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Effects of Attractiveness on Perceived Trustworthiness

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Author Note

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Abstract

Physical attractiveness is associated with a variety of positive social attributes, with trustworthiness being one of the most important. While there are several different ways to perceive attractiveness and trust, an individual's smile is an important part of the process. This study investigated the interactions of facial attractiveness and smiling intensity on rapid assessments of attractiveness and trustworthiness. Participants rated the perceived attractiveness and trustworthiness of three sets of male and three sets female faces, each with either a closed, open, or extreme smiling intensity. Results reveal that attractiveness and trust were both influenced by the smiling intensity; a smiling intensity increased from a closed to open expression so to did ratings of attractiveness and trust. Extreme smiles proved to be the exception, ratings of both attractiveness and trustworthiness decreased for extreme smiles.

Introduction

One of the major and possibly most valuable aspects to interpersonal relationships is trust (Xu et al., 2012). Trust, combined with altruistic behavior within a given social group is the foundation for the formation of positive relationships between individuals, especially when the individuals are not familiar with each other (Schmidt, Levenstein, & Ambadar, 2012). Typically, there are four main elements that, given enough time, allow us to determine if an individual is trustworthy (Xu et al., 2012). These four elements are based on the outcomes of many different interactions that occur socially between the two individuals based on the following evaluations: ability, benevolence (or kindness), honesty, and reliability (Xu et al., 2012). However there are always situations where we may not have time to make informed, thoughtful evaluations and must instead make rapid judgment of an individual. In such cases we must form our impressions based on limited information from our first encounter (Xu et al., 2012). The initial first encounter has also been suggested to be the most important for forming a trusting relationship, which is likely why first impressions have such high social importance (Xu et al., 2012), and why individuals are able to form first impressions so rapidly. Humans are able to interpret an abundance of socially relevant information from others faces at a glance, even within 100 ms or less (Bryan, Perona, & Adolphs, 2012). First impressions allow the individual to get a sense that they know the essence of an individual in a short amount of time (Desrumaux, DeBosscher, & Leoni, 2009). In everyday life we are constantly making strong inferences about a person based on physical characteristics (Paunonen, 2006) The ability to make such rapid assessments is considered to be an important factor in successfully interacting socially (Zaidel, Bava, & Reis, 2003). If we are in fact able to instantly predict one's level of trustworthiness, how does

attractiveness and smiling intensity effect rapid trustworthiness perceptions? Furthermore, what

social implications or qualities might these perceptions be related to?

Neuropsychological research suggests that many of our perceptions are spontaneous

assessments that are biologically driven (Verhulst, Lodge, & Layine, 2010). Futhermore,

evolutionary scientists claim that natural selection may be responsible for the shaping of circuits

in the brain that govern the rapid perception of facial features (Eisenthal, Dror, & Runnin, 2006).

According to the "Darwinian" approach, aesthetic judgment of faces is said to be reflective of the

evolutionary functional assessments of potential mates (Eisenthal et al., 2006). This approach

suggests that attractive faces are a biological "ornament" that reflects important information such

as health, thereby indicating value as a perspective mate (Eisenthal et al., 2006). Essentially,

advantageous biological characteristics are likely revealed in particular facial characteristics,

which are interpreted as attractive in the brain of the observer at an unconscious level (Eisenthal

et al., 2006).

According to a recent study by Xu et al. (2012), there has been an increasing amount of

attention and speculation surrounding the consistent correlation between trustworthiness and

attractiveness: The more attractive a face, the more we trust that individual and link them to

positive personality traits (Timmerman, & Hewitt, 1980). However, the extent of this correlation

is unclear with regard to whether and to what extent facial features used for judging

trustworthiness are also used for judging attractiveness (Xu et al., 2012). Interested in clarity,

Xu et. al., (2012), investigated whether individuals use the same facial features for attractiveness

as a heuristic or 'shortcut', based on the idea that we use facial features as cues to biological

social dispositions to circumvent the issue of not having a sufficient amount of time to learn

about an individual's actual traits (ability, honesty, benevolence, and reliability) to make an informed decision about their trustworthiness.

To test this idea, they examined the facial cues used for judging Caucasian faces' trustworthiness and attractiveness by 76 Caucasian young adults who were naturally familiar with Caucasian faces and by 68 Chinese young adults, who had not been in direct contact with Caucasian individuals (Xu et al., 2012). The involvement of the Caucasian participants was intended to provide a basis of comparison for the results. Meaning, if Chinese participants who had no prior direct contact with Caucasian individuals, used the same or similar strategies (using certain facial features) as Caucasian participants to determine Caucasians' trustworthiness, and if their judgments were closely linked to their facial attractiveness judgments, it would provide strong evidence to support their face attractiveness heuristic hypothesis: Individuals, as a shortcut, would use the more universal and less dependent facial attractiveness cues for trustworthiness.

What researchers found was that six facial features were used by both groups to specifically determine attractiveness. However, there were far fewer differences in the groups with regards to judging trustworthiness as opposed to attractiveness, and there was a significant link between attractiveness and trustworthiness judgments, suggesting the more attractive the face is deemed the more trustworthy the individual is perceived. Direct comparisons showed that while there were significant differences in judging attractiveness, most of the cues used for judging trustworthiness in the faces were the same for both Caucasian and Chinese young adults (Xu et al., 2012). This suggests that perceptions of trustworthiness may be universal, therefore, possibly providing proof for the evolutionary perspectives. In the context of the present study,

these results indicate that certain evaluations may be the same across cultures thereby, potentially containing a biological component which could be beneficial in the formation of our perceptions.

Overall, the human face is widely considered one of our most salient sources of information with regard to judging strangers (Stirrat, & Perrett, 2010). Extroversion as well as conscientiousness are among the many characteristics that are already believed to be accurately judged by looking at a face. Decisions regarding whom to trust can also be biased by stable facial traits, and some evidence, while controversial, reports that people are able to judge from the face how at ease that person would be with deception. However, most evidence supports the notion that transient facial expressions (such as happiness, anger, or excitement) allow accurate perceptions of noncooperation and trustworthiness, with little evidence showing a bias based on stable characteristics (such as the actual shape of the mouth, nose, or eyes) as being valid (Stirrat, & Perrett, 2010).

With this knowledge, Stirrat and Perrett (2010), conducted an experiment that was interested in finding out whether stable male facial characteristics, specifically, the variation in facial-width ratios (height to width) relates to cooperation in economic games as well as trust judgments of others. To do this they operationally measured trustworthiness in the trust games by allowing participant to choose whether to collaborate for mutual financial gain or to exploit for greater personal gain. Facial width was also measured and electronically manipulated (using images that were warped at three different calculations) during the experiment because width (scaled for face height) is a physically trait that has been shown to be predictive of male aggression. What they found was that male facial-width ratio was used as a cue in determining the amount of trust associated with male faces. Specifically, they found that men with wider faces were more likely to exploit the trust of others and that (independent to their attractiveness)

male players were less likely to trust other males if they had wide as opposed to a narrow face. These computer graphics manipulation results were even stronger for subordinate female evaluators (Stirrat & Perrett, 2010). This experiment suggests that there are differences in transient versus non-transient facial expressions with regard to predicting trustworthiness, and that these differences may vary depending on gender.

There has clearly been a considerable amount of research done on the impact of attractiveness and trust. One study combined the effects of smiling and attractiveness with their potential influences on trust. Schmidt et al., (2012) conducted a survey on 45 women investigating the effects of smiling intensity on perceived trustworthiness given three different smiling intensities. Their goal was to show that increased attractiveness as well as increased smiling intensity would be independently associated with increased trustworthiness, producing different results in individuals depending on the degree of attractiveness. They found that full-intensity smiles produced the highest amount of trust compared to all three groups. Also found was that the group that was rated as highly attractive also had significantly higher ratings in trustworthiness in all three categories of smile intensity. Meaning, both attractiveness and smile intensity had separate effects on the level of trustworthiness in women and when both were present the level of trust was even higher (Schmidt et al., 2012). This study suggests that there is a positive correlation between attractiveness and trustworthiness, and that trustworthiness may be influenced by facial expressions in women therefore, it may be a key component in predicting trustworthiness in men as well.

As we can see, the effects of smiling intensity and perceived trustworthiness has already been investigated in women, but it is important to see how the results will either differ or remain the same when men are included as participants, especially when their results are directly

compared to results from female participants. Based on the literature available, the author predicts that increased smiling intensity and increased attractiveness will increase perceived trustworthiness. Both smiling intensity and attractiveness should also have results on trustworthiness independent of each other. This is important in that it would allow us to better understand the subconscious forces that effect our perceptions and the perceptions of others. A better understanding of our perceptual world would likely make us better social beings and possibly aid us in preventing deception by others.

Methods

Participants

Participants were 60 undergraduate students (44 female) from the University of North Carolina at Charlotte. Of the 60 participants, ethnicity varied with: 65 % Caucasian, 26% African-American, 2% Asian, 2% Hispanic, 2% Native American and 3% of other descent. Age ranged from 18 to 33 with a mean age of 21.56 (SD=3.27). Participants were obtained voluntarily through an online subject pool.

Materials and Measures

This study was conducted using the nimstim facial stimulus set for judging attractiveness and facial expression. With this scale both appearance and facial expression varied. Smile intensity was operationally defined as open mouth, closed mouth, or extreme smiling intensity in order to obtain varying levels of perceived attractiveness. The faces were also rated by the participants on a scale of one to five on level of attractiveness with 5 being the most attractive.

General Trust

Participants were asked six questions from Yamagishi's general trust scale (Yamagishi, & Yamagishi, 1994), asking them to report their views on the following statements, "Most people are basically honest", "Most people are trustworthy", "Most people are basically good and kind", "Most people are trustful of others", "I am trustful", and "Most people will respond in kind when they are trusted by other". Responses to the statements were recorded using a Likert-type rating with anchor of 1: Strongly disagree and 5: Strongly agree and were used to establish a general trust scale with regard to their own trusting tendencies. Participants were then asked three questions, "How attractive do you think you are?", "How trustworthy do you think you are" and "How accurately do you believe you can detect trustworthiness in others?", for which they also answered using a Likert-type rating with anchors of 1: Not at all and 5 Very (attractive, accurate or trustworthy) .

Stimuli

Stimuli consisted of a series of eighteen faces from the nimstim facial stimulus set. Included were three sets of female faces (One Caucasian female with red hair, One Caucasian female with dark brown hair, and one Asian female with short black hair) each with all three levels of smiling intensity (Open mouth closed mouth, and extreme smiling intensity), and three sets of male faces (One Caucasian male with light brown hair, one Caucasian male with dark brown hair, and one bi-racial male with black hair) each with all three levels of smiling intensity as well.

Attractiveness. Attractiveness was based on rapid perceptions of each of the eighteen corresponding nimstim faces. Participants were asked "How attractive do you think this

individual is?", using a Likert-type scale with anchors of 1: Very Unattractive and 5: Very

attractive".

Trustworthiness. Trustworthiness was also based on the eighteen nimtim faces. For each

corresponding face, participants were asked "How trustworthy do you think this individual is?"

which also used a Likert-type scale with anchors of 1: Not trustworthy at all, and 5: Very

Trustworthy.

Design

The current study used a non-experimental research design. The author is interested in the

relationship between facial attractiveness trust, and any way that an increase in attractiveness

increases perceived trust. Smiling will also be examined in regards to any increases in perceived

trustworthiness. Specifically, does an open mouth, closed mouth, or an extreme smiling intensity

have a greater increase on the individual's perceived trustworthiness? The dependent variable

was the level of perceived trustworthiness which was also rated on a scale a one to five with five

being the most trustworthy and was tested using correlations, repeated measure ANOVAs, and

paired samples t-tests.

Procedures

Upon providing informed consent, participants reported basic demographic information

including age, sex, and ethnicity. They were then asked six questions from Yamagishi's general

trust scale (Yamagishi, & Yamagishi, 1994) and asked to record their responses. The participants

were also shown a series of facial expressions from the nimstim facial stimulus set, each with

varying smiling intensity (open mouth, closed mouth, and extreme smiling intensity), and asked

corresponding questions based on facial expression. The facial stimuli were presented to the

participants using a randomized order so that no two participants saw the same faces or

expressions presented in the same order. Participants were shown a total of eighteen different

individual/expression combinations (E.g. The Caucasian female with an open mouth smile, a

closed mouth smile and an extreme smile) and asked report their perceived attractiveness and

trustworthiness based on the image.

Results

Preliminary analysis did not show a significant difference in ratings of attractiveness or

trustworthiness as a function of smiling intensity for male participants ($F(2,30)=1.047$, p>.05)

compared to female participants ($F(2,86)=2.657$, p>.05). Thus, results from male and females

were combined for further analysis.

Smiling Intensity and Perceived Attractiveness

Effects of smiling intensity on perceived attractiveness was tested using a two way

repeated measure ANOVA with three smiling intensity levels on trust. Results were not

significant but did indicate a trend in participant responses ($F(2,118) = 2.802$, p>.05). This

suggests that participants were indicating similar levels of perceived attractiveness based on the

depicted smile intensity, as shown in Figure 1.

To further test this association, a series of paired t-tests were conducted to compare

perceived attractiveness levels between each of the three smiling intensities; open mouth

($M=2.85$), ($SD=.74$), closed mouth ($M=2.7$) ($SD=.74$), and extreme smiles ($M=2.65$) ($SD=.78$).

Results showed significant increases in trust in closed mouth to open mouth smile pairs ($t(60)= -$

2.05, p<.05) and decreases in open mouth smile to extreme smile pairs ($t(60)= 2.08$, p<.05).

However, there was no difference in attractiveness between the closed mouth and extreme smiles

(t(60) =.183, p>.05). This indicates that participants rated the individuals with an open smile as more attractive that those with either a closed or extreme smile and those with an extreme smile were more likely to be rated as the least attractive of the three.

Smiling Intensity and Perceived Trustworthiness

Effects of smiling intensity on perceived trustworthiness was tested using a repeated measure ANOVA. Results indicated that smiling intensity is significantly associated with judgments of perceived trustworthiness (F(2,118)= 3.612, p<.05). This suggests that the level of smiling intensity (closed mouth, open mouth, or extreme) did influence how trustworthy the participant rated the individual, as shown in Figure 2.

To further examine the effects of smile intensity on perceived trustworthiness a series of paired t-tests were conducted, comparing each of the three smiling intensities. What the results found was that trustworthiness ratings for both closed smile (M=3.17), (SD=.69) and open smile (M=3.38), (SD=.73) pairs and closed smile and extreme smile (M=3.09), (SD=.75) pairs were not significantly different. However, was a significant difference in rating of trustworthiness for open mouth smiles compared to extreme smiles (t(60)= 2.467, p<.05). This indicated that when making rating of perceived trustworthiness, participants tend to be highly influenced by both closed smiles and extreme facial expressions. Participant were more likely to rate the open mouth smiles as more trustworthy than the extreme smiles.

Attractiveness, Smiling Intensity, and Trustworthiness Perceptions

The relationship between attractiveness and rapid judgments of trustworthiness was tested using a paired samples correlation. Results indicated attractiveness and trustworthiness were significantly related in closed mouth smiles (r(60)=.327, p<.05). This shows that perceptions of

attractiveness were significantly related to judgment of trustworthiness in open mouth smiling

intensities. Specifically, the more attractive the person was perceived, the more trustworthy they

were initially assumed to be. Results did not indicate that attractiveness had a significant

influence in open mouth smiles and extreme smiles ($r(60)=.207$, p<.15; $r(60)=.213$, p<.15, for

open mouth and extreme smiles respectively). However, there was a trend present, suggesting

that attractiveness would likely show a significant influence on trustworthiness both open smile

and extreme smile expressions given a larger sample of participants.

General Trust, Smiling Intensity, and Trustworthiness Perceptions

Participants also answered questions to establish a general trust scale (based on a Likert-

type rating system with 30 possible points) within participants to determine if their own trust

level influenced their perceptions. There were no significant differences in male ($M=20.1$),

($SD=4.9$) and female's ($M=19.4$), ($SD=4.1$) general level of trust. Therefore, the results were

combined to produce an average ($M=19.6$) ($SD=4.3$)) for further examination. A correlation was

conducted between participant's own internal level of trust and their perceived ratings of trust.

Results showed that the participant's own level of general trust was a significantly associated

with their ratings of trustworthiness in all three of the smiling intensities as shown below in

Table1.

Results suggest that an individual's own level of trust is a significant indicator with

regard to their actual perceptions of trustworthiness in others. Participants with a higher general

level of general trust were more likely to perceive others as more trustworthy.

Discussion

Physical attractiveness is known to be a significant cue in a number of rapid social judgments, with one of the most important being trustworthiness. But how does attractiveness influence our perceptions? The author predicted that increased smiling intensity would increase ratings of perceived attractiveness and perceived trustworthiness. The current study supported the hypothesis in that increase smiling intensity did increase ratings of attractiveness from closed mouth to open mouth smiles. However, when smiling intensity reached extreme levels, ratings of attractiveness dropped significantly. Individuals were considered significantly less attractive when they exhibited the extreme smile as opposed to either the closed mouth or open mouth smile.

A similar patterns of results was found for trustworthiness; ratings of trustworthiness increased from closed to open smile intensities, but trustworthiness dropped when smiles reached extreme intensities. This finding indicates that individuals perceive strangers as more trustworthy as smile intensity increases from closed to open mouth. However, ratings of trustworthiness dropped drastically when smiling intensity increased from an open mouth to an extreme smile, which was not expected since any increase in smiling intensity was hypothesized to increase perceptions of trustworthiness. These findings suggest that individuals should avoid extreme smiling intensities, as they negatively influenced rapid perceptions of both attractiveness and trustworthiness.

The current study also found that ratings of attractiveness and trustworthiness were positively correlated. Showing, highly attractive people tend to be perceived as more trustworthy than less attractive people. Similar to previous findings, gender did not show to be a predicting factor in any of the ratings. In addition, the general level of trust (participant's own tendencies) was not significantly different in male and female participants; showing neither gender is

naturally more trusting than the other. However, the combined averages were significantly associated with the participant's actual ratings of perceived trustworthiness. Suggesting that individuals do have a general level of trust that they tend to exhibit, and that this preconceived level of trust will influence their rapid perceptions of trust in strangers. These natural tendencies may be important to recognize as they may also influence a variety judgments beyond trust, such as competence, or intelligence. Furthermore, if our natural tendency to trust individuals influences our actual judgments, then we need to understand how it may be influencing our actual behavior towards others in either settle or extreme ways.

Previous research had established that perceived attractiveness and trustworthiness increase independently with increasing smiling intensity in adult women (Schmidt et al., 2010). The current study was designed to test the effects of smiling intensity on rapid perceptions of attractive and trustworthiness with gender removed as a variable. Results differed from Schmidt et al, (2012) in that that most intense smiling intensity (the extreme smile) did not produce the highest ratings of attractiveness and trustworthiness as it had it the prior study. These findings suggest that there is something different about the way in which extreme expressions are perceived, but what is it about an extreme smile that differs so drastically form the prior study's "full-intensity" smile? It is possible that this discrepancy is related to the prior study's "full intensity" smile corresponding more accurately with the current study's "open-mouth" smile rather than the extreme smiling intensity. Never the less, individuals exhibiting extreme facial expressions are instantly deemed less trustworthy. It might be that this reflects a biological predisposition to distrust those who are overly emotional or get too excited. Also possible is that individuals who exhibit extreme smiles are trying to project or hide something which is conveyed in an overly enthusiastic "extreme" smile. In this case, it is possible that these

individuals are perceived as trying too hard or being disingenuous, which is therefore reflected in a decrease in trustworthiness perceptions by others.

This could have several social implications, as we may then be negatively perceived for any number of extreme facial expressions or behaviors (such as being extremely surprised).

Research also supported the findings of Stirrat & Perrett (2012) that transient expressions differ from stable expressions with regard to accurate perceptions of trustworthiness. Varying facial expressions may also explain why the extreme smiling intensity received such different ratings, as it may have been associated more with "excitement" as opposed to happiness. The different expression would then likely receive a different judgment regarding what qualities the individual was expected to have. However, the current study contradicted the claim that differences in predicting trustworthiness may vary depending on gender (Stirrat & Perrett, 2010) as there were no significant differences in male versus female perceptions in either attractiveness or trustworthiness. This may suggest that men and women initially use the same cues in determining how attractive and trustworthy an individual is perceived to be.

A limitation of this study was that the sample of participants was restricted to students from the University of North Carolina at Charlotte. Students may not be entirely representative of the larger, general population. Students are a specific group of individuals and may contain distinct characteristics that differ from individuals who are not students. The sample was also relatively small, which may have prevented a further analysis of results. Trustworthiness is also an important yet complex social judgment which may be influenced by a number of confounding factors, such as ethnicity, hair color, eye color, bone structure, or even by an individual's own values. An individual may also have their own, preconceived idea of what an attractive or

trustworthy person looks like and therefore formed these judgments regardless of any transient facial expression, such as smiling intensity.

Future research should investigate what other perceived qualities are affected by smiling intensities. For instance, in addition to trust can we also determine how benevolent a person is? And how accurately does this align with the individual's own self-reported view? It would also be important to use a less restrictive and larger sample size capable of producing more significant findings. Future research should further investigate the effects of extreme facial expressions. What is it about extreme expressions that produce such negative judgment? At what point does an expression become to extreme and begin to signal negative perceptions? And what do these judgments reveal about perceived trustworthiness and its influence on interpersonal relationships?

Overall, there is a variety of research that supports the notion that individuals make rapid judgments about a person based on both facial expression (such as smiling intensity) and attractiveness. The current study showed that attractiveness and smiling intensity both have the ability to influence perceptions of trustworthiness. Such rapid perceptions may instinctively tell us a variety of important information about a person. These judgments are crucial in the formation of interpersonal relationships. If we do not fully understand the aspects involved in our own social judgments, how can we make thoughtful judgments about other people? More importantly, how can we avoid making thoughtless or potentially stereotypical and hurtful judgments if we do not recognize that there is an underlying process at work subconsciously influencing our behavior? Future studies may allow researchers to better understand the effects and consequences of smiling intensity with regard to trust, as well as why extreme smiles cause such a drastic decline in trustworthiness perceptions.

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Tables

Relationship between General Trust and Smile Intensity					
	N	Mean	Std. Deviation	Correlation	Significance
Closed Smile	60	16.4	4.1	.36	.003
Open Smile	60	16.2	4.2	.26	.050
Extreme Smile	60	16.5	4.1	.34	.009

Table 1: The relationship between participant's level of general trust and their ratings of perceived trustworthiness in others
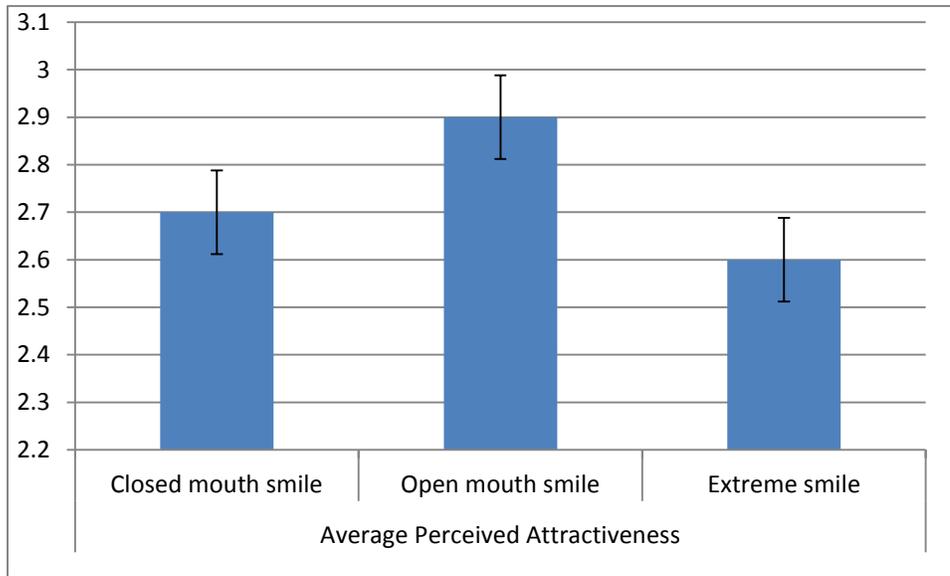
Figures

Fig. 1: Average ratings of perceived attractiveness based on smile intensity. The error bars reflect standard error.
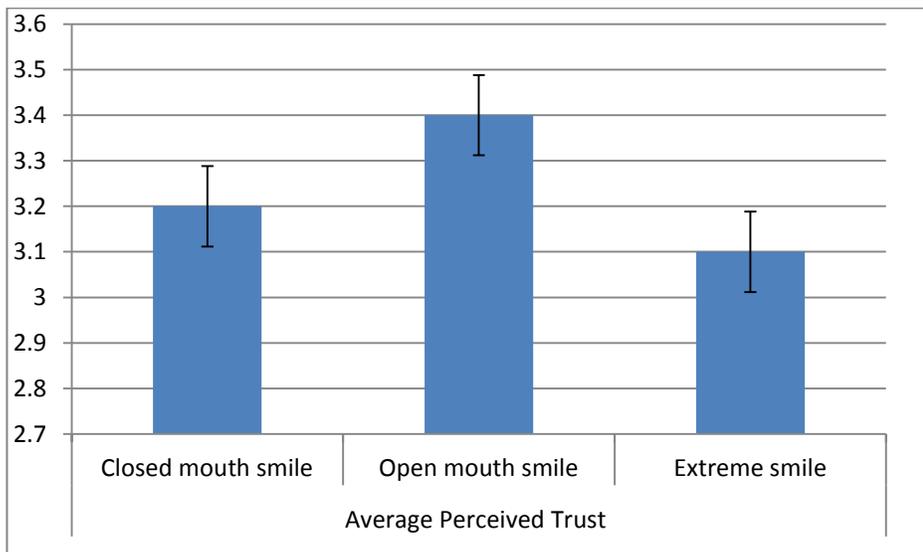

Fig. 2: Average ratings of perceived trustworthiness based on smile intensity. The error bars reflect standard error.

Appendix

A: Yamagishi's General Trust Scale

1. Most people are basically good and honest

2. Most people are trustworthy

3. Most people are basically good and kind

4. Most people are trustful of others

5. I am trustful

6. Most people will respond in kind when they are trusted by others

A: Participant Qualities

7. How attractive do you think you are?

8. How trustworthy do you think you are

9. How accurately do you believe you can detect trustworthiness in others?

A: Attractiveness

10. How attractive do you think this individual is? (For each of eighteen individual/ expression combinations)

A: Trustworthiness

11. How trustworthy do you think this individual is? (For each of the eighteen individual/expression combinations)