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**Development of Emotion
Recognition Ability by Focused
Observation**

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Dr. Gregory T. Papanikos
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Abstract

Emotion recognition ability is considered to be crucial for human relationships in general and it is accepted as a part of emotional intelligence concept. According to growing body of research, the ability to read and understand facial expressions of emotions is related to various personality constructs and it can be improved by training. The primary aim of this study was to determine whether instruction in the use of focused observation of facial expressions and in reflection of this process would enhance the development of emotion recognition ability in nursing and psychology students. Students of psychology (n = 96) and nursing (n = 90) were administered computerized 30 standardized manifestations of basic emotions and neutral expressions (Warsaw Set of Emotional Facial Expression Pictures, Olszanowski et al., 2008) and 36 items of revised "Reading the mind in the eyes test" (Baron-Cohen et al., 2001). Then they were asked to estimate the number of correctly judged stimuli. Finally, they were asked to complete two observation sheets within the next two weeks. After this period the observation sheets were collected and

participants were tested again by different 30 standardized manifestations of basic emotions and neutral expressions and 36 items of revised “Reading the mind in the eyes test”. Results suggest that participants who completed the task felt more confident and were better at recognizing expressions of emotions as measured by the first test, but not the second one. Results can be interpreted in the context of automatic vs. controlled process that relates to reading facial expressions. Implications for education and training in helping professions are discussed.

Key words: emotion recognition ability, reflection, focused observation, nursing, psychology

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Introduction

More than 140 years ago Charles Darwin in his work [the expression of the emotions in man and animals](#) (1872) proposed the notion of the universality of facial expressions of emotions across cultures and highlighted the role of ability to recognize emotions for adaptation. Today this ability is one of the fundamental aspects of emotional intelligence (Salovey & Mayer, 1997) and is considered a prerequisite for successful functioning in interpersonal relationships. People with high ability to perceive emotional expressions acquire more accurate information on what the others feel, which contributes to their competence in communication. It has its importance not only for the evolution of species, but also for the development of the individual. According to Ekman (1999), author of the classic studies in this area, the ability to recognize emotions is essential for building and maintaining relationships from birth, when communication is based primarily on non-verbal signals.

According to some research findings, the ability to recognize emotions is related to emotional intelligence measured by self-report questionnaire (Ciarrochi et al., 2000) and multiple personal traits. Matsumoto et al. (2000) based on the literature review indicate relations with the Big Five traits Openness to Experience, Conscientiousness, Extraversion and Agreeableness and inverse relationship with Neuroticism.

Current research has shifted from the universality of facial expressions of emotion to the possibilities of improving the ability to recognize emotions. *Emotion perception accuracy* can be improved by training using feedback about the correct answer in normal population (Elfenbein, 2006) and in patients with schizophrenia (Silver et al., 2004). This can be also applied in recognition of micro-expressions that are results of the efforts to control the expression of emotions and they last only for a very short time (Matsumoto, Hwang, 2011). Earlier findings (Costanzo, 1992; Grinspan, Hemphill, Nowicki, 2003) even suggest that the improvement occurs by solving tasks on recognition, without knowing the correct answer. These findings offer possibilities for improving practical competence in the helping professions, particularly in the process of assessment and verification of the effectiveness of interventions, which are viewed as essential components in clinical judgment.

Reflection as a tool for improving practical skills in nursing and psychology students

Clinical judgment is an important aspect of education and practice in nursing. Postmodern nursing requires not only knowledge and skills of nurses, but also the ability to critically evaluate quickly and dynamically changing context and the amount of available information (Crowe & O'Malley, 2006). The requirements of practice should be reflected in the education of nursing students.

Reflection is a common principle in most of the innovative methods and theories in contemporary education in nursing. It is a tool to improve the practical skills of nurses and to reduce the gap between theory and practice.

Reflection is viewed as a process of feedback on the experience, assessing the extent to which the experience corresponds to its current meaning, creating new meanings and incorporating new experiences into existing structures (Murphy, 2004). At the same time reflection is as a methodology for lifelong learning – Murphy (2004) points out that equal emphasis should be placed on content of learning and on the learning process. Reflecting situations and activities facilitates learning from experience, helps expand clinical knowledge, improves clinical judgment and decision making in complex situations and contributes to a sense of confidence and self-competence (Tanner, 2006).

Traditionally simulated situations illustrating practical problems and own clinical experience represent a subject of reflection in education (Crowe & O'Malley, 2006). Reflection can have several forms: written (a written essays or diary – narrative form can contribute to the improvement of sub-components of critical thinking as hypothesis-generating or creating explanations), verbal (structured group discussion), problem-based learning (solving simulated situations and subsequent reflection process facilitates the transfer of knowledge from the classroom into real practice) (Profetto-McGrath, 2005).

Glynn (2012) in her qualitative study with nursing students found out that structured reflective group discussion has a positive effect on perceived development of clinical judgment and confidence in decision-making. Murphy (2004) showed that a simple instruction that draws learner's attention to the application of theoretical knowledge into practice, leads to improved clinical reasoning. She instructed students to reflect how theoretical knowledge relates to their new experiences during training. When comparing performance in clinical judgment, these students scored better than the group without instructions. Interviews with six students with best scores showed qualitative differences between the groups. Students with better clinical judgment reported a higher frequency of reflecting learning and higher self-regulation in the learning process.

The research objective

The aim of the study was to determine whether instruction focused on observing expressions of emotion, taking notes about the process of observation, and a group discussion about observations would improve the ability to recognize emotions and improve sense of competence in nursing and psychology students. We expected that students' participation in observations and reflections of their experience would result in increased scores in the emotion recognition task. In the task we used two types of stimulus material – expression manifested by the whole face or reduced expressions manifested by the eyes only.

Method

The research sample included psychology and nursing students ($n = 186$) aged 18-46 years ($AM = 20.48$, $SD = 2.81$). The vast majority of participants

were women (96.2%). Participation in the research was voluntary. During the three phases of data acquisition, 34.4% participants terminated their participation. The final sample consisted of 122 participants that were allocated into four groups: 46 students completed observation task and took part at the discussion, 34 completed observation task but did not take part in the discussion, 16 students did not complete observation task but took part in the discussion, and finally, 26 students did not complete observation task and did not take part in the discussion.

Measures and procedure

Pretest and posttest measurements were performed by using computer-administered questionnaires. The first measurements were carried out in groups of 20 participants. At the beginning the research project and its three phases were introduced to the participants. Administration of the pretest measurement took approximately 30 minutes.

- Identification data
- WSEFEP (Warsaw Set of Emotional Facial Expression Pictures, Olszanowski et al., 2008) – test measuring the ability to recognize emotions based on facial expressions – set of 30 photographs depicting basic emotions and neutral facial expression with a choice of options. The database contains 210 color photographs of people with expressions of basic emotions and neutral expression. For use in pre-test and post-test, we created two sets of 30 images, which are equivalent by the number of male and female faces, by the expression of emotions, with an emphasis on fear and sadness (fear - 10, sadness - 6, anger - 4, surprise - 3, neutral facial expression - 3, disgust - 2, joy - 2) and by the difficulty index (the percentage of participants who assigned a picture right emotion during the validation of the database). Participants were asked to answer the question “What emotion is experiencing the person at the picture?” They could choose one of seven options (fear, sadness, anger, surprise, disgust, joy, no emotion). Research findings (Rosenberg & Ekman, 1995) suggest that the use of different forms of response scales (open question, forced choice or assigning corresponding situation) does not influence difficulty of the task.
- Estimation of success expressed numerically as the ratio of correctly estimated images to the total number of images
- Self-confidence in the assessment of emotions in the images with a 6-point Likert scale
- Eye Test (Baron-Cohen et al., 2001). Test is a revised version of the original test “Reading the Mind in the Eyes Test” (Baron-Cohen et al., 1997), which is based on the author's model of theory of mind. Theory of mind is the ability to attribute complex mental states to oneself or another person, and it is considered to be fast, automatic and unconscious process. Instruction was: “What is the person in the picture thinking or feeling?” The result is an indicator of one aspect of social intelligence and is not related to IQ (Baron-Cohen et al., 2001). The original version of the test

contained 25 stimulus pictures. Test takers had to choose between two options that logically increased a chance of guessing the correct answer. The revised version contains 36 stimulus pictures (18 male and 18 female eyes) and the person being tested has to decide among four options with one correct answer and three distractors with similar emotional valence. In the process of translation we used as a support a dictionary, which is recommended to be administered together with the test (Baron-Cohen et al., 2001).

- Estimation of success expressed numerically as the ratio of correctly estimated images to the total number of images
- Self-confidence in the assessment of emotions in the images with a 6-point Likert scale

After the test administration, the participants were offered the opportunity to discontinue their participation in the research. Those, who decided to continue, were given the following task: within the two-week period they were asked to make observation of at least two people's emotions whom they were in contact with, comment trigger factors, symptoms and consequences of those emotions, and finally to comment their own response to the observed emotion. Two weeks later, participants submitted completed forms (55.4% return rate) and took part in the second measurement. At this phase, the measurement was carried out separately in 32 groups; each group consisted of four students. All groups were randomly assigned to experimental or control conditions. Prior to the measurement 16 groups participated in a short discussion with the researcher with the aim to reflect on the experience related to the observation (15-30 min). The other 16 groups underwent only the measurement. Post-test consisted of the following parts (duration approx. 15-20min):

- Identification data
- WSEFEP (Warsaw Set of Emotional Facial Expression Pictures, Olszanowski et al., 2008) – second set of pictures
- Estimation of success expressed numerically as the ratio of correctly estimated images to the total number of images
- Self-confidence in the assessment of emotions in the images with a 6-point Likert scale
- Eyes test (Baron-Cohen et al., 2001)
- Estimation of success expressed numerically as the ratio of correctly estimated images to the total number of images
- Self-confidence in the assessment of emotions in the images with a 6-point Likert scale

Results

First we compared the emotion recognition ability prior to and after participation in observations and group discussions. We expected improved emotion recognition ability in students who were engaged in the observation

tasks and discussions. Given the uneven distribution of the number of students in the groups, we decided to apply a non-parametric Wilcoxon test to compare improvement across four groups. Grouped median was used as a descriptive statistics.

Table 1. *Differences in the WSEFEP and Eyes test pretest and post-test scores*

Group		Pretest	Post-test	Z	p
observation task discussion (n=46)	WSEFEP	21.41	23.15	-3.911	< .001
	EYES TEST	24.79	25.40	-1.714	.087
observation task no discussion (n=34)	WSEFEP	20.23	22.55	-3.410	.001
	EYES TEST	24.50	25.50	-.907	.364
no observation task discussion (n=16)	WSEFEP	21.43	22.00	-.762	.446
	EYES TEST	24.25	25.50	-1.776	.076
no observation task no discussion (n=26)	WSEFEP	20.40	22.67	-2.984	.003
	EYES TEST	23.43	24.25	-1.195	.232

Secondly we compared the estimates of success and self-confidence in emotion recognition ability task prior to and after participation in observations and group discussions. Non-parametric Wilcoxon test to compare improvement across four groups was applied again, with grouped median as a descriptive statistics.

Table 2. *Differences in estimates of success and self-confidence pretest and post-test scores*

Group		Pretest	Post-test	Z	p
observation task discussion (n=46)	Est. WSEFEP	19.69	20.00	-1.832	.067
	Conf. WSEFEP	2.81	2.59	-2.086	.037
	Est. EYES TEST	19.08	19.64	-1.081	.280
	Conf. EYES TEST	3.76	3.33	-3.731	< .001
observation task no discussion (n=34)	Est. WSEFEP	20.83	20.00	-.529	.596
	Conf. WSEFEP	2.82	2.64	-1.057	.290
	Est. EYES TEST	19.67	19.86	-.229	.819
	Conf. EYES TEST	3.42	3.36	-.166	.868
no observation task discussion (n=16)	Est. WSEFEP	19.00	18.00	-.159	.874
	Conf. WSEFEP	3.46	3.15	-1.897	.058
	Est. EYES TEST	18.40	20.00	-.070	.944
	Conf. EYES TEST	3.67	3.46	-1.387	.166
no observation task no discussion (n=26)	Est. WSEFEP	20.64	20.29	-.364	.716
	Conf. WSEFEP	2.74	2.81	-.225	.822
	Est. EYES TEST	18.00	20.50	-1.071	.284
	Conf. EYES TEST	3.94	3.48	-1.977	.048

Note. Est. (Numerical estimate) = What do you think, how many pictures you were able to assess correctly? Conf. (Confidence) = How confident did you feel in the assessment of emotions in these pictures? The variable Confidence is scored reversed – the larger the value, the less self-confidence.

Note. Est. (Numerical estimate) = What do you think, how many pictures you were able to assess correctly? Conf. (Confidence) = How confident did you

feel in the assessment of emotions in these pictures? The variable Confidence is scored reversed – the larger the value, the less self-confidence.

Discussion

The aim of the study was to examine the principles of reflective teaching related to improvement in emotion recognition ability task and confidence at this task. We compared the differences in the ability to recognize facial expressions of emotion and self-report confidence of students before and after observation tasks and group discussions. We split the sample according to the participation in the aforementioned activities – some students participated in both tasks (observation and discussion), some took part only in one (observation or discussion) and some participated neither in observations nor in discussions. The analysis showed statistically significant improvement in three of four groups in the WSEFEP score, but not in the Eyes test score. Group with no improvement in scores is a group of those students who did not complete the observation tasks, but participated in the group discussions. Surprisingly, group with neither observation nor discussion achieved significant improvement. It cannot be clearly concluded which factors contributed to the obtained research results. The observation and group reflection are definitely not the factors responsible for the improvement.

There are several possible interpretations of achieved ambiguous results. One is the distribution of the number of participants in each group. Splitting the participants into experimental (discussion) or control (no discussion) group was carried out randomly and led to the proportion 62/60 students. After implementation of the second condition – observation task or no observation task – the sample was split into four groups. The difference between the most numerous and least numerous group was of 30 students.

The second explanation is related to previous research findings, according to which the experience in emotion recognition task, without providing feedback about the outcome, leads to improvement in this ability (Costanzo, 1992; Grinspan, Hemphill, Nowicki, 2003). We identified significant improvement in the group of students with no observation as well. The observation task was clearly defined as a prerequisite for the participation in the next phase of the research. Even the students with no motivation to participate in the research improved their performance. We conclude that the improvement in the sample was due to the effect of exposure to the task.

We identified no significant improvement in the Eyes test scores. Possible interpretation is related to the nature of the test. According to the authors of the test (Baron-Cohen et al., 2001) solution of the test involves unconscious, automatic, implicit processes and it measures rather stable trait than ability. On the other hand, WSEFEP stimuli are clearer, more structured and provide more clues to emotion recognition. Emotion recognition in WSEFEP involves conscious, controlled, explicit decisions that can be influenced by learning and experience (Frith & Frith, 2008). WSEFEP is aimed at recognizing basic

emotions from facial expression, Eyes Test is focused on attributions of complex psychological conditions, e.g. intentions, desires, beliefs. Both tests are measures of two different levels of social cognition – implicit and explicit, which should be independent (Frith & Frith, 2008).

Secondly, we examined how confidence of students was changing. We expected that students who participated at observation tasks and discussions would rate their confidence in emotion recognition ability as higher. The data supported our hypothesis. Although the students did not receive feedback on their test performance and therefore could not assess their ability in emotion recognition, they rated their confidence in both tests after observation and discussion as higher. Improved confidence in the Eyes test was found surprisingly in the group where neither observation nor discussion was implemented. Based on the results we cannot reliably determine which condition resulted in improved confidence of students.

It is possible that for higher sense of confidence it is sufficient to offer students the opportunity to train their performance without its evaluation. It is known that evaluation-free context can facilitate not only personal development but also the progress of learning (Rogers & Freiberg, 1998). Finding more evidence for this assumption could lead to change in education in terms of supporting the selection of optional activities on a voluntary basis, without a need to evaluate students' performance.

Tests that were chosen to measure improvements in the ability to recognize emotions are not comprehensive indicators of performance in a real assessment situation. Assessment of emotions of patients or clients face to face differs from assessing emotions in photographs. The real situation is complex, variable and demands full attention. At the same time it contains more clues involved in perceiving and interpreting the situation. Rating of stable visual stimuli is not limited by time, but it lacks complex information about the context. We conclude that performance tests we selected do meet the criteria – real diagnostic situation.

Presented findings point to several topics, that deserve research attention. Complex situation of learning of our participants, including focused observation, written reflection of experience, verbal group reflection of experience and evaluation-free context, has resulted in improved ability to recognize emotions in facial expressions, but not in the expressions of eyes only. We identified improved scores in three of four groups. It cannot be clearly concluded which activity is responsible for the improvement. In order to determine which of the parameters of the situation contributed mostly to the improved performance and improved sense of confidence we suggest partial revision of hypotheses and more effective control of variables (e.g. variations in providing feedback). Evidence supporting our preliminary findings may contribute to more effective strategies in training of practical skills in the helping professions.

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