journal of Social Psychology, 38,* 1103-1110. doi: 10.1002/ejsp.554

Cogsdill, E. J., Todorov, A. T., Spelke, E. S., & Banaji, M. R. (2014). Inferring character from faces: A developmental study. *Psychological Science, 25*(5), 1132-1139. doi:10.1177/0956797614523297

Cottrell, C. A., Neuberg, S. L., & Li, N. P. (2007). What do people desire in others? A sociofunctional perspective on the importance of different valued characteristics. *Journal of Personality and Social Psychology, 92*(2), 208-231. doi:10.1037/0022-3514.92.2.208

Cuddy, A. J. C., Fiske, S. T., & Glick, P. (2008). Warmth and competence as universal dimensions of social perception: The stereotype content model and the BIAS map. *Advances in experimental social psychology*, *40*, 61-149. doi:10.1016/S0065-2601(07)00002-0

Cuddy, A. J. C., Glick, P., & Beninger, A. (2011). The dynamics of warmth and competence judgments, and their outcomes in organizations. *Research in Organizational Behavior, 31*, 73-98. doi:10.1016/j.riob.2011.10.004

Curry, O., & Dunbar, R. I. M. (2011). Altruism in networks: The effects of connections. *Biology Letters*, *7*, 651-653. doi:10.1098/rsbl.2010.1202

de Bruin, E. N. M., & van Lange, P. A. M. (1999). Impression formation and cooperative behavior. *European Journal of Social Psychology, 29*(2-3), 305-328. doi:10.1002/(SICI)1099-0992(199903/05)29:2/3<305::AID-EJSP929>3.0.CO;2-R

Dotsch, R., & Todorov, A. (2011). Reverse correlating social face perception. *Social Psychological and Personality Science*, *3*(5), 562–571. doi:10.1177/1948550611430272.

Engell, A. D., Haxby, J. V., & Todorov, A. (2007). Implicit trustworthiness decisions: Automatic coding of face properties in the human amygdala. *Journal of Cognitive Neuroscience, 19*(9), 1508-1519. doi:10.1162/jocn.2007.19.9.1508

Evans, A. M., & van de Calseyde, P. (2018). The reputational consequences of generalized trust. *Personality and Social Psychology Bulletin*, *44*(4), 492-507. doi:10.1177/0146167217742886

Evans, A. M., & van de Calseyde, P. (2018). The reputational consequences of generalized trust. *Personality and Social Psychology Bulletin, 44*(4), 492-507. doi:10.1177/0146167217742886

Fessler, D. M. T., & Holbrook, C. (2013a). Bound to lose: Physical incapacitation increases the conceptualized size of an antagonist in men. *PLoS ONE, 8,* e71306. doi:10.1371/journal.pone.0071306

Fessler, D. M. T., & Holbrook, C. (2013b). Friends shrink foes: The presence of comrades decreases the envisioned physical formidability of an opponent. *Psychological Science, 24,* 797–802. doi:10.1177/0956797612461508

Fiske, S. T. (2018). Stereotype content: Warmth and competence endure. *Current Directions in Psychological Science, 27*(2), 67-73. doi:10.1177/0963721417738825

Fiske, S. T., Cuddy, A. J. C., & Glick, P. (2007). Universal dimensions of social cognition: Warmth and competence. *Trends in Cognitive Sciences, 11*(2), 77-83. doi:10.1016/j.tics.2006.11.005

Fiske, S. T., Cuddy, A. J. C., Glick, P., & Xu, J. (2002). A model of (often mixed) stereotype content: Competence and warmth respectively follow from perceived status and competition. *Journal of Personality and Social Psychology, 82*(6), 878-902. doi:10.1037/0022-3514.82.6.878

Gebauer, J. E., Wagner, J., Sedikides, C., & Neberich, W. (2013). Agency-communion and self-esteem relations are moderated by culture, religiosity, age, and sex: Evidence for the "self-centrality breeds self-enhancement" principle. *Journal of Personality, 81*(3), 261. doi:10.1111/j.1467-6494.2012.00807.x

Goetz, S. M. M., Shattuck, K. S., Miller, R. M., Campbell, J. A., Lozoya, E. (et al. 2013). Social status moderates the relationship between facial structure and aggression. *Psychological Science, 24*, 2329–34. doi:10.1177/0956797613493294

Goodwin, G. P. (2015). Moral character in person perception. *Current Directions in Psychological Science, 24*(1), 38-44. doi:10.1177/0963721414550709

Goodwin, G. P. (2015). Moral character in person perception. *Current Directions in Psychological Science, 24*(1), 38-44. doi:10.1177/0963721414550709

Goodwin, P., Piazza, J., & Rozin, P. (2014). Moral Character Predominates in Person Perception and Evaluation. *Journal of Personality and Social Psychology*, *106*(1), 148-168. doi:10.1037/a0034726

Gräf, M. & Unkelbach, C. (2016). Halo Effects in Trait Assessment Depend on Information Valence: Why Being Honest Makes You Industrious, but Lying Does Not Make You Lazy. *Personality and Social Psychology Bulletin*, *42*(3), 290–310. doi: 10.1177/0146167215627137

Gräf, M. & Unkelbach, C. (2018). Halo effects from agency behaviors and communion behaviors depend on social context: Why technicians benefit more from showing tidiness than nurses do. *European Journal of Social Psychology*, *48*, 701–717. doi: 10.1002/ejsp.2353.

Graham, J. R, Harvey, C. R., & Puri, M. (2017). A corporate beauty contest. *Management Science, 66*(9), 3044-3056. doi:10.1287/mnsc.2016.2484

Gray, K., Young, L., & Waytz, A. (2012). Mind perception is the essence of morality. *Psychological Inquiry, 23*(2), 101-124. doi:10.1080/1047840X.2012.651387

Haidt, J. (2012) *The righteous mind: Why good people are divided by politics and religion*. New York: Pantheon.

Hehman, E., Flake, J. K., & Freeman, J. B. (2015). Static and dynamic facial cues differentially affect the consistency of social evaluations. *Personality and Social Psychology Bulletin, 41*(8), 1123-1134. doi:10.1177/0146167215591495

Hehman, E., Leitner, J. B., & Gaertner, S. L. (2013). Enhancing static facial features increases intimidation. *Journal of Experimental Social Psychology*, *49*, 747-754. doi:10.1016/j.jesp.2013.02.015

Hehman, E., Sutherland, C. A. M., Flake, J. K., & Slepian, M. L. (2017). The unique contributions of perceiver and target characteristics in person perception. *Journal of Personality and Social Psychology, 113*(4), 513-529. doi:10.1037/pspa0000090

Hess, U., Blairy, S., & Kleck, R. E. (2000). The influence of facial emotion displays, gender, and ethnicity on judgments of dominance and affiliation. *Journal of Nonverbal Behavior, 24*(4), 265-283. doi:10.1023/A:1006623213355

Hess, U., Blairy, S., & Kleck, R. E. (2000). The influence of facial emotion displays, gender, and ethnicity on judgments of dominance and affiliation. *Journal of Nonverbal Behavior, 24*(4), 265-283. doi:10.1023/A:1006623213355

Judd, C. M., James-Hawkins, L., Yzerbyt, V., & Kashima, Y. (2005). Fundamental dimensions of social judgment: Understanding the relations between judgments of competence and warmth. *Journal of Personality and Social Psychology, 89*(6), 899-913. doi:10.1037/0022-3514.89.6.899

Kervyn, N., Yzerbyt, V. Y., Judd, C. M., & Nunes, A. (2009). A question of compensation: The social life of the fundamental dimensions of social perception. *Journal of Personality and Social Psychology, 96*(4), 828–842. doi:10.1037/a0013320

Knutson, B. (1996). Facial expressions of emotion influence interpersonal trait inferences. *Journal of Nonverbal Behavior, 20*(3), 165-182. doi:10.1007/BF02281954

Landy, F., Piazza, J., & Goodwin, G. P. (2016). When It's Bad to be Friendly and Smart: The Desirability of Sociability and Competence Depends on Morality. *Personality and Social Psychology Bulletin*, *42*(9), 1272-1290. doi:10.1177/0146167216655984

Landy, J. F., Piazza, J., & Goodwin, G. P. (2016). When it's bad to be friendly and smart: The desirability of sociability and competence depends on morality. *Personality & Social Psychology Bulletin, 42*(9), 1272-1290. doi:10.1177/0146167216655984

Leach, C. W., Ellemers, N., & Barreto, M. (2007). Group virtue: The importance of morality (vs. competence and sociability) in the positive evaluation of in-groups. *Journal of Personality and Social Psychology*, *93*(2), 234-249. doi:10.1037/0022-3514.93.2.234

Li, C. (2016). Confirmatory factor analysis with ordinal data: Comparing robust maximum likelihood and diagonally weighted least squares. *Behavior Research Methods, 48*(3), 936-949. doi:10.3758/s13428-015-0619-7

Lundqvist, D., Flykt, A., & Öhman, A. (1998). *The Karolinska Directed Emotional Faces—KDEF*. Department of Clinical Neuroscience, Psychology section, Karolinska Institutet, Stockholm, Sweden.

Mair, P., & Wilcox, R (2018). WRS2: Wilcox robust estimation and testing. R package version 0.10-0. https://CRAN.R-project.org/package=WRS2

Mazur, A., Halpern, C., & Udry, J. R. (1994). Dominant looking male teenagers copulate earlier. *Ethology and Sociobiology*, *15*(2), 87 - 94. doi:10.1016/0162-3095(94)90019-1

Monin, B., Sawyer, P. J., & Marquez, M. J. (2008). The rejection of moral rebels: Resenting those who do the right thing. *Journal of Personality and Social Psychology, 95*(1), 76-93. doi:10.1037/0022-3514.95.1.76

Montepare, J. M., & Dobish, H. (2003). The contribution of emotion perceptions and their overgeneralizations to trait impressions. *Journal of Nonverbal Behavior, 27*(4), 237-254. doi:10.1023/A:1027332800296

Oldmeadow, J. A., Sutherland, C. A. M., & Young, A. W. (2013). Facial stereotype visualization through image averaging. *Social Psychological and Personality Science, 4*(5), 615-623. doi:10.1177/1948550612469820

Olivola, C. Y., & Todorov, A. (2010). Elected in 100 milliseconds: Appearance-based trait inferences and voting. *Journal of Nonverbal Behavior, 34*(2), 83-110. doi:10.1007/s10919-009-0082-1

Olivola, C. Y., & Todorov, A. (2010). Fooled by first impressions? reexamining the diagnostic value of appearance-based inferences. *Journal of Experimental Social Psychology, 46*(2), 315-324. doi:10.1016/j.jesp.2009.12.002

Olivola, C. Y., Funk, F., & Todorov, A. (2014). Social attributions from faces bias human choices. *Trends in Cognitive Sciences, 18*(11), 566-570. doi:10.1016/j.tics.2014.09.007

Oosterhof, N. N., & Todorov, A. (2008). The functional basis of face evaluation. *Proceedings of the National Academy of Sciences of the United States of America, 105*(32), 11087-11092. doi:10.1073/pnas.0805664105

Over, H., & Cook, R. (2018). Where do spontaneous first impressions of faces come from? *Cognition, 170*, 190-200. doi:10.1016/j.cognition.2017.10.002

Pagliaro, S., Brambilla, M., Sacchi, S., D'Angelo, M., & Ellemers, N. (2013). Initial impressions determine behaviours: Morality predicts the willingness to help newcomers. *Journal of Business Ethics, 117*(1), 37-44. doi:10.1007/s10551-012-1508-y

Pagliaro, S., Ellemers, N., Barreto, M., & Di Cesare, C. (2016). Once dishonest, always dishonest? the impact of perceived pervasiveness of moral evaluations of the self on motivation to restore a moral reputation. *Frontiers in Psychology, 7*, 586. doi:10.3389/fpsyg.2016.00586

Piazza, J., Goodwin, G. P., Rozin, P., & Royzman, E. B. (2014). When a Virtue is Not a Virtue: Conditional Virtues in Moral Evaluation. *Social Cognition, 32*(6), 528-558. doi:10.1521/soco.2014.32.6.528

Puts, D. A., Gaulin, S. J. C., & Verdolini, K. (2006). Dominance and the evolution of sexual dimorphism in human voice pitch. *Evolution and Human Behavior, 27*(4), 283-296. doi:10.1016/j.evolhumbehav.2005.11.003

Reeder, G. D., Kumar, S., Hesson-McInnis, M. S., & Trafimow, D. (2002). Inferences about the morality of an aggressor: The role of perceived motive. *Journal of Personality and Social Psychology, 83*(4), 789-803. doi:10.1037//0022-3514.83.4.789

Rosenberg, S., Nelson, C., & Vivekananthan, P. S. (1968). a multidimensional approach to the structure of personality impressions. *Journal of Personality and Social Psychology, 9*(4), 283-294. doi:10.1037/h0026086

Rosseel, Y. (2012). lavaan: An R Package for Structural Equation Modeling. *Journal of Statistical Software*, *48*(2), 1-36. URL http://www.jstatsoft.org/v48/i02/.

Rowland, D. A., & Perrett, D. I. (1995). Manipulating facial appearance through shape and color. *IEEE Computer Graphics and Applications*, *15*(5), 70–76.

Rule, N. O., Ambady, N., Adams, R. B., Ozono, H., Nakashima, S., Yoshikawa, S., & Watabe, M. (2010). Polling the face: Prediction and consensus across cultures. *Journal of Personality and Social Psychology, 98*(1), 1-15. doi:10.1037/a0017673é

Rule, N. O., Krendl, A. C., Ivcevic, Z., & Ambady, N. (2013). Accuracy and consensus in judgments of trustworthiness from faces: Behavioral and neural correlates. *Journal of Personality and Social Psychology, 104*(3), 409-426. doi:10.1037/a0031050

Said, C. P., Sebe, N., & Todorov, A. (2009). Structural resemblance to emotional expressions predicts evaluation of emotionally neutral faces. *Emotion*, *9*, 260–264. doi:10.1037/a0014681

Simpson, B., Willer, R., & Harrell, A. (2017). The enforcement of moral boundaries promotes cooperation and prosocial behavior in groups. *Scientific Reports, 7*(1), 42844. doi:10.1038/srep42844

Stirrat, M., & Perrett, D. I. (2010). Valid facial cues to cooperation and trust: Male facial width and trustworthiness. *Psychological Science, 21*(3), 349-354. doi:10.1177/0956797610362647

Strohminger, N., & Nichols, S. (2014). The essential moral self. *Cognition, 131*(1), 159-171. doi:10.1016/j.cognition.2013.12.005

Sutherland, C. A. M., Liu, X., Chu, Y., Zhang, L., Oldmeadow, J., & Young, A. (2015). Chinese perceivers' facial first impressions. *Journal of Vision*, *15*(12), 1218. doi:10.1167/15.12.1218

Sutherland, C. A. M., Oldmeadow, J. A., & Young, A. W. (2016). Integrating social and facial models of person perception: Converging and diverging dimensions. *Cognition, 157*, 257-267. doi:10.1016/j.cognition.2016.09.006

Sutherland, C. A. M., Oldmeadow, J. A., Santos, I. M., Towler, J., Michael Burt, D., & Young, A. W. (2013). Social inferences from faces: Ambient images generate a three-dimensional model. *Cognition, 127*(1), 105-118. doi:10.1016/j.cognition.2012.12.001

Sutherland, C. A. M., Young, A. W., Mootz, C. A., & Oldmeadow, J. A. (2015). Face gender and stereotypicality influence facial trait evaluation: Counter-stereotypical female faces are negatively evaluated. *British Journal of Psychology, 106*(2), 186-208. doi:10.1111/bjop.12085

Sutherland, C. A. M., Young, A. Y., & Rhodes, G. (2017). Facial first impressions from another angle: How social judgements are influenced by changeable and invariant facial properties. *British Journal of Psychology*, *108*, 397-415. doi:10.1111/bjop.12206

Swami, V., Arthey, E., & Furnham, A. (2017). Perceptions of plagiarisers: The influence of target physical attractiveness, transgression severity, and sex on attributions of guilt and punishment. *Body Image, 22*, 144-147. doi:10.1016/j.bodyim.2017.06.009

Tappin, B. M., & McKay, R. T. (2017). The illusion of moral superiority. *Social Psychological and Personality Science, 8*(6), 623-631. doi:10.1177/1948550616673878

Tausch, N., Kenworthy, J., & Hewstone, M. (2007). The confirmability and disconfirmability of trait concepts revisited: Does content matter? *Journal of Personality and Social Psychology*, *92*, 542–556. doi:10.1037/0022-3514.92.3.542

Tiddemanm B., Burt, D. M., & Perret, D. (2001). Prototyping and transforming facial textures for perception research. *IEEE Computer Graphics and Applications*, *21*(5), 42-50. doi.org/10.1109/38.946630

Todorov, A. T., Dotsch, R., Porter, J. M., Oosterhof, N. N., & Falvello, V. B. (2013). Validation of data-driven computational models of social perception of faces. *Emotion, 13*(4), 724-738. doi:10.1037/a0032335

Todorov, A., & Duchaine, B. (2008). Reading trustworthiness in faces without recognizing faces. *Cognitive Neuropsychology, 25*(3), 395-410. doi:10.1080/02643290802044996

Todorov, A., & Oosterhof, N. N. (2011). Modeling Social Perception of Faces. *IEEE Signal Processing Magazine*, *28*(2), 117-122. doi: 10.1109/MSP.2010.940006

Todorov, A., & Porter, J. M. (2014). Misleading first impressions: Different for different facial images of the same person. *Psychological Science, 25*(7), 1404-1417. doi:10.1177/0956797614532474

Todorov, A., Olivola, C. Y., Dotsch, R., & Mende-Siedlecki, P. (2015). Social attributions from faces: Determinants, consequences, accuracy, and functional significance. *Annual Review of Psychology, 66*(1), 519-545. doi:10.1146/annurev-psych-113011-143831

Todorov, A., Olivola, C. Y., Dotsch, R., & Mende-Siedlecki, P. (2015). Social attributions from faces: Determinants, consequences, accuracy, and functional significance. *Annual Review of Psychology, 66*(1), 519-545. doi:10.1146/annurev-psych-113011-143831

Todorov, A., Pakrashi, M., & Oosterhof, N. N. (2009). Evaluating faces on trustworthiness after minimal time exposure. *Social Cognition*, *27*, 813-833. doi:10.1521/soco.2009.27.6.813

Valentine, K. A., Li, N. P., Penke, L., & Perrett, D. I. (2014). Judging a man by the width of his face the role of facial ratios and dominance in mate choice at speed-dating events. *Psychological Science*, *25*, 806–811. doi:10.1177/0956797613511823

van Leeuwen, F., Park, J. H., & Penton-Voak, I. S. (2012). Another fundamental social category? spontaneous categorization of people who uphold or violate moral norms. *Journal of Experimental Social Psychology, 48*(6), 1385-1388. doi:10.1016/j.jesp.2012.06.004

Walker, M., Jiang, F., Vetter, T., & Sczesny, S. (2011). *Universals and cultural differences in forming personality trait judgments from faces*. Los Angeles, CA: SAGE Publications. doi:10.1177/1948550611402519

Wickham, H. (2016). ggplot2: Elegant Graphics for Data Analysis. Springer-Verlag New York. http://ggplot2.org

Willis, J., & Todorov, A. (2006). First impressions: Making up your mind after a 100-ms exposure to a face. *Psychological Science, 17*(7), 592-598. doi:10.1111/j.1467-9280.2006.01750.x

Willis, M. L., Palermo, R., & Burke, D. (2011). Social judgments are influenced by both facial expression and direction of eye gaze. Social Cognition, *29*, 415–429. doi:10.1521/soco.2011.29.4.415

Wojciszke, B. (1994). Multiple meanings of behavior: Construing actions in terms of competence or morality. *Journal of Personality and Social Psychology, 67*(2), 222-232. doi:10.1037/0022-3514.67.2.222

Wojciszke, B. (2005). Morality and competence in person- and self-perception. *European Review of Social Psychology, 16*(1), 155-188. doi:10.1080/10463280500229619

Wojciszke, B., & Bialobrzeska, O. (2014). Agency versus communion as predictors of self-esteem: Searching for the role of culture and self-construal. *Polish Psychological Bulletin, 45*(4), 469-479. doi:10.2478/ppb-2014-0057

Wojciszke, B., Bazinska, R., & Jaworski, M. (1998). On the dominance of moral categories in impression formation. *Personality and Social Psychology Bulletin, 24*(12), 1251-1263. doi:10.1177/01461672982412001

Wolffheche,l. K., Fagertun, J., Jacobsen, U. P., Majewski, W., Hemmingsen, A. S., Larsen, C. L., Lorentzen, S. K., & Jarmer, H. (2014). Interpretation of Appearance: The Effect of Facial Features on First Impressions and Personality. *PLoS ONE 9*(9), e107721. doi:10.1371/journal.pone.0107721

Ybarra, O., Chan, E., & Park, D. (2001). Young and old adults' concerns about morality and competence. *Motivation and Emotion, 25*(2), 85-100.

Ybarra, O., Chan, E., Park, H., Burnstein, E., Monin, B., & Stanik, C. (2008). Life's recurring challenges and the fundamental dimensions: An integration and its implications for cultural differences and similarities. *European Journal of Social Psychology, 38*(7), 1083-1092. doi:10.1002/ejsp.559

Zebrowitz, L. A. (2017). First impressions from faces. *Current Directions in Psychological Science, 26*(3), 237-242. doi:10.1177/0963721416683996

Zebrowitz, L. A., & Montepare, J. M. (2008). Social Psychological Face Perception: Why Appearance Matters. *Social and Personality Psychology Compass*, *2*(3), 1497. doi:10.1111/j.1751-9004.2008.00109.x

Zebrowitz, L. A., Wang, R., Bronstad, P. M., Eisenberg, D., Undurraga, E., Reyes-García, V., & Godoy, R. (2012). First impressions from faces among US and culturally isolated Tsimane' people in the Bolivian rainforest. *Journal of Cross-Cultural Psychology*, *43*, 119-134. doi:10.1177/0022022111411386

Zebrowitz, L. A., Wang, R., Bronstad, P. M., Eisenberg, D., Undurraga, E., Reyes-García, V., & Godoy, R. (2012). First impressions from faces among US and culturally isolated Tsimane' people in the Bolivian rainforest. *Journal of Cross-Cultural Psychology*, *43*, 119-134. doi:10.1177/0022022111411386

7. Appendices

Appendix A – Full list of vignettes used

High morality & high sociability: “Steven felt that one of his co-workers was very good at their job and was not being appropriately rewarded. Steven wanted to help this co-worker get a raise. To do this, he tried to convince several of his other co-workers to pressure their boss with him. Steven is a warm and friendly person. In trying to convince his fellow co-workers, he approached them with his typical warmth and friendliness.”

High morality & low sociability: “Steven felt that one of his co-workers was very good at their job and was not being appropriately rewarded. Steven wanted to help this co-worker get a raise. To do this, he tried to convince several of his other co-workers to pressure their boss with him. Steven is a cold and unfriendly person. In trying to convince his fellow co-workers, he approached them with his typical coldness and unfriendliness.”

Low morality & high sociability: “Steven felt that one of his co-workers was too good at their job and was making Steven look bad. Steven wanted to get this co-worker fired. To do this, he tried to convince several of his fellow co-workers to pressure their boss with him. Steven is a warm and friendly person. In trying to convince his fellow co-workers, he approached them with his typical warmth and friendliness.”

Low morality & low sociability: “Steven felt that one of his co-workers was too good at their job and was making Steven look bad. Steven wanted to get this co-worker fired. To do this, he tried to convince several of his other co-workers to pressure their boss with him.

Steven is a cold and unfriendly person. In trying to convince his fellow co-workers, he approached them with his typical coldness and unfriendliness."

Appendix B – Ethics approval

Ethics Committee for Non-Clinical Research Involving Human Subjects
Notification of Ethics Application Outcome – UG and PGT Applications

Application Details

Application Type: PGT Application Number: CSS/SOE/2017/114
Applicant's Name: Dušan Žaludko Project Title: Trustworthiness, Morality, and Sociability – Examining the Relationship Between Face and Social Perception Models

---

Application Status

Approved – Pending Permissions (please see below)

Approved – No Permissions Required X

Not approved – Minor Recommendations only (please see overleaf)

Not approved – Full Resubmission Required (please see overleaf)

Note: Start and End Dates of Approval will only be given when ethical approval has been granted and when all the relevant permissions have been received.

Start Date: 19/04/18 End Date: 31/12/18

Permissions

Please find below the list of permissions that you MUST obtain and submit to the Ethics Administrator before commencing with data collection. You can either provide a scanned copy of the permission letters to: education-ethics@glasgow.ac.uk, or send a hard copy to: C. Paterson PGT Office St Andrew's Building 11 Eldon Street Glasgow G3 6NH

Permission required from:	**Received in Admin Office:**
n/a	

Recommendations (where Changes are Required)

- ***Where changes are required all applicants must respond*** in the relevant boxes to the recommendations of the Committee and return to the Ethics Office to explain the changes you have made to the application.

- *(**If application is Rejected** a full new application must be submitted by returning to the Ethics Office. Where recommendations are provided, they should be responded to and this document provided as part of the new application.*

(Shaded areas will expand as text is added)

MAJOR RECOMMENDATION OF THE COMMITTEE	APPLICANT RESPONSE TO MAJOR RECOMMENDATIONS

MINOR RECOMMENDATION OF THE COMMITTEE	**APPLICANT RESPONSE TO MINOR RECOMMENDATIONS**
5 – Please update start date 8.2 – Can you please specify that it is University of Glasgow OneDrive? 13.1 - On the consent form, please add a box asking participants to confirm they are at least 18 years of age since it will be distributed quite widely. Will you let participants know about the exclusion criteria in advance? It may be unethical to collect data from many people whose data you do not intend to use. It may also be worth considering whether you may want to advertise for a target population (with justification) although this could raise other ethical issues. Are you not able to use data from everyone, and just include gender and ethnicity as controls? 15 - Please provide justification for the exclusion criteria. If you decided to retain the exclusion criteria, it may be appropriate to make it explicit in the plain language statement since it currently only says 18. 13.1/18.1 – It seems like you do not need permission from UofG since you are not using any direct methods of recruiting through the University. If your recruiting is only via social media then no permission is needed. 18.2 – I would say no, since you are not directly contacting them on campus or through official University email.	5 – date changed to reflect 2 weeks from resubmission of the Ethics documents. 8.2 – Detail of the account being UofG added. 13.1 – a statement regarding participants' legal age of consent, with an appropriate tick box, was added. Ethnicity based exclusion criterion has been dropped (please see response to point 15 for details). 15 – Ethnicity based exclusion criterion has been dropped. Instead, we note that for our analyses, we require at least 160 Caucasian participants, while also noting that participant ethnicity will be controlled in our analyses. Section 2 of the PLS, addressing the question of why the participants have been chosen now reads "The goal of this study is to recruit around 160 Caucasian participants, but participants of all ethnicities are welcome to participate.", which does not exclude participants of non-Caucasian ethnicity, yet is informative about the minimum requirements of our study. 13.1/18.1 – Section 13.1 and18.1 were changed to reflect participant recruitment through social media only, and not through UofG channels. 18.2 – the YES box was unticked, while the NO box was ricked

REVIEWER COMMENTS ***(OTHER THAN SPECIFIC RECOMMENDATIONS)***	**APPLICANT RESPONSE TO REVIEWER COMMENTS**
Thank you for addressing the recommendations. We would strongly advise that you do not state that the goal is to recruit around 160 Caucasian participants in the participant information sheet. Without a full understanding of the underlying research design and justification provided to the participants for why you need this ethnicity, this statement could be misinterpreted in a problematic way. We advise that you delete this sentence from	

the participant information sheet and avoid this issue.	

Please retain this notification for future reference. If you have any queries please do not hesitate to contact the School of Education ethics administrative contact for UG and PGT Applications: education-ethics@glasgow.ac.uk

End of Notification.

Appendix C – Plain language statement & Consent form

University of Glasgow

School of Education

Participant Information Sheet

Project Title: Trustworthiness, Morality, and Sociability – Examining the Relationship Between Face and Social Perception Models
Researcher: Dušan Žaludko (@student.gla.ac.uk), MSc Psychological Studies Project
Supervisor: Dr Joanna Wincenciak

You are being invited to take part in a research study. Before you decide it is important for you to understand why the research is being done and what it will involve. The following text will be presented in a "frequently asked questions" format. Please take time to read the following information carefully and discuss it with others if you wish. Ask us if there is anything that is not clear or if you would like more information. Take time to decide whether or not you wish to take part.

---

1. What is the purpose of the study?
This study is aiming to further our understanding of the way we form first impressions of people. Previous work has suggested that we judge people on different social dimensions such as attractiveness or friendliness instantly and automatically. In this research we are further investigating how reliable these judgements are and how we form impressions of different social characteristics such as morality.

2. Why have I been chosen?
You have been chosen because you are over 18 years old and you represent the population of interest, and you expressed an interest to participate in this study. The goal of this study is to recruit around 160 participants.

3. Do I have to take part?
It is fully up to you to decide whether or not to take part. If you decide to take part, you are still free to withdraw at any time and without giving a reason. Your decision to withdraw at any point will not affect you in any way.

4. What will happen to me if I take part?
After consenting to your participation in this research project, you will be presented with a short profile of a fictional person comprised of a photo and a textual description. Afterwards, you will be asked to rate this person on 18 different characteristics, which will be followed by self-assessment of your perceived dominance, where you will be asked to choose a pictorial description that best represents your self-perceived dominance. In the end you will be asked to fill in a short section about demographic data (age, sex, ethnicity, nationality). Once that is done, you will also be able to request a summary of the results, once this project concludes in August 2018. Altogether the survey should not take you longer than 10 minutes.

5. Will my taking part in this study be kept confidential?
The data gathering process is fully anonymised. No identifying data will be collected and you will be given an ID in the process of data collection/processing. All information which is collected about you during the course of the research will be kept strictly confidential. Your participation in the project is fully voluntary and you are free to withdraw consent at any time, which includes the withdrawal of any of the data provided by you. Please note that assurances on confidentiality will be strictly adhered to unless evidence of wrongdoing or potential harm is uncovered. In such cases the University may be obliged to contact relevant statutory bodies/agencies.

6. What will happen to the results of the research study?
The data gathered will be used in a MSc dissertation, which is due August 16th, 2018. The processed data will be kept in an electronic form only for the duration of up to 5 years, for the purposes of possible publication (in a scientific journal, etc.). The data and their analysis might also be presented at a scientific conference. After the maximum of 5 years, the data will be fully deleted.
You, and any of the other participants, will not be identifiable in any of above mentioned ways the results of the data might be used.
On your request, the summary of the results of this project will be shared with you via email. To express your interest, please send an email to the email address of the investigator of this study, which you can find on the top of this page. You can expect to get these results at the end of August 2018, after the submission of this dissertation to the University of Glasgow.

7. Who has reviewed this study?
The project has been reviewed by the School of Education Ethics Forum.

8. Contact for Further Information
You may ask any questions about the study at any time, before, during, and after the study, or ask for a summary of its main results. You can find the email address of the investigator at the beginning of this document, through which he is available to answer your questions or concerns about the study.

If you have any concerns regarding the conduct of the research project you can contact the **School of Education Ethics Officer Dr. Kara Makara, email: kara.makarafuller@glasgow.ac.uk**

Thank you for reading this.

If you agree to participate in this study then please read the following statements and tick the appropriate box below to indicate your consent.

- I confirm that I have read and understood the Participant Information above for the current study and have had the opportunity to ask questions;

- I understand that my participation is voluntary and that I am free to withdraw at any time, without giving any reason;
- I understand that I may omit any questions that I would prefer not to answer;
- I understand that my participation in this project is for the purposes of research, and is in no way an evaluation of me as an individual;
- I understand that I can contact the researcher for this project by e-mail to receive more information and/or a summary of the anonymised group results.
- I confirm that I am at least 18 years of age.

☐ I agree to take part in this study

☐ I do not agree to take part in this study