The role of personality in dyadic interaction: A psychophysiological study

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A B S T R A C T

Psychophysiological activity was recorded during development discussions of 44 manager-subordinate pairs to examine the effects of the Big Five personality traits Extraversion and Conscientiousness, and personality similarity during dyadic social interaction. Facial electromyography and frontal electroencephalography (EEG) asymmetry were collected continuously during the 30-min discussions. Different actor and partner effects and Actor × Partner interactions were observed. Matching levels of Extraversion led to higher periocular muscle activity, indicating positive valence emotional expressions. The results are discussed considering similarity attraction theories.

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1. Introduction

Numerous studies have been conducted during the past decades with a goal to establish connections between different personality traits and work performance or leadership effectiveness. In many of these studies personality has been assessed with the Big Five model, consisting of traits or dimensions Extraversion, Agreeableness, Conscientiousness, Neuroticism, and Openness to Experience. Good work performance or career success has been shown to have a positive relation typically with Conscientiousness (Hurtz and Donovan, 2000; Judge et al., 1999) but also with, for example Extraversion (Boudreau and Boswell, 2001). Big Five traits have been reported to be linked also with both leadership emergence (to which degree one is viewed as a leader by the others) and leadership effectiveness (e.g., Judge et al., 2002).

The role of personality in leader-member exchange (LMX) has been highlighted by previous studies (e.g., Phillips and Bedeian, 1994). There has been special interest to the similarity of the leader and the member on various scales, and overall similarity has been shown to have positive effects on LMX (e.g., Antonioni and Park, 2001; Bauer and Green, 1996; Engle and Lord, 1997; Liden et al., 1993). We suggest that it would prove to be fruitful to study manifestations of personality in actual leadership situations, during social interaction with a subordinate. The goal of the current study is to examine, using psychophysiological methods, the

role of personality similarity between the manager and the subordinate in emotional and motivational processes, during manager-subordinate interaction while conducting a development discussion.

1.1. Current study and hypotheses

We chose development discussions as the context of the current study, because most managers and subordinates consider them as important events, and the setting is somewhat similar in various organizations. Development discussions are often semi-structured, but still allow natural interaction and they are often held regularly, at least annually. In previous studies of personality effects during dyadic interaction, the participant's state has been typically assessed with the coding of the observable behavior (e.g., Funder and Sneed, 1993; Cuperman and Ickes, 2009; Leikas et al., 2012). To the best of our knowledge, there are no previous studies on the role of personality during dyadic interaction between a manager and a subordinate using the psychophysiological methods (including the EEG). The current study contributes to the fields of social and organizational psychophysiology by studying distinguishable dyads, formed by a manager and a subordinate, who have differential social power during the discussion. We seek to extend the previous work done on the role of personality in the interaction of indistinguishable dyads, formed by participants with equal social power (e.g., Funder and Sneed, 1993; Cuperman and Ickes, 2009; Leikas et al., 2012).

We employ the psychophysiological methods (EEG and facial EMG) and self-reports for assessing the emotional and motivational state of the participants. Facial electromyography (EMG) has been used as a

measure of hedonic valence (e.g., Cacioppo et al., 1986). Increases in the activation of the zygomaticus major (cheek) muscle area have been associated with positive emotions, in addition, increased orbicularis oculi (periocular) muscle activity has been associated with positive valence high-arousal emotions (Bradley and Lang, 2000; Witvliet and Vrana, 1995). The frontal asymmetry is a well-documented emotion- and motivation-related electroencephalographic (EEG) response (Coan and Allen, 2004). The anterior left and right brain regions are parts of two separate neural systems that putatively underlie approach and withdrawal motivation, respectively (Davidson, 2004).

For the current study we chose to focus to the effects of two of the Big Five dimensions. We chose Extraversion due to its central role in social interaction, and Conscientiousness due to its role in work performance.

1.1.1. Extraversion

Extraversion is typically characterized as being energetic and assertive (e.g., John and Srivastava, 1999). Extraverts seek social situations more likely than introverts (Diener et al., 1984) and during interaction extraverts are considered to be talkative and have good social skills (Funder and Sneed, 1993), thus it is suggested that extraverts would be active and perceived positively also in the currently employed discussion setting. In addition, Extraversion is considered as a typical trait to leaders (Hogan et al., 1994), but also follower Extraversion has a positive effect to the quality of leader-follower exchanges (Phillips and Bedeian, 1994; Nahrgang et al., 2009). Thus, we present the following hypotheses:

H1a. *Actor and partner higher Extraversion lead to more zygomaticus major and orbicularis oculi facial muscle activation during the discussion and to more positive valence self-reports after the discussion.*

H1b. *Actor's higher Extraversion is related to increased frontal left-hemisphere asymmetry.*

1.1.2. Conscientiousness

Conscientious person is typically described to be orderly, responsible, dependable, organized, and hard working (Peabody and Goldberg, 1989; John and Srivastava, 1999). It is thus reasonable, that previous studies have linked Conscientiousness with good job performance (Barrick and Mount, 1991, 1993; Salgado, 1997) and leader effectiveness and managerial advancement (Hogan et al., 1994). The effects of Conscientiousness are visible also in social interaction; LePine and Van Dyne (2001) reported of a positive correlation between voice behavior (constructive, change-oriented communication) and Conscientiousness, and suggested that this could be due to the conscientious persons being more achievement oriented and thus more willing to improve the current situation. It is suggested, that this attribute would affect behavior also during a performance review discussion where, besides providing feedback, one aim is also to seek for areas of personal improvement. In addition, there is evidence suggesting that conscientious participants are attentive and responsive to the interaction partner in a dyadic setting (Cuperman and Ickes, 2009), thus behaving in a way that could facilitate the interaction.

H2. *For both actors and partners, higher Conscientiousness leads to more zygomaticus major and orbicularis oculi facial muscle activation during the discussion and to more positively valenced self-reports after the discussion.*

1.1.3. Personality similarity

The similarity effect stands for the observation that similarity typically evokes attraction. Similarity attraction effect, especially in the attitude similarity, has been claimed to be one of the most robust and well-documented effects of social and behavioral sciences (Layton and Insko, 1974; Montoya et al., 2008). Layton and Insko (1974) identified possible

explanations for the similarity attraction effect, including seeking of balance and consistency of our inner world, which would be reinforced when interacting with similar minded others. It has been also suggested, that the similarity to me –hypothesis may be based on the self-categorization theory, which states that we view more positively those that are similar to us on the social categories (such as gender or age) to which we base our identities (Turner, 1987; Strauss et al., 2001).

When studying the similarity in attachment style during dyadic interaction, Klohnen and Luo (2003) suggested, besides similarity attraction effect, also a complementarity hypothesis. According to this hypothesis partners with personality characteristics that are complementary to ones own are considered attractive. However, with personality types, the complementarity would narrow down to dissimilarity, that is, extraversion – introversion, and the hypothesis would be merely an exact opposite of the similarity attraction hypothesis. There may, however, be certain exceptions to the similarity attraction effect. Brown and Hendrick (1971), for example, showed that for both extraverts and introverts the ideal self is extraverted in nature. Hendrick and Brown (1971) suggest, that introverts would be more attracted to an extraverted partner rather than to a similar-to-self introverted partner.

There are at least two mechanisms by which the personality similarity could have positive effects in an organizational context. Personality similarity may either lead to positive interpersonal affect, which then turns the perceptions of the other to more positive, or it could affect actual behavior in the work by increasing trust and shared understanding (Antonioni and Park, 2001). According to the uncertainty-reduction theory value similarity leads to predictability, which helps in communicating with less effort (Berger and Calabrese, 1975; Selfhout et al., 2009).

Similarity effect has been observed in various fields, for example, personality, attitudes, and physical attractiveness (see, for meta-analysis: Montoya et al., 2008). The similarity effect has been verified also with the Big Five personality inventory; Selfhout et al. (2009) observed that peer-rated personality similarity was associated with increases in friendship intensity of undergraduates when assessed at several time points during the first year of the university studies by using a round-robin design. Antonioni and Park (2001) summed previous findings by noting that personality similarity has been associated with higher quality LMX, organizational commitment, job satisfaction, and increased communication. It is suggested that personality similarity would have positive effects also in face-to-face interaction, such as performance review discussion, thus we present the following hypothesis:

H3. *Personality similarity between actors and partners* (e.g., *both high or both low*) *in terms of Extraversion or Conscientiousness leads to more zygomaticus major and orbicularis oculi facial muscle activation during the discussion and to more positively valenced self-reports after the discussion.*

1.1.4. Explorative research questions

In addition, the effect of the duration of the manager – subordinate relationship, the effect of role (manager/subordinate), and the effect of gender were studied exploratively.

2. Material and methods

2.1. Participants

The participants were 44 actual manager-subordinate dyads from 8 different private organizations from various fields (e.g., food production, media, social services, engineering, daily consumer goods trade, cleaning and facility services). Each manager and subordinate were included only in one dyad. Mean age of the managers was 43.0 years ($SD = 8.5$) and of the subordinates 41.9 ($SD = 9.0$). Of the managers,

18 were female and of the subordinates 24 were female. Of the dyads 16 were male-male, 14 were female-female, and 14 were mixed gender dyads. The managers could freely choose a willing subordinate for the discussion. Written consent was received from all participants.

2.2. Setting

The whole measurement session lasted approximately 2.5 h. This included placing of the electrodes and preparing the recording devices, baseline recording (5 min.), instructed discussion (30 min.), removing the electrodes, filling questionnaires, and a short briefing at the end. All the measurements were conducted at the premises of the participating companies, either in a meeting room or in the manager's own office room. The discussing partners were seated by a table, and a stand for two web-cameras was placed in between them for the recording of facial gestures for a later analysis. Additional back-up video cameras were placed next to each participant. The researchers waited in an adjacent room or in the hallway during all the recordings.

The participants were sent instructions for the discussion several days beforehand. In the instructions, the setting and the recording devices were described. In addition, both participants were asked to beforehand think of 2–3 developmental issues for themselves and for their partner. The participants were asked to discuss these topics, in a free order, during the recorded 30 min discussion.

2.3. Questionnaires

After the discussion, both the manager and the subordinate filled a form where ratings concerning emotional experiences during the discussion were collected. Participants rated their own emotions with 9-point graphical scales that resemble Lang's (1980) self-assessment manikin. There were 9-step scales for both emotional valence (1 = very negative, 9 = very positive) and arousal (1 = very calm, 9 = very aroused).

In addition, both participants filled the PK5 (Psykologien Kustannus Inc., Finland), a Finnish Big Five personality inventory. The PK5 consists of 5 dimensions (Extraversion, Agreeableness, Conscientiousness, Emotional Stability, and Openness to Experience) with altogether 150 items that are rated on a 5-point scale (1 = totally disagree, 5 = fully agree). The test has been standardized with a sample of 1107 Finns in working age (Psykologien Kustannus Oy, 2007). The alpha reliabilities in our sample were 0.93 for Extraversion and 0.85 for Conscientiousness.

2.4. Psychophysiological recordings

The physiological signals were recorded with two Varioport-B portable recording systems with 16-bit A/D converters (Becker Meditec, Karlsruhe, Germany). The participants wore the devices in a belt that was strapped across their torsos. Facial EMG activity was recorded from the left zygomaticus major (cheek muscle), and orbicularis oculi (periocular muscle) regions, as recommended by Fridlund and Cacioppo (1986), using surface Ag/AgCl electrodes with a contact area of 4 mm diameter (Becker Meditec, Karlsruhe, Germany). Electrodes were filled with Synapse conductive electrode cream (Med Tek/Synapse, Arcadia, CA). The raw EMG signals were band pass-filtered at 57–390 Hz, and sampled at a rate of 1024 Hz.

Electroencephalography (EEG) was recorded from six sites (F3, *F*4, C3, *C*4, P3, *P*4) using linked mastoids as the reference. The Ag/AgCl electrodes were placed on a stretch cap following the international 10/20 system. In addition, electro-oculogram (EOG) was measured to detect vertical and horizontal eye-movements for facilitating the removing of eye-movement related artifacts; the bipolar electrodes were placed above and below of the right eye and to the outer canthi of both eyes, respectively. The EEG signal was sampled with 256 Hz rate using 0.1 Hz high pass and 100 Hz low pass filters.

In addition, electrodes were placed at the corrugator supercilii site, and also to the torso for collecting the electrocardiogram (ECG). Also a breath belt was worn during the recordings. However, these signals are not reported here.

All data were stored on a CompactFlash memory card (2 GB) after digitizing with a 16-bit A/D converter. A ground electrode for all the physiological channels was placed on the right collarbone.

2.5. Data reduction and preprocessing

The psychophysiological data were analyzed using Matlab (version R2012b) software and Signal Processing and Statistics toolboxes. For facial EMG signals a notch filter at 50 Hz and a high-pass filter at 90 Hz were applied, in addition the signals were rectified and smoothed with a 100-ms moving average window.

The EEG signal was analyzed with the Analyzer 2 software (Brainproducts Inc.). A 50-Hz notch filter was applied and eye-movement artifacts were removed by using an ocular correction algorithm (Gratton et al., 1983). In addition, those 1-s segments that contained activity exceeding ± 85 μV were removed. For the remaining epochs the power spectra were derived using the fast Fourier transform (FFT) with Hanning window (applied to the distal 10% at the ends of the epoch). For each epoch power values (μV^2) from the alpha band (8–12 Hz; Buzsaki, 2006) were extracted. A frontal asymmetry index was calculated, using natural logarithmic transformation, with an equation $\ln(F4) - \ln(F3)$ with higher scores indicating greater relative left frontal activity (e.g., Allen et al., 2004).

For the physiological parameters Δ values (discussion - baseline) were calculated. For all physiological signals, values differing by at least three standard deviations from the mean were considered as outliers and removed from further analyses. Mean values of all of the described signals were calculated for the 5-min baseline and for the 30-min discussion, and all values were logarithmically transformed to normalize the distributions (Tabachnick and Fidell, 2007). All of the signals were analyzed separately, thus no combinatory signals were formed by averaging or by summation.

2.6. Statistical analyses

The correlations between the manager's and the subordinate's values for the different dependent variables were on average 0.19, thus the data were considered as being not independent and the dyad was selected as the unit of analyses. We used the Actor-Partner Interdependence Model (APIM), formulated by Kenny et al. (2006), with Linear Mixed Models in IBM SPSS Statistics (version 20). The dyad members, a manager and a subordinate, had distinguishable roles. Prior to analyses all the values of the predictor variables were centered around their dyad means, as suggested by Kenny et al. (2006). In the model each person serves as both the actor and the partner. An actor effect occurs "when a person's score on a predictor variable affects that same person's score on an outcome variable", and a partner effect occurs "when a person's score on a predictor variable affects his or her partner's score on an outcome variable (Kenny et al., 2006, pp. 145).

In the model, dyad was set as the subject variable and role (manager/subordinate) as the repeated variable and Compound Symmetry: Heterogeneous was used as the covariance structure. All the actor and partner effects, and their interactions, for Extraversion and Conscientiousness personality dimensions were included in the model at the same time; also the duration of the manager-subordinate relationship and the number of females in the dyad were included in the model. In addition, role and its interactions with each of the actor and partner effects of the two personality dimensions (Extraversion, Conscientiousness) were included in the model. One at a time, each of the Δ mean psychophysiological values and self-report measures were set as a dependent variable.

3. Results

A correlation matrix of the variables used in the analyses is in Table 1. The results of the statistical tests are presented in Table 2.

3.1. Duration of the manager–subordinate relationship

The duration of the relationship between the manager and the subordinate had an effect on self-reported emotional arousal, $p = 0.011$; more arousal was reported after a discussion between a manager and a subordinate who had a longer- ($M = 6.0$, $SD = 1.4$) compared to a shorter-duration ($M = 5.6$, $SD = 1.6$) relationship. For frontal EEG asymmetry, there was also a main effect for the duration of relationship, $p = 0.036$; in dyads where the duration of the manager-subordinate relationship was short, there was more relative left frontal activation, ($M = 0.002$, $SD = 0.234$) than in dyads where the duration of the relationship was longer ($M = -0.028$, $SD = 0.179$).

3.2. Role

The Role had a main effect on zygomaticus major activity, $p = 0.016$; subordinates ($M = 0.675$, $SD = 0.476$) had more zygomatic activity than the managers ($M = 0.462$, $SD = 0.531$).

3.3. Extraversion

There was an interaction effect of the actor's and partner's Extraversion in predicting zygomatic activity, $p = 0.050$; contrary to Hypothesis 1a, for actors with low Extraversion, a partner's low Extraversion led to higher zygomatic activity than did a partner's high Extraversion, whereas for actors with high Extraversion, a partner's low Extraversion led to less zygomatic activity than did a partner's high Extraversion (Fig. 1).

In addition, there was a statistically significant interaction effect for actor and partner Extraversion on orbicularis oculi EMG activity, $p = 0.006$; contrary to Hypothesis 1a, for actors with low Extraversion, a partner's low Extraversion was associated with higher orbicularis activity than partner's high Extraversion; for actors with high Extraversion, a partner's low Extraversion was associated with lower orbicularis activity than a partner's high Extraversion, as predicted by Hypothesis 1a (Fig. 2). However, both these, the zygomatic and the orbicularis results, confirm the Hypothesis 3.

3.4. Conscientiousness

For Conscientiousness a statistically significant effect on valence rating was observed ($p = 0.027$); high Conscientiousness ($M = 7.23$, $SD = 1.11$) was related to more positive valence ratings after the discussion than low Conscientiousness ($M = 6.72$, $SD = 1.23$).

There was a significant interaction between the role (manager/subordinate) and the actor effect of Conscientiousness in predicting

Table 2
Results of the statistical tests.

Source	df	F	p
Duration of relationship			
Arousal rating	1, 30.919	7.355	0.011
Δ Frontal asymmetry	1, 35.667	4.724	0.036
Role			
Δ ZM	1, 33.254	6.464	0.016
Extraversion			
Δ ZM			
Actor × Partner	1, 28.598	4.188	0.050
Δ OO			
Actor	1, 62.006	5.315	0.024
Actor × Partner	1, 26.923	8.828	0.006
Conscientiousness			
Valence rating	1, 61.685	5.112	0.027
Δ OO			
Role × Actor	1, 49.530	6.561	0.014

Note: Only statistically significant results are included. However, for statistically significant Actor × Partner interactions also the main effects are reported. ZM = zygomaticus major; OO = orbicularis oculi. Δ denotes for values calculated by subtracting baseline values from those obtained during the discussion.

orbicularis oculi ($p = 0.014$) activity; for managers, low Conscientiousness was associated with less activity than high Conscientiousness, but for subordinates, low Conscientiousness was associated with more activity than high Conscientiousness on these both muscle areas (Fig. 3).

4. Discussion

In the present study we aimed to investigate the effects of the Big Five personality dimensions and personality similarity to the emotions and motivation, as measured by self-reports and psychophysiological methods, during real-life performance review discussions between a subordinate and a manager. The discussion will be focused on the main finding (with $p < 0.01$).

Matching levels of Extraversion in dyad members led to higher periocular muscle activity. This finding, indicating positive valence emotional expressions, is in line with the previous findings by Cuperman and Ickes (2009) that "personality similarity helps extroverts". Extroverts are typically characterized as having good social skills, being talkative and enjoying interaction (Funder and Sneed, 1993); during interaction extroverts are observed to exhibit smiling, laughing, and enjoyment (Leikas et al., 2012). Thus, these positive qualities seem to abide when an extrovert interacts with another extrovert (Hypothesis 3). There is, however, a risk of conflict with the extroverts being described as dominating the interaction (Funder and Sneed, 1993). In reviewing previous studies Antonioni and Park (2001) point to the possible positive or negative outcomes of two extroverts interacting. Besides the possible positive effects extraversion may have in social interaction (see, Hypothesis 1a, 1b), conflicts for leadership in teams consisting of several highly extroverted members have been reported

Table 1
Correlation matrix.
Summary of intercorrelations for the dependent and independent variables.

Measure	1	2	3	4	5	6	7	8	9	10
1. Act. Ext.	–	0.257*	0.192	−0.011	−0.003	0.092	−0.228*	−0.101	−0.226*	−0.132
2. Part. Ext.	0.257*	–	−0.011	0.192	0.061	0.162	−0.228	0.074	−0.111	−0.203
3. Act. Consc.	0.192	−0.011	–	0.140	0.205	0.052	0.031	0.023	0.008	−0.017
4. Part. Consc.	−0.011	0.192	0.140	–	0.215*	0.065	0.031	0.085	0.027	0.024
5. Val.	−0.003	0.061	0.205	0.215*	–	0.300**	0.172	0.010	0.016	−0.058
6. Arou.	0.092	0.162	0.052	0.065	0.300**	–	0.233*	−0.054	−0.087	0.103
7. Duration	−0.228*	−0.228*	0.031	0.031	0.172	0.233*	–	−0.043	−0.142	−0.202
8. ZM	−0.101	0.074	0.023	0.085	0.010	−0.054	−0.043	–	0.682**	−0.151
9. OO	−0.226*	−0.111	0.008	0.027	0.016	−0.087	−0.142	0.682**	–	0.066
10. Fron. Asymm.	−0.132	−0.203	−0.017	0.024	−0.058	0.103	−0.202	−0.151	0.066	–

Note. Act. = Actor; Part. = Partner; Ext. = Extraversion; Consc. = Conscientiousness; Val. = Self-reported emotional valence; Arou. = Self-reported emotional arousal; Duration = duration of the manager–subordinate relationship; ZM = zygomaticus major; OO = orbicularis oculi; Front. Asymm. = frontal asymmetry. *$p < 0.05$; **$p < 0.01$.
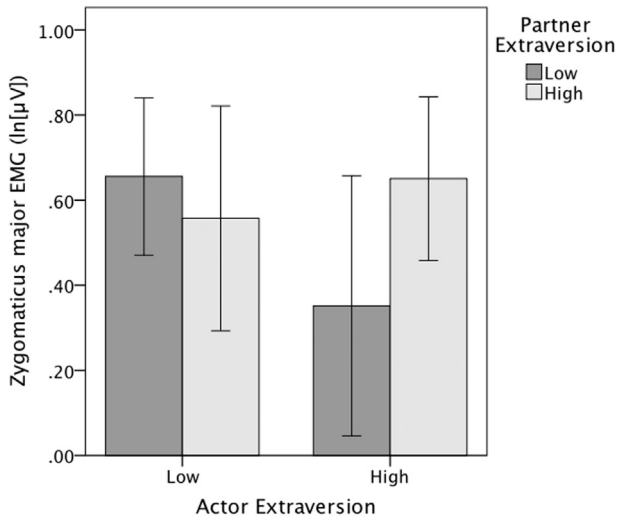
Fig. 1. Actor × Partner interaction effects of Extraversion on the cheek muscle activation.

(e.g., Barry and Stewart, 1997). However in the current setting there was a natural dominance position of the manager over the subordinate. According to the interpersonal theory, dominance evokes submission, and submission evokes domination (e.g., Fournier et al., 2008). It is suggested that the hierarchical setting in the current study provided each participant roles to act and, for example, limited extroverted subordinate's tendency to dominate during an interaction and encouraged to submit to the dominant position of the manager. For the observation that there was facial muscle activation suggesting more positive valence emotions for the interaction between two introverts than between an extrovert and an introvert, we follow the interpretation offered by Cuperman and Ickes (2009), suggesting that different interaction styles of extroverts and introverts hinder the interactions between these two. Based on results of a recent study Erez et al. (2015) posit that introverts are more sensitive to interpersonal personality traits and form more negative impressions of extraverted individuals during social interaction. They suggest, following a study by Ames and Flynn (2007) that this tendency is due to the introverts recognizing that extraverts "often compromise relational outcomes in the interest of instrumental ones", an issue which definitely has relevance in organizational settings.
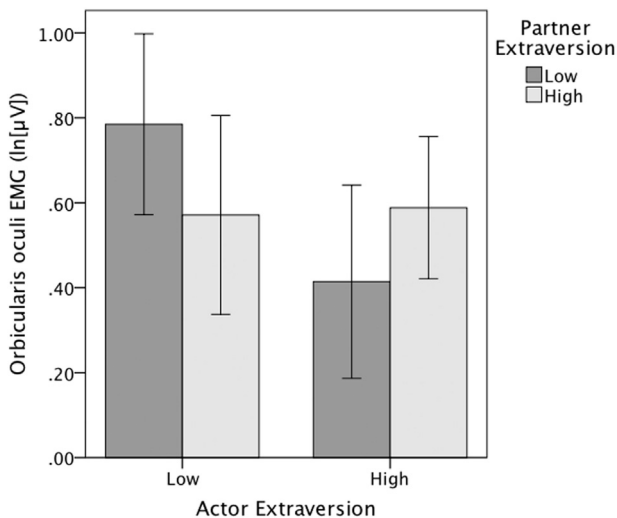

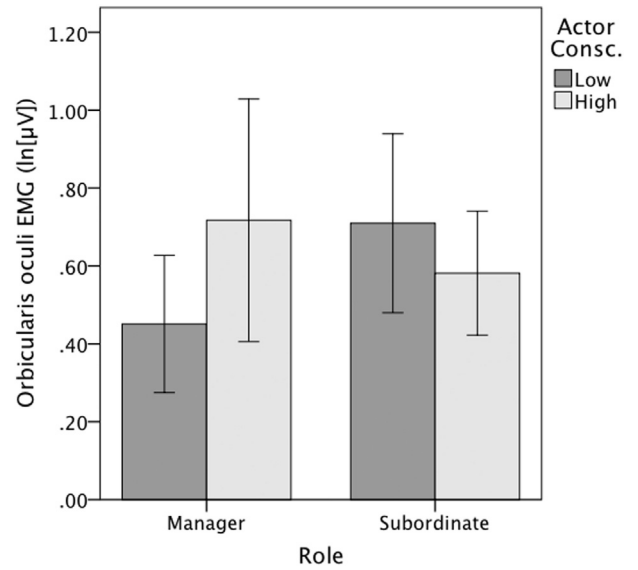**Fig. 2.** Actor × Partner interaction effects of Extraversion on the periocular muscle activation.

Fig. 3. Role × Actor conscientiousness interaction effects on the periocular muscle activation.

4.1. Implications

Following the studies by Funder and Sneed (1993), Cuperman and Ickes (2009), and Leikas et al. (2012) we have continued to explore the manifestations of personality during dyadic social interaction. Instead of coded behavior, other objective measure, namely psychophysiological recordings, were used in the current study. The psychophysiological methods have not been widely used in the study of social interaction since the pioneering studies of Levenson, Gottman and colleagues (see, for example Levenson and Gottman, 1983). The current findings highlight also the difference of psychophysiology and self-reports as methods in assessing emotions. The absence of statistically significant correlation between self-reported emotional valence after the discussion and either of the facial EMG measures (Table 1) recorded during the discussion is suggested to be due to these measures assessing different components of emotions (i.e. subjective and expressive), and also due to possible social desirability bias in responding to self-reports (e.g., Ravaja, 2004).

Montoya et al. (2008) differentiate laboratory and field experiments in the study of similarity attraction effect, whereas the current study includes some elements form both of these experiment types. The current study has relevance also in the field of person-environment fit studies, given that the other people in the organization are an essential feature of the organizational environment (Antonioni and Park, 2001). Bringing these research traditions together the current study adds also the role of social power that the manager has over the subordinate. Ragins and Winkel (2011) point out in their review that power affects the display of emotions and it also affects the way emotional expressions of others are perceived. That is, the emotions that the subordinates expressed were possiblyly affected by the social power that the manager had.

Van Kleef's (2009) Emotions as Social Information (EASI) model states that emotional expressions not only trigger affective but also inferential processes in the perceiver. According to the EASI model, social power determines, as one of the moderators, the relative strengths of these processes. Participants with higher power (e.g., managers) have lower information processing motivation and higher motivation for affective processing of the partner's emotional expressions, and vice versa. Van Kleef (2014) posits that symmetrical effects of anger and happiness would be mediated by affective reactions, but asymmetrical effects would be mediated by inferential processes. It is suggested, that in the current study similarity in Extraversion led to more affective than inferential emotional processing.

In the current study similarity attraction effect was observed unequivocally only for Extraversion. This central role of Extraversion in social interaction was highlighted also in the study of dyadic interaction by Cuperman and Ickes (2009). Extraverts are typically considered to have better interaction skills (e.g., Funder and Sneed, 1993) and Extraversion as a trait is viewed as a desirable quality in most organizations, for example Judge et al. (2002) found in their meta-analysis that of the Big Five dimensions the Extraversion was the most stable predictor of leadership. Thus Extraversion not only provides actual social skills, but Extravert partners may be viewed as more favorably and more leader-like during such a work-life relevant interaction.

4.2. Limitations of the current study and directions for future studies

Most of the previous studies with the psychophysiological methods have been conducted using static, unimodal (either visual or auditory), stimuli. Thus, more studies would be needed to form established emotional interpretations of different physiological responses during a face-to-face dyadic interaction. In addition, the employed psychophysiological recordings were somewhat obtrusive; electrodes were placed on various parts of the body. This unquestionably affected the behavior of the participants. Besides the electrodes, the video cameras constantly reminded that the behavior was being monitored. It is possible that the methodology led the participants to control and mask their emotional expressions, and to select non-risky discussion topics. However, the employed methodology was similar for all participants. At least to some extent, the methods for collecting data are more or less obtrusive in most experimental studies of social interaction.

One future direction, with special interest to leadership and social interaction skills coaches, would be the identifying of appropriate mass market recording devices for e.g., skin conductance, heart rate, and EEG. The devices would have to be able to provide signal with good-enough quality to permit reliable results. These could be used as a part of a dedicated leadership development program.

Acknowledgements

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