Anna Romanowska-Tołłoczko[*]

Mirosława Marks[**]

Małgorzata Kołodziej[***]

Lesław Kulmatycki[****]

EMOTIONAL INTELLIGENCE –
AN INDISPENSABLE COMPETENCE IN
TEACHING AND PHYSIOTHERAPIST PRACTICE

INTRODUCTION

Establishing and maintaining constructive interpersonal relationships is an indispensable skill, especially for those people whose work requires constant contact with others. The example of such professions is undoubtedly the profession of a physical education teacher and a physiotherapist. It is advisable that the people engaged in such jobs should have a high level of emotional and social competence, since work with both the student and the patient requires special personal and interpersonal skills.

[*]   ORCID: 0000-0003-2236-7519. University School of Physical Education in Wrocław.
[**]   ORCID: 0000-0001-7599-5688. University School of Physical Education in Wrocław.
[***] ORCID: 0000-0002-9714-0274. University School of Physical Education in Wrocław.
[****] ORCID: 0000-0002-6396-534X. University School of Physical Education in Wrocław.

At present, the area of emotional competence is recognized as emotional intelligence. This concept means a set of instructions enabling the monitoring of feelings and emotions and the use of information that they carry to manage own and other people's behavior. Emotional intelligence as a psychological construct has a multi-layered structure. On more primitive abilities, such as feeling and adequate recognition of emotions in one's own sensations or on the faces of others, more complex ones are built, such as the ability to use emotions in decision making or creative thinking, the ability to understand and differentiate the specificity of individual feelings or the ability to manage mood and motivating yourself and others (Mayer et al., 2000; Salovey, Mayer, 1999).

Goleman (1999), explaining the essence of emotional intelligence, lists its main manifestations, which include: self-awareness – conditioning knowledge about one's own sensations, preferences and abilities; self-regulation – meaning the control over emotions; motivating oneself to action – achieved through the constructive use of emotions; empathy – meaning recognizing the moods and needs of other people. All these components fit in well with the optimal personality profile of both the teacher and the physiotherapist, observing and understanding the changing emotional states of their pupils/patients, building adequate and effective rules of cooperation and communication and effectively motivating to make effort.

To measure emotional intelligence, psychological tools are used to diagnose many of its various aspects. Above all, however, it is worth distinguishing self-report tools which *de facto* diagnose the subject's belief about having selected dispositions, and tools that include tasks that check the actual level of the skills tested. Although in the process of constructing and verifying the accuracy of the INTE self-report questionnaire its authors tried to obtain a satisfactory level of compliance with the results from other tools, but the measurement here is imperfect because it is based on self-beliefs or even only declarations of the examined person and depends among others on their demand for social approval. The measurements considered more reliable include testing tools such as the Two-dimensional Emotional Intelligence Inventory (DINEMO) and the Emotional Intelligence Scale – Faces (SIE-T). It seems that the use of both types of tools in one group of people, i.e. self-report and task-based ones, increases the credibility of the obtained results, it also allows to some extent to conclude on the respondents' beliefs regarding their own competences with their actual level (Smółka, 2008).

In the study of future physiotherapists and teachers, it is particularly important to determine their ability to recognize emotions based on other people's facial expressions, which is possible thanks to the Emotional Intelligence Scale – Faces (SIE-T). For a physiotherapist and teacher, the facial expression of a patient/student is often the first source of information that should be properly read in the initial phase of the relationship, as it may have an impact on its further course. The interpretation of emotions from facial expressions must occur on a regular basis during an educational situation or while performing the procedures as a physio-

therapist. This promotes both a constructive dialogue and taking appropriate actions. In interpersonal communication, non-verbal communication is about 65% of information (Jamrożek, Sobczak, 1997), so it is extremely important to be able to recognize these signals correctly.

As Wronka (2008) emphasizes, the reception and interpretation of information contained in human faces is a complex perceptual process based on visual stimuli of dynamic variability. Although it is carried out at a fast pace, it is characterized by high reliability, however, the correctness of reading and interpretation of emotion from facial expressions is diverse in people. They do it more or less accurately, which depends on their individual dispositions and empathic abilities, but also learned emotional skills (Davis, 2001; Goleman, 1999).

AIM AND METHOD OF RESEARCH

The aim of the research was to determine the level of emotional intelligence of women and men preparing to work as physiotherapists and physical education teachers and determine whether there is a relationship between the results obtained by separate groups of students in the INTE self-report questionnaire and the results in SIE-T and DINEMO performance tests.

The research was conducted in 2016-2018 among students of the University School of Physical Education in Wrocław. 778 people from two departments were examined: Physiotherapy (232 women, 120 men) and Physical Education (192 women, 234 men) studying full-time on the first and second year.

The following tools were used in the study:

1. INTE Emotional Intelligence Questionnaire (Jaworowska, Matczak, 2001), which is used to measure emotional intelligence understood as the ability to recognize, understand and control one's own and other people's emotions, as well as the ability to effectively use emotions in managing one's own and other people's actions. INTE consists of 33 self-report items whose authenticity in relation to one's own person is assessed on a five-point scale.

2. The scale of Emotional Intelligence – Faces of SIE-T (Matczak et al., 2005), is used to assess the ability to recognize mimic expression, which is treated as one of the basic components of emotional intelligence. The test material contains 18 photographs of two actors expressing various emotional states. The scale is of a performance nature. On the answer sheet, a set of six emotions, both positive and negative, is assigned to each photo. The subject decides whether the face visible on the photo expresses the before mentioned emotions. The total number of test items is 108 (18 photos x 6 emotions).

3. Two-dimensional Emotional Intelligence Inventory DINEMO (Matczak, Jaworowska, 2006) is designed to measure the components of emotional

intelligence, such as the ability to access one's own and other people's emotions to respect and understand their function. These abilities are assessed on the basis of how the subject interprets various emotion-inducing situations and how he or she is willing to respond. Interpretation of emotional states is a task for the examined person, which makes the DINEMO Inventory a performance tool. It consists of 33 items containing descriptions of various situations that are sources of emotions. In some items, their names are mentioned, while the names of emotions were not given when it came to checking whether the subject perceived the emotional nature of the situation and accurately recognized the emotions that probably arise in them. The calculation of the results consists of comparing the answers given by the subject with the key contained in the manual. 1 point is awarded for each correct answer. The inventory allows for the interpretation of results in relation to two factor scales: intrapersonal (I) and interpersonal (OTHER) and obtaining a general result, which is the most reliable indicator of emotional intelligence.

The statistical analysis of collected data was made using the Statistica 12.0 program. Arithmetic means (M) and standard deviations (SD) were calculated. The normality of the variable distribution was evaluated by the Shapiro-Wilk test. Due to the lack of normal distributions, non-parametric methods of statistical analysis were used. The significance of the differences between the results obtained in the separated groups was checked using the Kruskal-Wallis variance analysis with multiple mean rank comparisons. Interpretation of raw results took place with reference to population standards included in the textbooks for the research tools described above. In order to determine the strength of the relationship between the emotional intelligence indicators examined by self-report tools and performance tools, the ρ-Spearman rank correlation coefficient was calculated. The significance level $\alpha = 0.05$ was assumed. Statistically significant results for which $p < 0.05$ is marked in bold in the text.

RESULTS

"SELF-REPORTED" AND "PERFORMANCE" EMOTIONAL INTELLIGENCE

The results of the emotional intelligence study with the INTE questionnaire in all separate groups of students obtained average values in comparison with standardization studies. Women achieved significantly higher results than men. There were no differences between the emotional intelligence indicators examined due to the field of study (Table 1).

Table 1. Emotional intelligence of the subjects – INTE results

Field of study	Sex						Difference between women and men
	women			men			
	N	M	SD	N	M	SD	
Physical Education	192	127.20	10.49	234	124.44	12.59	p = **0.042**
Physiotherapy	232	128.44	9.164	120	124.73	8.04	p = **0.031**
Difference between fields of study	p > 0.05			p > 0.05			

ANOVA Kruskal-Wallis H = 13.60; p = **0.035**
Source: authors' study.

In the emotional intelligence study with the DINEMO inventory, the results were obtained in the scope of two factor scales – I (JA) and OTHERS (INNI) – and a general result. The I scale measures the ability to become aware, understand, respect and express one's emotions. The OTHERS scale defines the ability to recognize, understand and respect the emotions of other people. The overall result of DINEMO is a comprehensive result, which is the sum of points obtained in the intrapersonal and interpersonal scale.

All received DINEMO results have reached an average level in relation to population standards. Differences in the emotional intelligence of the subjects were observed due to their gender (OTHER scale, general score) and the chosen field of study (women, I scale) (Table 2, 3, 4).

Table 2. Emotional intelligence of the subjects – DINEMO and I scale results

Field of study	Sex						Difference between women and men
	women			men			
	N	M	SD	N	M	SD	
Physical Education	192	9.00	1.93	234	8.58	1.90	p > 0.05
Physiotherapy	232	8.32	2.20	120	8.65	1.99	p > 0.05
Difference between fields of study	p = **0.047**			p > 0.05			

ANOVA Kruskal-Wallis H = 12.13; p = **0.007**
Source: authors' study.

Physical education students showed a higher level of understanding their own emotional states than future physiotherapists (I scale results). There were no differences in these skills between women and men of both fields. In recognizing and interpreting the emotions of other people (OTHER scale results), women performed better than men, while no differences were found between the results of students – candidates for teachers and physiotherapists. The overall results of DINEMO, treated as the most reliable, indicate the lack of differences in emotional intelligence between students of Physical Education and Physiotherapy, while the variable sig-

nificantly differentiating the studied groups is the gender. Women were characterized by a higher level of emotional intelligence than men.

Table 3. Emotional Intelligence of the subjects – DINEMO results OTHER scale

Field of study	Sex						Difference between women and men
	women			men			
	N	M	SD	N	M	SD	
Physical Education	192	13.40	3.09	234	11.73	3.20	p < **0.001**
Physiotherapy	280	12.70	2.711	168	11.33	2.917	p < **0.001**
Difference between fields of study	p > 0.05			p > 0.05			

ANOVA Kruskal-Wallis H = 51.53; p < **0.001**
Source: authors' study.

Table 4. Emotional Intelligence of the subjects – general DINEMO results

Field of study	Sex						Difference between women and men
	women			men			
	N	M	SD	N	M	SD	
Physical Education	192	21.01	3.56	234	18.96	3.81	p < **0.001**
Physiotherapy	232	20.54	3.58	120	18.78	3.51	p < **0.001**
Difference between fields of study	p > 0.05			p > 0.05			

ANOVA Kruskal-Wallis H = 34.92; p < **0.001**
Source: authors' study.

Another aspect of emotional intelligence studied was the ability to recognize emotions on the faces of other people. The separated groups of students obtained average results in this respect in relation to the results of normalization tests. There were no significant differences between the groups distinguished by the field of study. Female students – future physiotherapists dealt better with this task than men from both fields of study, while differences between the results of women and men studying physical education were not found (Table 5).

Table 5. Emotional intelligence of the subjects – SIE-T results.

Field of study	Sex						Difference between women and men
	women			men			
	N	M	SD	N	M	SD	
Physical Education	192	75.25	8.72	234	73.74	7.89	p > 0.05
Physiotherapy	232	76.68	6.94	120	73.97	10.02	p = **0.030**
Difference between fields of study	p > 0.05			p > 0.05			

ANOVA Kruskal-Wallis H = 9.44; p = **0.024**
Source: authors' study.

RELATIONSHIPS BETWEEN EMOTIONAL INTELLIGENCE INDICATORS EXAMINED BY SELF-REPORT TOOLS AND PERFORMANCE TOOLS

Emotional intelligence was examined with tools of different properties to determine whether and what relationship exists between the self-reported emotional intelligence indicators and the indicators obtained from the examination of performance tools and whether there are differences between the groups distinguished in this respect. For this purpose, the ρ-Spearman rank correlation coefficient was calculated between the INTE results and the results of DINEMO, INTE, and SIE-T.

Interpreting the relationships between the results of INTE and DINEMO, it was found that the indicators of emotional intelligence are in full agreement in the group of women – future physical education teachers and significant compliance in the group of physical education students, while the total incompatibility of men results – future physiotherapists and one positive relationship in the group of physiotherapy students. The obtained correlation results suggest that in women and men – future teachers of physical education, emotional skills go hand in hand with their conviction about their properties and skills, while students of physiotherapy of such a relationship have not been demonstrated (Table 6).

Table 6. ρ-Spearman rank correlation coefficients between emotional intelligence indicators of INTE and DINEMO

Measurement tool	DINEMO					
	group	women			men		
		I scale	OTHER scale	general result	I scale	OTHER scale	general result
INTE	future PE teachers	**0.215**	**0.309**	**0.404**	0.100	**0.147**	**0.157**
	future physiotherapists	-0.081	**0.218**	0.146	-0.018	0.127	0.097

Source: author's study.

After calculating the correlation coefficient for INTE and SIE-T results, it was found that there is no relationship between them in all the studied groups. This means that students' conviction about their emotional intelligence is not accompanied by the ability to recognize emotions on the faces of other people (Table 7).

Table 7. ρ-Spearman's correlation coefficients between the emotional intelligence indicators of the INTE and SIE-T

Measurement tool	SIE-T		
INTE	**group**	**women**	**men**
	future PE teachers	0.058	-0.003
	future physiotherapists	0.125	-0.101

Source: authors' study.

DISCUSSION

The research served to assess the emotional competence of students preparing to work as a physical education teacher and physiotherapist. The indicators of these competences were the results of the INTE questionnaire, the DINEMO inventory, and the SIE-T scale, which turned out to be average results compared to the results of standardization studies (Jaworowska, Matczak, 2001; Matczak, Jaworowska, 2006; Matczak et al., 2005). In addition, the results of the study did not show any significant differences between students of physiotherapy and students specialising in teaching, while the gender-differentiating variable was significantly different. The results of women in INTE and DINEMO were higher than men's. In terms of the ability to recognize emotions on the faces of other people (SIE-T scale) gender differences were not found.

Similar studies were conducted in 2014 among 263 students of the University School of Physical Education in Wrocław studying at the Faculties of Physical Education, Physiotherapy and Sports Sciences (Romanowska-Tołłoczko, 2014; Romanowska-Tołłoczko, Lewandowska, 2014). In all separate groups, the average results were obtained in the DINEMO and SIE-T tests. The average results of the INTE questionnaire obtained by students of physiotherapy and physical education also oscillated around the average values, while the average score in the group of students studying at the Faculty of Sports Science reached a very high level. The high scores of these students at INTE did not, however, have any relation to emotional intelligence indicators examined with other tools, from which it can be concluded that in the self-report questionnaire, students revealed a strong need for social approval.

The INTE results presented are consistent with the results of other researchers. Emotional intelligence of students of the University of Physical Education in Warsaw was studied by Czechowski et al. (2014) and Kuk et al. (2015), who received results indicating its average level. Also other authors dealing with emotional intelligence (Bobrowska-Jabłońska, 2003; Gertis et al., 2005; Otrębski, Rutkowska, 2006; Humprey et al., 2007; Hen, Markowska, 2012) stated that in the study groups average results are on an average level, but they tend to increase with the age and education of the respondents (Jaworowska, Matczak, 2001; Matczak et al., 2005).

The obtained data confirming differences between sexes in terms of emotional intelligence indicators correspond with the results of research of many scientists who received higher results in women than men (Czechowski et al., 2014; Kuk et al., 2015). This regularity was also confirmed by Jaworowska and Matczak (2001) in the standardization tests of high school and adult students, and Romanowska-Tołłoczko (2018) in the student study. In the SIE-T scale, the results of women did not differ from men's results which is in contradiction with the results obtained by Matczak et al. (2005), who compared the average results in the SIE-T of students, found a significantly higher level in women than in men. Receiving non-verbal signals from facial expressions is considered to be the domain of women who are more sensitive to discreet mimic changes and are easier to recognize them (Wronka, 2008). This was not confirmed in current research.

The analysis of the correlation results showed the compliance of emotional intelligence indicators examined with the INTE questionnaire, the DINEMO test, and the lack of dependence between the results of "self-report" emotional intelligence with the ability to recognize emotions on the faces of other people. The lack of dependence between the indicators obtained from the study with the self-report and performance tools suggests that reading the emotional states from the face of another person was a difficult task for the studied group of students.

The strength of the relationship between the measurement results with the above-mentioned tools was determined earlier in the groups of students of the Physiotherapy, Sport and Physical Education Departments of the University School of Physical Education in Wrocław. Among the students studying physical education, groups with a positive and negative attitude towards the teaching profession were distinguished. In the group of students declaring their willingness to practice as a teacher, the indicators of emotional self-report intelligence did not show any significant relation to any of the results of performance tests. However, in the group of students negatively oriented to work at school, a significant positive correlation was found between the total score of the DINEMO inventory and the result of the INTE questionnaire, which means that the higher the level of emotional intelligence self-diagnosed by these subjects the better they cope with the tasks testing its level. In the group of students of the Faculty of Sports Sciences, there was a significantly negative relationship between the results of INTE and SIE-T, which means that the higher the score in the self-report questionnaire was obtained by the respondents, the worse they dealt with the recognition of emotions from facial expressions (Romanowska-Tołłoczko, Lewandowska, 2015).

It is difficult to refer the results to the results of other researchers, because they did not use three tools to study emotional intelligence at the same time. The most popular and most frequently used questionnaire is the INTE scale, but as one can see, the results obtained with one tool do not give a full picture of the emotional dispositions of the examined people, because they have not been confirmed by the results of other tests.

SUMMARY

Emotional competence the key competence for teachers and very useful competence for a physiotherapist, therefore it is advisable that people who connect their future with these professions have a high level of both sensitivity and emotional skills.

As a result of the conducted research, it was shown that students who wanted to become physical education teachers or physical therapists had an average level of emotional competence. Their emotional intelligence indicators are probably too low for the needs of their chosen profession, because according to Matczak (2011), only high test results allow us to bring about the predispositions of the tested person to work in occupations or positions requiring contacts with people.

Determining the state of these competences at the initial stage of education of future teachers and physiotherapists is extremely important and necessary because it gives students an insight into their own instructions, can contribute to their actions aimed at self-development, and is the basis for organizing in the course of study classes developing their intrapersonal and interpersonal skills. Obligatory workshops of "soft" competencies seem to be indispensable for students of the above-mentioned courses, because natural social training as well as standard didactic classes is insufficient to stimulate these important orders.

BIBLIOGRAPHY

Bobrowska-Jabłońska, K. (2003). Znaczenie inteligencji emocjonalnej i kompetencji społecznych w kształceniu w SGH – raport z badań. *E-Mentor, 2.*

Borowska, T. (2007). Emocje wyzwaniem dla współczesnej edukacji. *Zeszyty Naukowe Wyższej Szkoły Humanitas. Pedagogika,* 2.

Czechowski, M., Femiak, J., Kuk, A. (2014). Social competences and emotional intelligence of future PE teachers. *Journal of Physical Education & Health – Social Perspective, 3, 5.*

Davis, M.H. (2001). *Empatia. O umiejętności współodczuwania.* Gdańsk.

Gertis, L., Derksen, J.J.L., Verbruggen, A.B., Katzko, M. (2005.). Emotional intelligence profiles of nurses caring for people with severe behaviour problems. *Personality and Individual Differences, 38.*

Goleman, D. (1999). *Inteligencja emocjonalna*. Poznań.

Hen, M., Goroshit, M. (2011). Emotional Competencies in the Education of Mental Health. *Professionals, Social Work Education, 30, 7.*

Humprey, N., Curran, A., Morris, E., Farrell, P., Woods, K. (2007). Emotional intelligence and education: a critical review. *Educational Psychology, 27 (2).*

Jamrożek, B., Sobczak, J. (1997). *Komunikacja interpersonalna.* Poznań.

Jaworowska, A., Matczak, A. (2001). *Kwestionariusz Inteligencji Emocjonalnej INTE N.S. Schutte, J.M. Malouff, L.E. Hall, D.J. Haggertyego, Ch.J. Cooper, Ch.J. Goldena, L. Dornheim. Podręcznik.* Warszawa.

Kuk, A., Czechowski, M., Femiak, J. (2015). Social competence and emotional intelligence of future PE teachers and their participation in psychological workshops. *Human Movement, 16, 3.*

Martowska, K. (2012). *Psychologiczne uwarunkowania kompetencji społecznych.* Warszawa.

Matczak, A., Jaworowska, A. (2006). *Dwuwymiarowy Inwentarz Inteligencji Emocjonalnej DINEMO. Podręcznik.* Warszawa.

Matczak, A., Piekarska, J., Studniarek, E. (2005). *Skala Inteligencji Emocjonalnej – Twarze SIE-T. Podręcznik.* Warszawa.

Mayer, J.D., Caruso, D., Salovey, P. (2000). Emotional intelligence meets traditional standards for an intelligence. *Intelligence, 27.*

Otrębski, W., Rutkowska, K. (2006). *Kompetencje społeczne instruktorów sportu.* Lublin.

Romanowska-Tołłoczko, A. (2014). Emotional competencies of the forthcoming physiotherapeutists and physical education teachers. *Physical Education of Students, 5.*

Romanowska-Tołłoczko, A. (2018). Kompetencje psychospołeczne studentów – kandydatów na nauczycieli wychowania fizycznego. *Studia i monografie AWF we Wrocławiu.*

Romanowska-Tołłoczko, A., Lewandowska, B. (2014). Emotional intelligence as a predisposition to pursue the teaching profession. *The New Educational Review, 38, 4.*

Salovey, P., Mayer, J.D. (1999). Emotional intelligence. *Imagination, Cognition, and Personality, 9.*

Selerzyńska-Martela, L. (2008). Kompetencje służb społecznych a wyzwania współczesności (perspektywa praktyczna). *Zeszyty Naukowe Wyższej Szkoły Humanitas. Pedagogika, 3.*

Smółka, P. (2008). *Kompetencje społeczne. Metody pomiaru doskonalenia umiejętności interpersonalnych.* Kraków.

Wronka, E. (2008). W poszukiwaniu biologicznych podstaw inteligencji emocjonalnej. In M. Śmieja, J. Orzechowski (eds.). *Inteligencja emocjonalna: fakty, mity, kontrowersje.* Warszawa.

EMOTIONAL INTELLIGENCE – AN INDISPENSABLE COMPETENCE IN TEACHING AND PHYSIOTHERAPIST PRACTICE

Keywords: emotional intelligence, tertiary level students, teachers of physical education, physiotherapists

Abstract: The present study aimed to measure the level of emotional competence in female and male students gaining qualifications to work as teachers of physical education and physiotherapists. It was also intended to determine a relationship between the results obtained in the self-report INTE Scale and two performance tests – the SIE-T and DINEMO inventories. The data were collected among 778 students of University School of Physical Education in Wrocław in the years 2016-2018. The results indicate that the participants' level of emotional intelligence could be described as average, which is regarded as too low to meet the demands of working as teachers and physiotherapists. Therefore, it is necessary to offer practical workshops focused on developing interpersonal and intrapersonal skills as a part of the Physical Education and Physiotherapy study programme in order to give students an opportunity to develop comprehensive professional qualifications.

INTELIGENCJA EMOCJONALNA JAKO KOMPETENCJA NIEZBĘDNA W ZAWODZIE NAUCZYCIELA I FIZJOTERAPEUTY

Słowa kluczowe: inteligencja emocjonalna, studenci, nauczyciele wychowania fizycznego, fizjoterapeuci

Streszczenie: Celem podjętych badań było określenie poziomu inteligencji emocjonalnej kobiet i mężczyzn przygotowujących się do pracy w zawodzie fizjoterapeuty i nauczyciela wychowania fizycznego oraz stwierdzenie, czy zachodzi związek między wynikami uzyskanymi przez wyodrębnione grupy studentów w samoopisowym kwestionariuszu INTE a wynikami w testach wykonaniowych SIE-T i DINEMO. Badania przeprowadzono w latach 2016-2018 wśród 778 studentów Akademii Wychowania Fizycznego we Wrocławiu. Wykazano, że badane osoby posiadały przeciętny poziom inteligencji emocjonalnej. Wskaźniki te są zbyt niskie i niewystarczające na potrzeby wyżej wymienionych zawodów, dlatego konieczne jest organizowanie w toku studiów zajęć warsztatowych rozwijających intrapersonalne oraz interpersonalne umiejętności studentów wychowania fizycznego i fizjoterapii.