THE EFFECTS OF INTERPERSONAL ORIENTATION ON ACCURACY OF PERCEIVING EMOTIONS ACCORDING TO FACIAL MICROEXPRESSIONS *

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Abstract. *The main objective was to determine whether there are effects of interpersonal orientation (towards people, against people, away from people) on the accuracy of perceiving emotions (anger, fear, sadness, disgust, contempt, surprise, enjoyment) based on facial microexpressions. The model consists of 130 participants, grouped according to age and education. The implemented instruments included a test of recognizing emotions according to facial expressions (Ekman, 2003) for a duration of 60 milliseconds and a scale of interpersonal orientation (Bezinović, 2002), for testing positive (Need for people, Friendship) and negative orientation (Distrust and Social isolation). It was determined that fewer people expressed the Need for people and Social isolation, and more expressed Distrust predicts greater accuracy of perceiving emotions according to facial microexpressions. Friendship was not singled out as significant predictor of accuracy in perceiving emotions generally, but only regarding sadness and disgust in such a way that more expressed Friendship predicts greater success in recognizing these two emotions.*

Key words: *emotion, facial microexpressions, interpersonal orientation.*

1. INTRODUCTION

1.1. Facial microexpressions of emotions

The emotional reactions of a person that appear within a certain social interaction largely determine the course of that interaction. Every emotional response is composed out of three components: experiential, physiological and behavioral (Scherer, 2003). The behavioral or motor component implies gestures, head and body movement, facial expressions, looks, voice, special behavior (Kostić, 2006). Facial expressions are the most avail-

able to a person, so one often relies on them when drawing conclusions on the emotional condition or interpersonal attitude of his/her interlocutor. Facial expressions of emotions belong to a group of fast facial signals that present the consequences of changes in neuromuscular activity and can vary in duration. Facial macroexpressions are expressions which last between 0.5 and 4 seconds, are present in all parts of the face and are manifested only when a person is not motivated to control them (Matsumoto and Hvang, 2011).

However, there are situations in which a person is required to regulate their emotional response. Regulating emotions refers to processes, strategies that a person uses to influence some components of his emotional response (Philippot et al., 2004). This occurs when the answer is inadequate in its intensity (i.e. overestimated danger leads to feeling terrified, which has an immobilizing effecct) or way of expression, behavioral component (for example, silent reaction to justified anger), and sometimes the emotion can be inadequate (for example, to feel fear in a situation that objectively is not dangerous) (Ekman, 2003). Apart from this, social norms that exist within certain cultures can shape certain emotional responses, especially their behavioral components. The regulation of behavioral components refers to the modification of ways in which a person will express certain emotions (Philippot et al., 2004). Ekman and Frizen (Ekman & Friesen, 2003) make a distinction between three ways of managing facial expressions related to emotions and those are: 1) qualifying a facial expression – adding elements of facial expressions of some emotions, as comments, to already existing facial expressions of experienced emotions (for example, adding a smile to the facial expression of some negative emotion so as to show that this negative emotion is under control); 2) modulating a facial expression – a change of facial expression intensity (intensifying or reducing) that occurs in three forms: a variety of the number of active face areas, a variety of durations of the expression, a variety of the intensity of facial muscle activities; 3) falsifying a facial expression – simulating (expressing emotions when there are no feelings), neutralizing (not expressing emotions when there is one), masking (covering one emotion with a facial expression of another).

A certain sign of an attempt to regulate the facial expression of an emotion are facial microexpressions which represent facial expressions of emotions for the duration of one fifth of a second or less (Ekman, 2003). They are sometimes so short that it is impossible to determine which emotion was altered, neutralized, masked, but they are a certain sign that a person struggles to manage his/her facial expression (Ekman & Friesen, 2003). They can be manifested as very short full expressions of the emotion (in all areas of the face), very short partial or very short and very mild (with weak muscle contraction) expressions (Ekman, 2003).

In some empirical studies of perceiving emotions according to facial expressions it was determined that people can correctly estimate emotion shown on the face, and average accuracy of perception was around 60% (Ekman, 1965; Howell & Jorgenson, 1970; Lanzetta & Klek, 1970, according to Kostić, 2006). A confirmation of the reliability of facial expressions as sources of information regarding the emotion was obtained in the research conducted by Kostić (1999, according to Kostić, 2006). The results have shown that the assessors were able to successfully evaluate all six emotions involved in the research (happiness, sadness, anger, fear, disgust, surprise) and they were most successful in perceiving happiness and least successful in perceiving sadness. According to the provided data, one can conclude that facial expressions are a reliable source of information regarding emotions that a person experiences.

In the aforementioned studies, the participants based their evaluations on macroexpressions of the face – people whose facial expressions were used as stimuli were not motivated to regulate their emotions. Dealing with subtle emotional expressions, which imply muscle activity only in a certain part of the face or contractions of all the muscles that are active while expressing a certain emotion but of lower intensity, Ekman (2003) determined that many people do not react to them. It can be estimated that it is even harder to perceive emotions according to subtle facial microexpressions, that is, of an additional short duration. The participants of a different interpersonal orientation have participated in this type of task in the study.

1.2. Interpersonal orientation

Interpersonal orientation represents the attitudes of a person towards others (Bezinović, 2002). According to Horney (1945), they are formed in an attempt to overcome basic anxiety which includes feelings of helplessness, vulnerability, isolation and which is formed during childhood based on the perception of hostility and emotional rejection by the parents, independently of their actual intentions. In order to manage the world which he/she finds threatening, a person forms not only strategies for dealing with it but also relatively permanent tendencies that become a part of his/her character. A child, with its fears, weaknesses and low self-esteem, can deal with the world in three ways, during which certain individuals, depending on their character, develop one of them as the most dominant. This enables us to recognize movements towards people, against people and away from people. The aforementioned interpersonal orientations occur with neurotic as well as with mentally sound people, but a mentally sound person is able to use them more flexibly depending on the circumstances and people involved in the interaction (Wagner, 2001). However, mentally sound people also develop one of them into a more dominant one than the other two.

Individuals who are oriented towards people accept their own helplessness and develop strategies for gaining the sympathy of others in order to rely on them and provide a sense of security (Horney, 1945). Their self-evaluation depends on the attitude of other people towards them. They do not make requests, they always comply with others and tend to have a self-compassionate attitude.

Orientation against people occurs when a person forms a belief that other people are hostile towards him/her, and that he/she has to fight. This person is distrustful towards people, does not seek acceptance and love, but seeks power and domination according to his/her belief that this is the only way to deal with the threatening world. One's self-evaluation depends on their success, prestige; they are aggressive, narcissistic and tend to be perfect. These characteristics function as self-protection but revenge as well.

Individuals oriented away from people tend to be isolated, feel that they do not have much in common with other people and that they cannot provide them with necessities since they do not understand them. Hence, this individual develops a world of their own, does not set any goals, and has an aversion to making efforts or changes. They feel self-sufficient and are sensitive to other people's attempts to influence them, thus expressing strong resistance.

The question can be asked whether there are differences in accuracy of perceiving emotions according to facial microexpressions between people who have different inter-

personal orientations. This knowledge would, above all, have theoretical significance since it would represent a contribution to cognition in social psychology, owing to the fact that studies with this goal, if there are any, are insufficiently available.

Practical significance would be seen in the implementation of the results in the development of social skills, especially the skill of perceiving facial signs of an emotion with people who have the dominant type of interpersonal orientation which foresees lower accuracy of perceiving emotions in order to enhance their social relations, and at the same time make their beliefs, on which their dominant interpersonal orientation is based, more flexible.

2. THE METHOD

2.1. The goal and hypothesis of the research

The basic goal of the study is to examine the existing effects of interpersonal orientation on the accuracy of perceiving emotions (anger, fear, sadness, disgust, contempt, surprise, enjoyment) according to facial microexpressions, with the expectation that every type of interpersonal orientation is a significant predictor of accuracy in perceiving emotions according to facial microexpressions.

It can be assumed that people who have a significant need to be accepted by others, that is, who are motivated to develop interpersonal relations, as individuals with dominant orientations towards people (operationalized through the highly expressed Need for people and highly expressed Friendship), are sensitive to nonverbal signs of the positive emotions (enjoyment) of people who they are interacting with in comparison to individuals with whom this orientation is less present. Likewise, an opposite tendency can be expected with individuals who have a dominant orientation against people (operated through highly expressed Distrust). On the other hand, it is possible to expect that individuals with a highly expressed Need for people and Friendship are less sensitive to signs of certain negative emotions (anger, disgust, contempt) in comparison to individuals with less expressed dimensions, since those emotions are signs of rejection which individuals oriented towards people (operated through the highly expressed Need for people and highly expressed Friendship) are not ready to accept. Since those emotions (anger, disgust, contempt) confirm expectations of individuals dominantly oriented against people (operated through highly expressed Distrust) that people are hostile and that they should be fought, one can expect the opposite tendency. It can also be assumed that individuals dominantly oriented away from people (operated through highly expressed Social isolation), as emotionally restrained, are less successful in perceiving emotions and positive (enjoyment) and negative atomicity (anger, fear, sadness, disgust, contempt) than the ones with a less expressed orientation of this kind.

2.2. The sample

The sample consists of 130 participatns from Leskovac and Niš, divided into three age groups: 1) 24-34 years of age (N=40), 2) 35-44 years of age (N=44), 3) 45-55 years of age (N=46) and two groups according to education: 1) with a high-school degree (N=65), 2) with a university degree (N=65).

2.3. Instruments

- ***The test of perceiving emotions according to subtle facial expressions*** *(Ekman, 2003: 236-255)* – The test is used for examining the accuracy of detecting emotions of anger, fear, sadness, disgust, contempt, surprise and enjoyment according to facial expressions. It consists of 14 photos of female faces showing subtle facial expressions of the mentioned emotions. The participants are expected to recognize one of the seven emotions on offer in each photo and to write them down on an answer sheet. The correct answer was awarded with point, while the incorrect answer was not awarded, thus making the maximum score 14 points and the minimum 0 points.

- ***The scale of interpersonal orientation*** *(Bezinović, 2002)* – The scale is used for examining attitudes towards others that are grouped into two general factors: positive (philanthropic) orientation and negative (misanthropic) orientation. These factors contain two subfactors each: philanthropic orientation contains the Need for people (8 items) and Friendship (8 items), while misanthropic orientation contains Distrust (7 items) and Social isolation (6 items). While distrust corresponds to orientation against people, social isolation corresponds to orientation away from people (Bezinović, 1987, according to Bezinović, 2002). It is a Likert type scale, and the participants were asked to mark the level of agreement with every statement on a scale of five levels (from 0 – I absolutely disagree to 4 – I absolutely agree). The theoretic scope of scores was from 0 to 116. The first subscale in this sample (Need for people) proved to have low reliability, Kronbah's alpha was 0.70, for the other subscale (Friendship) also, Kronbah's alpha was 0.75, the third subscale (Distrust) showed medium reliability, Kronbah's alpha was 0.84, and the fourth subscale (Social isolation) also had low reliability, Kronbah's alpha was 0.74.

2.4. The procedure

The research was conducted in July 2013 in Leskovac and Niš. It was conducted in a group and in two phases. During first phase each photo was displayed for 60 milliseconds, while the second phase consisted of filling in a questionnaire on interpersonal orientation. The participants were informed about the anonymity of the research and that the obtained data would be used for research purposes only.

3. Results

A hierarchical regression analysis was conducted with the aim of studying the effects of interpersonal orientation on the accuracy of perceiving emotions according to facial microexpressions. In the first step we examined the predictive powers of control variables (age and level of education), and in the second step we examined the predictive powers of the need for people, friendship, distrust and social isolation. These steps enabled examining the effect of interpersonal orientation on the accuracy of perceiving emotions after eliminating the effect of age and level of education.

Table 1 shows the combination of four predictors (Need for people, Friendship, Distrust and Social isolation) explains 13% of the variance of accuracy in perceiving emotions according to facial microexpressions. Statistically significant individual contributions to the explanation of variance of accuracy in perceiving emotions came from the

Need for people, Distrust and Social isolation. Based on the level of regressive coefficients, it can be determined that the Need for people is the best predictor, while Distrust is the weakest. The direction of the regressive coefficients points out that perceiving emotions according to facial microexpressions is more accurate when the Need for people and Social isolation are lower and Distrust is higher.

Table 1 Significant predictors of accuracy in perceiving emotions
according to facial microexpressions

Criteria: accuracy in recognizing emotions			
Predictors	Beta	Contribution of the model 1	Contribution of interpersonal orientation
Need for people	-0.42**	R=0.37 R^2=0.14**	R^2 change=0.13**
Distrust	0.22*		
Social isolation	-0.28**		

* statistically significant on level p<0.05, ** statistically significant on level p<0.01

The results given in Table 2 show that the combination of four predictors (Need for people, Friendship, Distrust and Social isolation) explains 10% of the variance of accuracy in perceiving negative emotions (anger, disgust and contempt) according to facial microexpressions. An independent contribution to the explanation of the criteria was made only by the Need for people, according to which, the less prominent Need for people predicts greater success in perceiving emotions of anger, disgust and contempt.

Table 2 Significant predictors of accuracy in perceiving negative emotions
(anger, disgust and contempt) according to facial microexpressions

Criteria: accuracy in recognizing anger, disgust and contempt			
Predictors	Beta	Contribution of the model 1	Contribution of interpersonal orientation
Need for people	-0.41**	R=0.34 R^2=0.12*	R^2 change=0.10*

* statistically significant on level p<0.05, ** statistically significant on level p<0.01

However, this combination of predictors did not lead to a statistically significant prediction of emotions of anger and contempt once they were included in the regression analysis as individual criteria rather than as a group.

The results given in Table 3 show that the combination of four predictors (Need for people, Friendship, Distrust and Social isolation) explains 13% of the variance of accuracy in perceiving contempt according to facial microexpressions. However, the combination of six predictors (age, level of education, Need for people, Friendship, Distrust and Social isolation), apart from the Need for people and Friendship, as independent variables, age also makes an independent contribution to explaining accuracy in perceiving disgust. The need for people stands out as the best predictor of criteria value, and age as the weakest. It can be concluded that younger individuals, with a less pronounced Need for people and more expressed Friendship, are more successful in perceiving the emotion of disgust.

Table 3 Significant predictors of accuracy in perceiving disgust
according to facial microexpressions

Criteria: accuracy in recognizing disgust			
Predictors	Beta	Contribution of the model 1	Contribution of interpersonal orientation
Years of age	-0.16*	$R=0.40$ $R^2=0.16**$	R^2 change=0.13**
Need for people	-0.51**		
Friendship	0.28*		

* statistically significant on level $p<0.05$, ** statistically significant on level $p<0.01$

Based on the results given in Table 4, one can conclude that the combination of four predictors (Need for people, Friendship, Distrust and Social isolation) explains 13% of the variance of accuracy in perceiving sadness according to facial microexpressions. As statistically significant predictors, the Need for people, Friendship and Social isolation stand out, of which Social isolation is the best and the Need for people is the weakest predictor. The less expressed Need for people and Social isolation and more pronounced Friendship predict greater success in perceiving the emotion of sadness.

Table 4 Significant predictors of accuracy in perceiving sadness
according to facial microexpressions

Criteria: accuracy in perceiving sadness			
Predictors	Beta	Contribution of the model 1	Contribution of interpersonal orientation
Need for people	-0.29*	$R=0.38$ $R^2=0.14**$	R^2 change=0.13**
Friendship	0.31*		
Social isolation	-0.40**		

* statistically significant on level $p<0.05$, ** statistically significant on level $p<0.01$

4. DISCUSSION

The basic assumption of this study was that types of interpersonal orientation, orientation towards people, against people and away from people, are significant predictors of accuracy in perceiving emotions (anger, fear, disgust, contempt, surprise, enjoyment) according to facial microexpressions. This assumption can be considered confirmed since it was determined that these predictors, in this combination, explain 13% of the variance of accuracy in perceiving emotions according to facial microexpressions, when one rules out the effect of control variables of age and level of education.

An independent contribution was given by the Need for people, Distrust and Social isolation. It was determined that a more pronounced Need for people predicts lower accuracy in perceiving emotions. Further analyses have shown that the Need for people in a given direction foresees accuracy in perceiving a group of negative emotions (anger, disgust, contempt), as well as accuracy in recognizing disgust given as individual criteria and accuracy in perceiving sadness. These results partly confirm the hypothesis that individuals directed towards people, with an expressed need to be with other people, to have their

sympathy and be accepted, complicate the perception of emotions which could represent signs of rejection (anger, disgust, contempt). As far as the main result is concerned, the obtained direction of predicting accuracy in perceiving emotions according to the expressed Need for people can offer an explanation that individuals who have a highly pronounced need for acceptance by others do not pay enough attention to their emotions in order to be self-protected from potential rejection, and that the attitude of protecting themselves from perceiving emotions which express a negative interpersonal attitude has generalized onto other emotions. If they had a negative experience with people in the past and if that negative experience led to the formation of this type of interpersonal orientation, as assumed by this theory (Horney, 1945), then one can expect the formation of defensive attitudes towards gaining information on emotions of other people. Even when they are positive, because of earlier experiences and formed expectations, they will be interpreted differently. Apart from this, individuals in social situations, due to low self-evaluation and high anxiety as a result of the tendency to attempt to be liked by others, can be more directed to themselves and their own emotions, thus paying less attention to the interlocutor and his/her emotional state.

The examination of the basic hypothesis has shown that a highly expressed Distrust predicts a higher accuracy in perceiving emotions. Expressions of interpersonal orientation against people has not proved to be a significant predictor of accuracy in perceiving emotion of enjoyment or the group of negative emotions which could have a hostile attitude (anger, disgust, contempt). This finding can be interpreted by the general attitude of these individuals that people are hostile and that one must be careful in social interactions, must carefully monitor their behavior, especially signs of emotions, in order to predict their intentions in time. It is important for them to recognize the interlocutor's emotions correctly, and not to protect themselves by not paying attention, as do people who have expressed a need for others. This kind of attitude enables them to recognize the interlocutor's emotions better; therefore, as experienced and good at this, they have succeeded in this research.

The main findings have shown that more expressed Social isolation predicts less success in perceiving emotions according to facial microexpressions. In the process of checking predictions of accuracy in perceiving individual emotions as criteria, a prediction in the given direction was obtained but only regarding the emotion of sadness while this type of interpersonal orientation did not prove to be a significant predictor for other emotions. The obtained result, in comparison to the accuracy of perceiving emotions, is generally expected owing to the fact that those people are prone to isolation because of their belief that other people do not understand them and that they are self-sufficient. As such, these individuals do not attach importance to social interactions, they avoid people and therefore do not have developed social skills which include, amongst others, accuracy in the perception of emotional states of others.

Friendship did not stand out as a significant predictor of accuracy in perceiving emotions generally, but only concerning sadness and disgust, in such a way that more expressed Friendship predicts greater success in perceiving emotions of sadness and disgust. Based on items analysis that include Friendship, one can become doubtful that it operates orientation towards people in the way defined by Horney (1945); therefore it is not in the predicted ratio with the accuracy of perceiving emotions.

The available data do not explain why some dimensions have proven to be significant for predicting accuracy in recognizing only some of the emotions, or why age is a significant

predictor of accuracy in perceiving the emotion of disgust in such a way that with age the accuracy in perceiving this emotion decreases. It is possible that this comes from the instrument used for the detection of emotions which contains some systematic differences by which the expression of one emotion differs from another (highly controlled or slight emotion), and that this is not only the consequence of differences between types of emotions.

This research has pointed out some relations which could, above all, serve as an incentive for other studies in this area, in order to justify generalization.

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EFEKAT INTERPERSONALNE ORIJENTACIJE NA TAČNOST OPAŽANJA EMOCIJA NA OSNOVU FACIJALNIH MIKROEKSPRESIJA

Ovo istraživanje za svoj osnovni cilj je imalo ispitivanje efekata interpersonalnih orijentacija (ka ljudima, protiv ljudi i od ljudi) na tačnost opažanja emocija (ljutnja, strah, tuga, odvratnost, prezir, iznenađenje, uživanje) na osnovu facijalnih mikroekspresija. Uzorak čini 130 ispitanika ujednačenih po starosti i obrazovanju. Kao instrumenti primenjeni su Test prepoznavanja emocija na osnovu facijalnih ekspresija Ekmana (2003) izlagan u trajanju od 60 milisekundi i Skala interpersonalne orijentacije (Bezinović, 2002) za ispitivanje pozitivne (Potreba za ljudima, Prijateljstvo) i negativne orijentacije (Nepoverenje, Socijalna izolacija). Utvrđeno je da manje izražene Potreba za ljudima i Socijalna izolacija, a više izraženo Nepoverenje predviđaju veću tačnost opažanja emocija na osnovu facijalnih mikroekspresija. Prijateljstvo se nije izdvojilo kao značaj prediktor tačnosti opažanja emocija generalno već samo u odnosu na tugu i odvratnost, i to tako da više izraženo Prijateljstvo predviđa veću uspešnost u prepoznavanju ovih emocija.

Ključne reči: *emocija, facijalne mikroekspresije, interpersonalna orijentacija.*