ТЕМЕ, г. XLII, бр. 4, октобар – децембар 2018, стр. 1061–1080

Оригинални научни рад
DOI: 10.22190/TEME1804061V
Примљено: 5. 4. 2017.
UDK 159.942-057.875(497.11)
Ревидирана верзија: 12. 5. 2017.
Одобрено за штампу: 12. 6. 2018.

RECOGNITION OF FACIAL MICRO EXPRESSIONS OF EMOTIONS DEPENDING ON PROFESSIONAL ORIENTATION, SATISFACTION WITH LIFE AND SOCIAL BACKGROUND OF STUDENTS

Bojan Veljković

Ministry of Interior, Police Department in Jagodina,
Jagodina, Republic of Serbia
bojan_sladja@yahoo.com

Abstract

The aim of this research was to examine if there is a difference regarding the successfulness of observation of facial micro expressions of basic emotions among students depending on their professional orientation, social background and self-assessment of satisfaction with life. The instruments used were a computer program for examining the ability to observe basic emotions based on micro expressions of the face and SWLS- Satisfaction with life scale. The results showed that there is a connection between the self-assessment of satisfaction with life and the accuracy of observation of micro facial expressions of basic emotions. When it comes to the successfulness of observation of facial micro expressions of basic emotions, there is no difference between students from the city and the village, or between the subsamples of students of different social backgrounds.

Key words: facial micro expressions, basic emotions, satisfaction with life, professional orientation, social background.

ПРЕПОЗНАВАЊЕ ФАЦИЈАЛНИХ МИКРОЕКСПРЕСИЈА ЕМОЦИЈА У ЗАВИСНОСТИ ОД ПРОФЕСИОНАЛНЕ УСМЕРЕНОСТИ, ЗАДОВОЉСТВА ЖИВОТОМ И СОЦИЈАЛНОГ ПОРЕКЛА СТУДЕНАТА

Апстракт

Циљ овог истраживања био је да се испита да ли постоји разлика у успешности препознавања фацијалних микроекспресија примарних емоција код студената у зависности од њихове професионалне усмерености, социјалног порекла и самопроцене задовољства животом. Као инструменти су коришћени компјутерски програм за испитивање способности опажања примарних емоција на основу микроекспресије лица и SWL скала задовољства животом. Резултати су показа-

ли да постоји повезаност самопроцене задовољства сопственим животом и тачности препознавања микрофацијалних експресија примарних емоција. Нема разлике у успешности препознавања микрофацијалних експресија примарних емоција између студената са села и из града. Такође, нема разлике у успешности између подузорака студената различитог професионалног усмерења.

Кључне речи: фацијалне микроекспресије, примарне емоције, задовољство животом, професионална усмереност, социјално порекло.

INTRODUCTION

The Theoretical Framework of the Research Problem

Human beings are biologically prepared to respond to specific stimuli from the social environment (objects or events) by means of a specific emotional response. During first years of life, flexible patterns of expression of emotions are developed through facial expressions as well as vocal and behavioral expressions which are adjusted according to the social situation (Chaplin and Aldao, 2013). Numerous theories of emotions (e.g. Katherine Bridges's theory, the James-Lange theory, the Cannon-Bard theory) were trying to answer the question whether emotions are biologically or socially conditioned, and each of them provided part of the answer. There are not all-encompassing theories of emotions, they are genetic and acquired, a product of the combination of two processes: a) current needs and motives of an individual, b) stimuli from the social environment and their cognitive perception. These processes are accompanied by certain physiological body reactions and motoric behavior.

The purpose of emotion is in its function of adjustment, it has a role to prepare an individual for a biologically purposeful activity, fast and almost automatic reaction in situations which can sometimes be of vital importance for an individual (Ekman, 2011). The root of the word emotion itself (lat. *Motere*– to move, with the prefix *"e"* – to move forward) implies that a tendency to act is inherent in every emotion (Goleman, 2005). This preparation of the body for reinforced efforts and activity is reflected in bodily, physiological changes which are an important component of emotions. Majority of these bodily changes happen after the activation of sympathicus (pupil dilation, rapid heart beating, rapid breathing, increased adrenaline and sugar exudation into blood, increased muscle tension). Despite big advances in the field, cerebral mechanisms of emotions still represent one of the most active new fields of research (Ekman, 2011). Neuro-anatomic basis of emotional expressions is complex it includes cortical cerebral regions which control voluntary actions related to emotions, and subcortical cerebral regions (limbic system, amygdalas) which control the signals causing involuntary facial expressions (Goleman, 2005).

During an individual's development, emotions become more complex (from diffuse excitement of a newborn to complex emotional reactions) and their expression becomes less visible for the environment. A person tries to voluntarily modify their intensity, duration and quality, under the influence of factors from the social environment (Pejičić, 2015).

Understanding an individual's emotions involves recognizing those which are at the basis of complex emotional states, recognizing modification of certain emotion and its transition from one form into another (Ekman, 2011). In social interactions, besides verbal communication, non verbal, extra linguistic means of communication performed using proxemic and kinesic signs have a significant role (Rot, 2004).

It is a widely accepted fact, based on a lot of research and recognized by majority of experts, that non-verbal communication accounts for 2/3 of total communication, and very often this percentage reaches 90% (Pantović & Pantović, 2013). This fact gives even greater research significance to non-verbal communication. Among kinesic signs (those which include the movement of the whole body or certain body parts, including face), facial expression is attributed a special significance (Kostić, 2010). The majority of people trust their own ability to adequately decode facial expression of other people (Landis, 2010). A human face is a complex stimulus with significant personal characteristics: shape of the face, skin texture, the shape and colour of eyes, the colour and length of the hair framing the face etc. (Bruce and Young, 2012).

Scientific discussion on the nature of facial expressions, their origin and function, classifies the researchers of this problem into two groups: evolutionists and cultural relativists. Evolutionists (Darwin, 1999, 1872; Eibl-Eibesfeld, 1972; Izard, 1971; Tomkins, 1962; according to Kostić, 2010) stressed the dominant role of innate, instinctive mechanisms when determining expressive facial movements, while cultural relativists (Birdwhistell, 1970; Mead, 1975, La Barre, 1947, according to Kostić, 2010) claimed that emotional expressions differ from culture to culture, i.e. they are culturally specific and are primarily a result of learning.

Biological, evolutionist stance and assumption about phylogenetic basis of facial expressions have been checked and confirmed in different kinds of research with auditory deprived people (Eibl-Eibesfeld, 1973, 1975), newborn babies (Oster and Ekman, 1978), identical twins (Knapp and Hall, 2002, according to Kostić, 2010). The basis of this view is in the research of Charles Darwin who stated his basic opinion that mammals show emotions and that it can be seen on their faces in his famous book "*Expression of the emotions in man and animals"* (1872). Darwin claimed that facial expressions in people are largely determined by the principles of evolution and that patterns of expression of emotions are innate and

universal and they represent a relic of former useful, adaptive actions (Ekman, 2011).

The aim of cross-cultural research of facial expression (Ekman, Sorenson, Friesen, 1969; Ekman, Friesen, 1971; Izard, 1971; Eibl-Eibesfeldt, 1972, according to Kostić, 2010) was to empirically check Darwin's views. Using mostly assessment studies as a methodological framework, researchers obtained consistent results confirming the universality of facial expressions of emotions, also pointing out the existence of universal categories of events and situations which provoke the appearance of certain emotions in all cultures (Pavlović, 2011). In his cross-cultural research, Paul Ekman determined the existence of basic emotions for which there are universal facial expressions. These basic emotions are: happiness, sadness, fear, anger, surprise and disgust. The facial expression of these emotions is universal, i.e. all people in the world have a similar facial expression when they are happy, sad, frightened, surprised, angry or disgusted (Ekman, 2011). There is research which questions the existence of 6 universal emotional facial expressions and based on its results indicates that there is a smaller number of latent expression patterns (Jack, Sun, Delis, Garrod and Schyns, 2016). However, other researchers state the results which show that facial expressions reflect the combinations of basic emotions i.e. combinations which comprise several categories of basic emotions, on the basis of which the observers manage to make a conclusion about the emotion in question (Mehu and Scherer, 2015).

In order to prove the dominant influence of culture and learning process in emotional behaviour, the supporters of cultural relativism organized research often characterized by serious methodological shortcomings (examples in the form of anecdotes, insufficiently defined observation procedures, impossibility of research replication, etc). They also dealt with facial emblems, illustrators and manipulators in their research, without distinguishing them from emotional expressions, and made inadequate conclusions about the vital influence of culture on facial expressions of emotions.

Still, despite the proven universality of expression of basic emotions, it is undeniable that culture, or an individual's socio-cultural environment, plays a significant role in cultivating, modifying and adjusting facial expression of certain emotions to certain conditions of the social context (social status, education, gender, etc.) (Pavlović and Zlatanović, 2011). Therefore, although facial expressions are considered to be "a universal language", cultural and other factors can question that "universality" and generate different factors (prejudices, expectations, attitudes, convictions, etc.) which can significantly determine the observation of facial expressions of emotions (Jack, Caldara and Schyns, 2012). Even Paul Ekman himself points out that his findings do not mean that culture has no influence on emotional expression of people. On the contrary,

through its rules, system of beliefs and values, culture socializes our biologically conditioned expression of emotions (Ekman, 2011). Cultural script interlaces with family script, intensity and quality of emotional reactions is adjusted to a set of basic social roles, especially gender roles (Popović and Petrović, 2006, according to Barjaktarević, 2013).

Facial expression of emotions can also be modified as a result of an individual's conscious intention to manipulate facial expression hoping for certain social benefit (Milovanović, 2016). It is for this reason that the issue of interpretation of facial expression is one of the crucial issues in the context of non-verbal communication. What becomes noticeable in this process is the communicative competencies which represent a complex set of abilities, general and specific knowledge and skills necessary for articulating, announcing, receiving, decoding and interpreting different communicative signs (Gonzales and Wagenaar, 2005, according to Milovanović 2016). As a constituent part of emotional intelligence concept, emotional sensitivity of an individual (awareness of one's own emotional states and developed empathy) represents an important segment in the successful interpretation of facial expression (Goleman, 2005).

People differ regarding their ability to decode emotional messages, especially the ability to extract information from the stimulus such as *micro facial expression of emotions*. Micro expressions appear and disappear from the face in a fraction of a second (25-30 milliseconds), we can miss and not see them if we only blink. They can be part of suppressed, neutralized or masked emotion.

Mastering the skill of recognizing emotional states in other people sounds intriguing. It seems particularly interesting in the context of revealing someone's intention to deceive us, lie to us, fake the emotion that in fact does not exist at that moment. Despite the fact that he conducted a lot of methodologically refined empirical research, in his book *"Emotions Revealed"* (Ekman, 2011, p.276) Paul Ekman states there is not a completely reliable, unambiguous and absolutely sure sign that someone is lying, there are only weaker or stronger indicators, that is, "hot spots" which require a further investigation.

So, when an emotion appears and there is no reason for hiding or suppressing it, its expression can last for 0.5-4 seconds and it involves the muscle movements of the whole face. These are called macro expressions and the observer can decode them relatively easily (Barjaktarević, 2013). Micro expressions, which last only for 1/4 or 1/5 of a second, sometimes even less, can pose the biggest problem for the observer because, along with short duration, they are often disguised by the expression of an emotion which is not felt or experienced (Kostić, 2010). As Ekman stated in his book *"Lying"*: "Two messages can be seen on the face almost simultaneously – what a liar wants to show and what a liar wants to

hide....A face is a two-fold system including both the expressions that a person consciously chose and the spontaneous expressions which appear without the person being aware of them appearing on his/her face." (Ekman, 2010, p. 117). A lot of research in the field of decoding facial expressions is dedicated to the question whether it is possible at all to successfully decode emotional expression on someone's face, and which factors correlate with successful decoding (Wallbot, 1988). These types of research showed that decoders are able to adequately recognize at least elementary, basic emotional expressions with high level of successfulness (Boucher and Carlson, 1980; Izard, 1980; Ekman, 1982, 1984; Matsumoto, 1989, according to Wallbott, 1998). Some recent research has pointed out that there is a significant difference in how easy it is to recognize different emotional micro facial expressions, with happy faces being the easiest to recognize, and the frightened ones the most difficult (Calvo, Avero and Fernandez- Martin, 2016). The advantage in recognizing facial expressions of happiness was also determined in the meta-analysis by Nummenma and Calvo (2015).

The complexity of the process of interpersonal communication brings into focus the importance of correct interpretation of facial expression of emotions (including both macro and micro expressions). The question that logically follows is: what mechanisms do decoders use to make their conclusions, that is, which are the factors of individual differences in the recognition of facial expressions of emotions (Ekman and O'Sullivan, 1991)? Majority of observers are led by the whole expression, whereas only a small group of people, who either have a rare natural talent or are educated to observe facial movements, can observe micro expressions and other imperfections on the face which reveal the true emotion (Ekman, 2011).

A good assessment of the category, intensity and antecedent of an emotion, the overall position of the speaker and especially his/her facial expression of emotions are often required in order to successfully do different jobs (inspectors, judges, psychologists, managers, etc.). The message received during communication is decoded through a complex process of information processing and under the influence of many mental factors (motivation, emotional status, cognitive abilities and personality traits of the message receiver) (Asch, 1946, according to Milovanović, 2016). The universality of emotion (the same way of expressing it in all cultures), the intensity of emotion, the openness of emotion manifestation and the characteristics of the observer are the key factors of accurate assessment of facial expression of emotions (Rot, 2004). When talking about the observer's personality traits, the message receiver in the social communication, besides affective, cognitive and behavioral component as a classic model of functioning of a person, in accord with the principles of humanistic psychology (Maslow, Rodgers,

Allport), what is also important is the way a person sees himself/herself, assessment of one's own needs and motives, competencies and goals, as well as satisfaction with life and oneself. Satisfaction with life as a construct is a factor related to several variables and can be variable itself. The choice of determinants of subjective satisfaction with life is a matter of approach and decision about accepting a certain model for assessment of satisfaction with life (Milivojević, Arsić, Milovanović, Savović, Tonić, 2012). Satisfaction with life is one of the basic components of personal well-being and it can be defined as a global self-assessment of quality of life in relation to one's own criteria (Diener et al, 1985, according to Vasić, Šarčević, Trogrlić, 2012).

Variables of the social structure, such as place of residence or professional orientation of students, can significantly influence the status of a person in an emotional interaction involving the manifestation of one's own emotional state, but also the exact recognition of the expression of the emotions of others. According to some authors, the place of life in a certain sense determines the rules of the manifestation of emotions, that is, "when and how to feel". (Clark, 1997, according to Kishjuhas, 2015).

Problem of the Research

The main research problem presented in this paper is the examination of differences in the accuracy in recognition of micro facial expressions of emotions taking into account professional orientation, satisfaction with life and social background of students. We start by assuming that a specific conceptual framework determined by certain factors (in our case professional orientation, social background) can influence the recognition of basic emotional signals on the faces of other people through the system of knowledge, convictions, values, expectations.

The social components represented through the place of life (village-city) or through the professional orientation of students can influence the ability to accurately recognize another's emotional expression, including the micro expression of primary emotions. This can be very important in the decision-making process and in interpersonal relationships.

The research problem can be divided into several questions: is there a difference in the accuracy of recognition of facial micro expressions of emotions in students of different professional orientation? Is the accuracy of observation of facial micro expressions of emotions influenced by self-assessment of satisfaction with life and social background of students? Also, the data collected during research enable us to answer the question regarding the influence of demographic variables (gender of the interviewees) on the dependable variables (the accuracy of recognition of micro expressions of emotions), as well as the mutual influence of the independent variables in the research (social background and satisfaction with life, professional orientation and satisfaction with life).

Research Variables

Independent research variables are:
a. professional orientation of students
b. satisfaction with life of students and
c. social background of students

Dependent research variable is accuracy of recognition of basic emotions based on facial micro expressions depending.

The Research Hypotheses

The general hypothesis: There is a statistically significant difference in the accuracy of recognition of basic emotions based on facial micro expressions depending on the professional orientation of students, their satisfaction with life and social background.

Specific hypotheses

1. There is a correlation between the accuracy of recognition of micro facial expressions of basic emotions and self-assessment of satisfaction with life.
2. There is a statistically significant difference in the accuracy of recognition of basic emotions based on facial micro expressions among students of different professional orientation.
3. There is a statistically significant difference in self-assessment of satisfaction with life among students of different professional orientation (The Academy of Criminalistic and Police Studies and others)
4. There is a statistically significant difference in the accuracy of recognition of basic emotions based on facial micro expressions among students of different gender on the whole sample and the subsamples.
5. There is a statistically significant difference in self-assessment of satisfaction with life among students of different gender on the whole sample and the subsamples.
6. There is a statistically significant difference in the accuracy of recognition of basic emotions based on facial micro expressions among students of different social background.
7. There is a statistically significant difference in self-assessment of satisfaction with life among students of different social background on the whole sample and the subsamples.

METHOD

Sample

The research was conducted on the appropriate sample (n=120) of students of both genders at the Academy of Criminalistic and Police Studies in Zemun, The Faculty of Pedagogical Sciences in Jagodina and

the Higher Education Technical School in Novi Beograd, aged 20-30 years. One group of the respondents (subsample 1) comprised the students of the Academy of Criminalistic and Police Studies (further in text: CPA) 52,5%, the second group (subsample 2) comprised the students of the Faculty of Pedagogical Sciences and the Higher Education Technical School, 47,5%. This subsample consisted of the students from two faculties in order to make the subsamples equal in terms of gender since the students of the Faculty of Pedagogical Sciences are mostly female and putting only them into the subsample would have significantly influenced the structure and validity of the whole sample.

The following tables show the structure of the sample:

Table 1 The structure of the sample in relation to professional orientation

Faculty	n	Percent
CPA	63	52.5
Other faculty	57	47.5
Total	120	100.0

Table 2 The structure of the sample in relation to gender

Gender	n	Percent
male	55	45.8
female	65	54.2
Total	120	100.0

Table 3 Distribution of the sample in relation to social background

Social background	n	Percent
Village	51	42.5
Town	69	57.5
Total	120	100.0

Procedure

The research was conducted in April and May 2015 at the faculties (CPA Zemun, The Faculty of Pedagogical Sciences in Jagodina and the Higher Education School of Professional Studies in Belgrade), in time periods immediately before the lectures, in optimal working conditions and using answer sheets and technical devices (computer, video projector, projector screen, etc.). The managing boards of the faculties gave necessary permissions to conduct research and during research no organizational, technical or any other kind of problems occurred. After being informed about the research goals and course, the interviewees' participation was voluntary and anonymous.

After being given directions, the students wrote basic demographic data on the answer sheet (gender, age, social background). What followed

was the exposure of the first series of 14 photographs of faces with micro facial expression of a certain emotion lasting for 25 milliseconds, after which there was the second exposure of the same photos but lasting longer. There were not any interviewees who withdrew from the research.

Instruments

METT - A computer programme modelled after the program METT (Micro Expression Training Tool, Paul Ekman, 2002) was used as the instrument for examining the ability to recognize basic emotions based on facial micro expressions. The test consists of 14 black-and-white photos of female faces showing facial expressions of 7 basic emotions: anger, fear, sadness, disgust, contempt, surprise and enjoyment. The interviewees' task was to choose on the answer sheet the category of emotion which is, in his/her opinion, represented in each of the 14 given samples of facial expressions of emotions. All 7 basic emotions which can be recognized in the photos are listed at the top of the answer sheet. Each correct answer counts as 1 point and incorrect answers do not count. The minimal number of points is 0 and the maximum is 14. The interviewees were given two separate series of tasks (defined as Phase I and Phase II on the answer sheet), that is, in the first series they were shown 14 photographs with the exposure of 25 milliseconds per photo, whereas in the second series the exposure was 4 times longer.

SWLS - satisfaction with life scale (Satisfaction With Life Scale, Diener et al., 1985) was used to assess satisfaction with life. The scale consists of 5 statements and the interviewee marks his agreement with each statement on the seven-point Likert scale. The scores can range from 5 – 35, where higher scores indicate a higher level of satisfaction with life. SWLS scale measures the cognitive component of personal well-being. Initially, it was formed from 48 statements formulated to be indicative of someone's satisfaction with life (Diener et al., 1985; Pavot and Diener, 1993, according to Vasić, Šarčević and Trogrlić, 2012). After eliminating the statements which referred to affective experience and the statements which were redundant, 5 statements which remained are in use now. The assessment of homogeneity of the scale was done by Momirović in 1999 (Momirović et al., 1999, according to Vasić, Šarčević and Trogrlić, 2012) and it was established that it has a tendency towards maximum, unit value.

Data Analysis

The procedures of descriptive statistics and inferential statistics were used to process data;

- The techniques of descriptive statistics (mean, standard deviation, percentage, frequencies) to determine the prominence of basic research variables.

- Inferential statistic includes correlative techniques for determining the degree and direction of the relationship of variables (Pearson's correlation coefficient) and techniques for determining the significance of difference between means (t-test).

RESULTS

Table 4 Descriptive statistics

Social background	n	Minimum	Maximum	M	SD
First exposure	120	.00	9.00	5.14	1.48
Second exposure	120	2.00	9.00	5.51	1.46
Satisfaction with life	120	14.00	35.00	25.65	4.84

Display of results according to research hypotheses:

The general hypothesis

There is a statistically significant difference in the accuracy of observation of basic emotions based on facial micro expressions depending on the professional orientation of students, social background and their self-assessment of satisfaction with life.

Specific hypotheses

H1. *There is a relationship between the accuracy of observation of micro facial expressions of basic emotions and self-assessment of satisfaction with life.*

Table 5 Correlation of satisfaction with life and accuracy of observation of micro facial expressions of basic emotions

	Second exposure	Satisfaction with life
First exposure	.126	-.236**
Second exposure		-.081

** correlation is significant at p< .01

On the whole sample, a statistically significant negative correlation between satisfaction with life and accuracy was obtained in shorter exposure. Students who are less satisfied with life more accurately observe facial expressions of basic emotions.

Table 6 Correlation of satisfaction with life and accuracy of observation of micro facial expressions of basic emotions among students of CPA

	Second exposure	Satisfaction with life
First exposure	-.027	-.194
Second exposure		-.051

There are not significant correlations between self-assessment of satisfaction with life and accuracy of observation of micro facial expressions of emotions on the subsample of students of CPA.

Table 7 Correlation of satisfaction with life and accuracy of observation of micro facial expressions of basic emotions among students of other faculties

	Second exposure	Satisfaction with life
First exposure	.251	-.283*
Second exposure		-.107

* correlation is significant at p< .05

On the subsample of other faculties, there was a statistically significant negative correlation between satisfaction with life and accuracy of observation in shorter exposure. Students who are less satisfied with life are better at observing micro facial expressions of emotions.

H2. *There is a statistically significant difference in the accuracy of observation of basic emotions based on facial micro expressions among students of different professional orientation.*

Table 8 Professional orientation and differences in accuracy of observation of micro facial expression of basic emotions

	Faculty	n	M	SD	t	Sig.
First exposure	CPA	63	5.15	1.41	.132	.895
	Other	57	5.12	1.56		
Second exposure	CPA	63	5.50	1.31	.003	.998
	Other	57	5.50	1.62		

There is not a statistically significant difference in accuracy of observation of micro facial expressions of emotions between the subsamples of students of different professional orientation.

H3. *There is a statistically significant difference in self-assessment of satisfaction with Life among students of different professional orientation (The Academy of Criminalistic and Police Studies and others)*

Table 9 Differences in satisfaction with life in relation to the professional orientation

	Faculty	n	M	SD	t	Sig.
Satisfaction with life	CPA	63	26.21	4.71	1.328	.187
	Other	57	25.03	4.95		

There is not a statistically significant difference in self-assessment of satisfaction with life among students of different professional orientation.

H4. *There is a statistically significant difference in the accuracy of observation of basic emotions based on facial micro expressions among students of different gender on the whole sample and the subsamples.*

Table 10 Gender differences in the accuracy of observations of micro facial expression of basic emotions

	Faculty	n	M	SD	t	Sig.
First exposure	Male	55	4.81	1.47	2.240	.027
	Female	65	5.41	1.45		
Second exposure	Male	55	5.32	1.56	1.257	.211
	Female	65	5.66	1.35		

On the whole sample, there is a statistically significant difference between genders regarding the successfulness of observation of micro facial expressions of emotions in shorter exposure. Women are significantly better at observing emotions in shorter exposure.

There is not a statistically significant difference between genders in the accuracy of observation of micro facial expressions of basic emotions on the subsample of students of CPA.

Table 11 Gender differences in the accuracy of observations of micro facial expression of basic emotions among students of CPA

	Faculty	n	M	SD	t	Sig.
First exposure	Male	32	4.87	1.34	1.637	.107
	Female	31	5.45	1.46		
Second exposure	Male	32	5.65	1.47	.915	.364
	Female	31	5.35	1.11		

Table 12 Gender differences in the accuracy of observations of micro facial expression of basic emotions among students of other faculties

	Faculty	n	M	SD	t	Sig.
First exposure	Male	23	4.73	1.657	1.547	.128
	Female	34	5.38	1.456		
Second exposure	Male	23	4.86	1.604	2.577	.013
	Female	34	5.94	1.496		

There is a statistically significant difference between genders in the accuracy of observation of facial expressions of basic emotions on the subsample of students of other faculties. Women are better at observing facial expression of emotions in longer exposure.

H5. *There is a statistically significant difference in self-assessment of satisfaction with life among students of different gender on the whole sample and the subsamples.*

Table 13 Gender differences in satisfaction with life

	Sex	n	M	SD	t	Sig.
Satisfaction with life	Male	55	25.42	5.11	.481	.631
	Female	65	25.84	4.63		

On the whole sample, there are not statistically significant differences between genders in the level of satisfaction with life.

Table 14 Gender differences in satisfaction with life among students of CPA

	Sex	n	M	SD	t	Sig.
Satisfaction with life	Male	32	25.16	4.96	1.834	.07
	Female	31	27.29	4.24		

There are not statistically significant differences between genders in the level of satisfaction with life on the subsample of students of CPA.

Table 15 Gender differences in satisfaction with life among students of other faculties

	Sex	n	M	SD	t	Sig.
Satisfaction with life	Male	23	25.78	5.40	.936	.353

There are not statistically significant differences between genders in the level of satisfaction with life on the subsample of students of other faculties.

H6. *There is a statistically significant difference in the accuracy of observation of basic emotions based on facial micro expressions among students of different social background.*

Table 16 Differences in the accuracy of observations of expression of basic emotions in relation to the social background

	Social background	n	M	SD	t	Sig.
First exposure	village	51	5.05	1.71	.526	.600
	town	69	5.20	1.29		
Second exposure	village	51	5.41	1.40	.623	.534
	town	69	5.57	1.5		

There are not statistically significant differences in the accuracy of observation of micro facial expressions of basic emotions between students from the village and the students from the city in both exposures, on the whole sample.

Table 17 Differences in the accuracy of observations of expression of basic emotions in relation to the social background among students of CPA

	Social background	n	M	SD	t	Sig.
First exposure	village	25	5.32	1.8	.730	.468
	town	38	5.05	1.11		
Second exposure	village	25	5.24	1.20	1.329	.189
	town	38	5.68	1.36		

Although there are not significant differences between students from the village and from the city, what is noticeable is the result regarding the accuracy of observation of expressions in longer exposure, where students from the city have higher average scores (M= 5.68)

Table 18 Differences in the accuracy of observations of expression of basic emotions in relation to the social background among students of other faculties

	Social background	n	M	SD	t	Sig.
First exposure	village	26	4.80	1.63	1.410	.164
	town	31	5.38	1.48		
Second exposure	village	26	5.57	1.58	.289	.774
	town	31	5.45	1.67		

Although there are not significant differences between students from the village and from the city, what is noticeable is the result regarding the accuracy of observation of expressions in shorter exposure, where students from the city have higher average scores (M= 5.38)

H7. *There is a statistically significant difference in self-assessment of satisfaction with life among students of different social background on the whole sample and subsamples.*

Tabela 19 Differences in satisfaction with life in relation to the social background

	Social background	n	M	SD	t	Sig.
Satisfaction with life	village	51	25.07	4.25	1.113	.268
	town	69	26.07	5.23		

There is not a statistically significant difference in the level of satisfaction with life in relation to social background of students on the whole sample.

Table 20 Differences in satisfaction with life in relation to the social background among students of CPA

	Social background	n	M	SD	t	Sig.
Satisfaction with life	village	25	25.60	3.807	.828	.411
	town	38	26.60	5.222		

There is not a statistically significant difference in the level of satisfaction with life between the students from the city and the village on the subsample of students of CPA.

Table 21 Differences in satisfaction with life in relation to the social background among students of other faculties

	Social background	n	M	SD	t	Sig.
Satisfaction with life	village	26	24.58	4.65	.636	.527
	town	31	25.42	5.24		

There is not a statistically significant difference in self-assessment of satisfaction with life between the students from the city and the village on the subsample of students of other faculties.

DISCUSSION AND CONCLUSION

The results of this research indicate that on the whole sample there is a statistically significant connection between self-assessment of satisfaction with life and the accuracy of observation of facial micro expressions of basic emotions. A negative correlation shows that people who are less satisfied with their life better recognize micro facial expressions of basic emotions. A possible explanation is that they put more effort and that they are more motivated to improve their perceptive and overall communicative competencies in order to increase the level of their satisfaction with life. However, there is not a statistically significant difference in the accuracy of recognition of facial micro expressions of basic emotions among students of different professional orientation, although it could have been expected that the students of the Academy of Criminalistic and Police Studies (CPA) would be more successful considering the fact they went through certain selection procedures and chose a profession which involves frequent assessment of facial expression and behaviour of other people. Some recent research has determined the existence of a statistically significant

difference in the successfulness of observation of micro facial expressions of basic emotions in the interviewees of different professional orientation (Barjaktarević, 2013).

In addition, there are not statistically significant differences between students from the village and the city regarding the accuracy of observation of micro facial expressions of basic emotions, although on the subsample of the students of CPA the students from the city had higher average scores in longer exposure, whereas on the subsample of students of other faculties the students from the city were also more successful, but in shorter exposure. The absence of statistically significant differences in observation of micro facial expressions of basic emotions in relation to professional orientation and social background of the interviewees supports the universality of expression of these emotions, in accordance with the results of the previous research mentioned in the introductory part of this paper.

Although determining differences in successfulness of observation of micro facial expressions of basic emotions between genders was not part of the main research problem, it is, nevertheless, defined as one of the specific goals of the research. It was determined that there is a statistically significant difference between genders regarding the successfulness of observation of micro facial expressions of basic emotions on the whole sample. Women are significantly better at observing micro facial expressions of basic emotions in shorter exposure of 25 milliseconds. This result is in accordance with Ekman's findings that women are a little better observers of facial expressions than men (Ekman, 2011), although in the research he conducted using secret service officers, judges, psychiatrists as interviewees (Ekman, O'Sullivan, 1991, according to Barjaktarević, 2013) he did not find a statistically significant correlation between gender and accuracy of recognition of facial micro expressions of emotions.

The average successfulness of interviewees in this research regarding accuracy of observation of micro facial expressions of basic emotions is within the range of average successfulness of the interviewees in other research, since Paul Ekman claims most respondents from his research have the result of about 5 correct answers.

Despite numerous methodological problems in this type of research, its significance in theoretical and practical sense in indisputable (Ekman and O'Sullivan, 1991). Adequate interpretation of facial expression of emotions is very significant for human interactions and wider social functioning, whereas the reduction of this ability can cause difficulties in social functioning (Bourke, Douglas and Porter, 2010, according to Paiva-Silva et al., 2016). For this reason we think that the mechanisms of integrating isolated signals, such as micro facial expressions, into attribution of emotion, as well as a mediating influence of socio-cultural factors, will remain an open area for further research.

REFERENCES

Barjaktarević, S. (2013). *Opažanje mikrofacijalnih ekspresija emocija u zavisnosti od empatije i emocionalne kompetentnosti policijskih inspektora i inženjera.* [*Observation of micro facial expressions of emotions depending on empathy and emotional competence of police inspectors and engineers]*, neobjavljen master rad, Filozofski fakultet, Niš.

Bruce, V.,Young, A. (2012).*Face perception,* New York, NY: Psychology press.

Calvo, M.G., Avero, P. and Fernandez-Martin, A. (2016). Recognition Thresholds for Static and Dynamic Emotional Faces, *Emotion***,** 16(8), 1186-1200.

Chaplin, T.M., Aldao, A. (2013). Gender differences in emotion expression in children: A meta-analytic review, *Psychological Bulletin,*139, (4), 735-765.

Darwin, C. (1999). *The expression of the emotions in man and animals (3.ed*.) New York, NY: Philosophical Library (Original work published 1872).

Ekman, P. (2010). *Laganje* [*Lying],* N. Sad: Mediterran Publishing.

Ekman, P. (2011). *Razotkrivene emocije*, [*Emotions Revealed]*, Beograd: Zavod za udžbenike i nastavna sredstva.

Ekman, P., O'Sullivan, M. (1991). Who can catch a liar?, *American Psychologist,* 46, 913-920.

Goleman, D. (2005). *Emocionalna inteligencija [Emotional Intelligence*], Beograd: Geopoetika.

Jack, R.E., Caldara, R., Schyns, F.G. (2012). Internal representations reveal cultural diversity in expectations of facial expression of emotions, *Journal of Experimental Psychology:General,* 141, (1), 19-25.

Jack, R.E., Sun, W., Delis, I., Garrod, O.G.B. and Schyns, P.G. (2016). Four Not Six: Revealing Culturally Common Facial Expressions of Emotion, *Journal of Experimental Psychology: General,* 145, (6), 708-730.

Kišjuhas, A. (2015). *Telesne, individualne i društvene dimenzije emocija: ka razvoju integrisane sociološke teorije* (doktorska disertacija) [*Physical, individual and social dimensions of emotions: towards the development of an integrated sociological theory*]. Univerzitet u N. Sadu, Filozofski fakultet, N. Sad.

Kostić, A. (2010). *Govor lica: značenja facijalnih ponašanja, [The speech of the face: meaning of facial behavior]*, Niš: Univerzitet u Nišu, Filozofski fakultet.

Landis, C. (2010). The interpretation of facial expression in emotion, *The Journal of General Psychology,* 2(1), 59-72.

Mehu, M. and Scherer, K.R. (2015). Emotion Categories and Dimensions in the Facial Communication of Affect: An Integrated Approach, *Emotion,* 15,(6), 798-811.

Milovanović, R. (2016). Unapređenje uspešnosti budućih učitelja i vaspitača u tumačenju facijalnog izraza, [The successfulness of future teachers and educators in the perception of facial expression], *Učenje i obrazovanje TE LXV* 1/2016, 211–225.

Nummenman, L. and Calvo, M.G. (2015). Dissociation Between Recognition and Detection Advantage for Facial Expressions: A Meta-Analysis, *Emotion,* 15(2), 243-256.

Paiva-Silva, A.I., Kerr Pontes, M., Roucha Aguiar, J.S., De Souza, W. (2016). How do we evaluate facial emotion recognition?, *Psychology & Neurosciens,* 9(2), 153-175.

Pantović, M. (2013). Facial Expression: Journey into the Centre of Emotion, *Curr Top Neural Psychiatr Relat Discip***.**Vol XXI, No 1-2.

Pavlović, M., Zlatanović, Lj. (2011). Facijalni znaci maskiranja, blokiranja, suzbijanja eksperimentalno izazvane emocije tuge, [Facial signs of masking, blocking,

suppressing of experimentally caused emotion of sadness], *Godišnjak za psihologiju*, 8(10), 152–168.
Pejičić, A. (2015). *Facijalna ekspresija*, [*Facial Expression*], www.pozitivnapsihologija.rs, (available 12. 1. 2017).
Rot, N. (2004). *Znakovi i značenja*, [*Signs and Meanings]*, Beograd: Plato (str.169–200).
Vasić, A., Šarčević, D., Trogrlić, A. (2012). Zadovoljstvo životom u Srbiji, [Satisfaction with Life in Serbia], *Primenjena psihologija*, 2, 151–177.
Wallbot, H.G. (1998). Decoding emotions from facial expression: Recent developments and findings, *European review of social psychology*, 9, 191-232.

ПРЕПОЗНАВАЊЕ ФАЦИЈАЛНИХ МИКРОЕКСПРЕСИЈА ЕМОЦИЈА У ЗАВИСНОСТИ ОД ПРОФЕСИОНАЛНЕ УСМЕРЕНОСТИ, ЗАДОВОЉСТВА ЖИВОТОМ И СОЦИЈАЛНОГ ПОРЕКЛА СТУДЕНАТА

Бојан Вељковић
МУП Србије, Полицијска управа Јагодина, Јагодина, Србија

Резиме

Резултати овог истраживања указују на то да на нивоу целог узорка постоји статистички значајна повезаност самопроцене задовољства сопственим животом и тачности препознавања микрофацијалних експресија примарних емоција. Негативна корелација говори да они мање задовољни сопственим животом боље процењују микрофацијалне експресије примарних емоција. Могуће објашњење је да они улажу више напора и да су мотивисанији да унапређују своје перцептивне и укупне комуникационе компетенције како би подигли степен свог задовољства животом на виши ниво. Међутим, нема статистички значајне разлике у тачности препознавања фацијалних микроекспресија примарних емоција код студената различите професионалне усмерености, мада се могло очекивати да ће студенти Криминалистичко-полицијске академије (КПА) бити успешнији с обзиром на то да су прошли кроз одређене селекционе процедуре и определили се за занимање које подразумева веома честу процену фацијалне експресије и понашања других људи. Нека скорија истраживања су пак показала да постоји статистички значајна разлика у успешности препознавања микрофацијалних експресија примарних емоција код испитаника различите професионалне усмерености (Барјактаревић, 2013).

Такође, нема статистички значајних разлика између студената са села и из града у тачности препознавања микрофацијалних експресија примарних емоција, мада су на подузорку студената КПА субјекти из града имали нешто веће просечне скорове на дужој експозицији, а на подузорку студената других факултета такође су студенти из града били успешнији, али овог пута при краћој експозицији. Непостојање статистички значајних разлика у препознавању микрофацијалних експресија примарних емоција у односу на професионалну усмереност и социјално порекло испитаника може да говори у прилог универзалности способности препознавања експресија ових емоција, у складу са резултатима ранијих истраживања која су наведена у уводном делу овог рада.

Без обзира на то што утврђивање полних разлика у успешности препознавања микрофацијалних експресија примарних емоција није био саставни део главног

проблема овог истраживања, то је био један од специфичних циљева истраживања. Утврђено је да постоји статистички значајна разлика између полова у успешности препознавања микрофацијалних експресија примарних емоција на нивоу целог узорка. Жене значајно боље препознају микрофацијалне експресије примарних емоција код краће експозиције од 25 милисекунди. Овај налаз је у складу са Екмановим налазима да су жене нешто успешнији опажачи фацијалних експресија емоција од мушкараца (Екман, 2011) иако у истраживањима које је спроводио користећи као испитанике припаднике тајних служби, судије и психијатре (Екман, О Саливен, 1991, према Барјактаревић 2013) није утврдио статистички значајну повезаност између пола и тачности препознавања фацијалних микроекспресија емоција.

Просечна успешност испитаника у тачности препознавања микрофацијалних експресија примарних емоција у овом истраживању смештена је у оквир просечне успешности испитаника. Према емпиријским налазима Пола Екмана (Paul Ekman), већина субјеката из његових истраживања има резултат који се креће око пет тачних одговора.

Упркос многим методолошким проблемима у истраживањима овог типа, несумњив је њихов значај у теоријском и практичном смислу (Ekman and O Sullivan, 1991). Адекватна интерпретација фацијалне експресије емоционалног израза од великог је значаја за људске интеракције и шире друштвено функционисање, а редукција ове способности може условити тешкоће у социјалном функционисању (Burke, Douglas and Porter, 2010, according Paiva – Silva et al., 2016). Зато сматрамо да ће механизми интегрисања издвојених сигнала, попут микрофацијалне експресије, у атрибуцију емоције, као и медијаторски утицај социо-културних чинилаца, остати отворено поље за бројна наредна истраживања.