ISSN 2391-548X

1/2015

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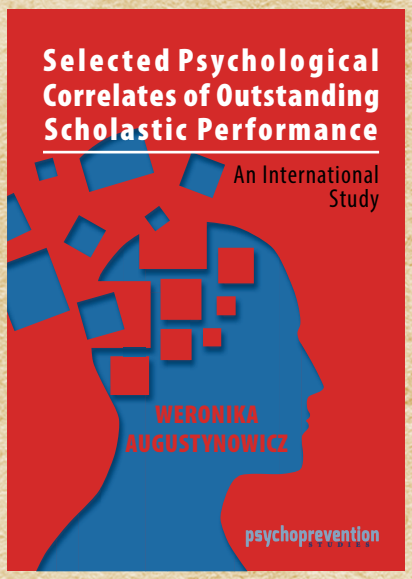

Selected Psychological Correlates of Outstanding Scholastic Performance. An International Study
Weronika Augustynowicz

JOURNAL: psychoprevention STUDIES

Published by:
Natanaleum Association Institute for Psychoprevention and Psychotherapy
Al. Gen. Wł. Sikorskiego 1/101, 20-814 Lublin
www.natanaelum.pl
sekretariat@natanaelum.pl

Quarterly Journal

1/2015
psychoprevention
STUDIES

Table of Contents

Correction 1
Jolanta Jarczyńska

Body Image in Adolescents 3
Barbara Ostrowska

Classic and Contemporary Approach to Creativity 21
Agnieszka Mioduchowska-Zienkiewicz

Selected Psychological Correlates of Outstanding Scholastic Performance. An International Study

Weronika Augustynowicz

Table of Contents. 39

Introduction. 41

Chapter 1
The Issue of Strong Scholastic Performance in the Literature on the Subject. 44

Chapter 2
The Psychosocial Functioning of High-Performing Students. 68

Chapter 3
The Methodology of the Author's Own Research. 104

Chapter 4
The Presentation and Analysis of the Author's Own Research Results 115

Chapter 5
The Verification of the Hypotheses and an Attempt at Interpreting the Findings. 144

Conclusions 150

References. 152

Psychoprevention Studies 1/2015
ISSN 2391-548X

Correction

Jolanta Jarczyńska

At the request of the Author of Chapter 1 edited by Jolanta Jarczyńska, entitled: The Presentation of the SOGS-RA as a Screening Tool for the Identification of Problem Gambling among Schoolchildren, placed in the first issue of the Psychoprevention Studies, 1/2014, the following correction is placed:

In the text the information was provided that the presented SOGS-RA scale was a Canadian tool. Such an information was incorrect. The original version of the SOGS-RA scale is a tool developed by American researchers (Winters, Stinchfield, & Fulkerson, 1993). This oversight resulted from the fact that the Author referred to the report on extensive research that had been carried out on the Atlantic coast of Canada and in Quebec (Poulin, 2000; Derevensky & Gupta, 2004). The author is very sorry for misleading the Readers.

Psychoprevention Studies 1/2015
ISSN 2391-548X

Body Image in Adolescents

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ABSTRACT

Introduction: Polish women struggle with body image satisfaction, yet little research has examined the relationship between body mass index (BMI) and body satisfaction among Polish adolescents.

Objective: To examine the relationships between satisfaction with body image and different body parts in groups of low, average and high BMI in both male and female adolescents.

Hypothesis: We hypothesized that (1) BMI correlates with body image in both men and women; (2) the women would be significantly less satisfied with their bodies than men; (3) in women the nature of the relationship is linear—the satisfaction decreases with an increasing weight, in men the nature of the relationship is curvilinear—normal weight men are more satisfied with their body than low and high weight men.

Methods: A sample of 360 self-identified Polish adolescents, age 15 to 20, were selected. A questionnaire assessed demographics, weight, and body image. Statistical analysis was performed.

Results: The results show that the general satisfaction with the body is associated with the BMI index in both women and men, and the correlation results show that with the increase in the weight of the body satisfaction decreases. However a more careful analysis of the results shows significant differences between male and female adolescents.

Keywords: body image, adolescents, empirical study

Introduction

Body image research constitutes an essential part in the abnormal psychology and individual difference research. Since the beginning of the 90s of the 20th century there is a boom of interest in the concept of body image in psychology (Pruzinsky & Cash, 2004) although the concept of body image is not new. For ages philosophers, doctors, and psychologists

were trying to develop diverse view points on the meaning of body image for self-development and its significance in health. In psychology the issues of body image were considered since its very beginnings. It was James who introduced this concept in *Principles of psychology* in 1890 and who described "I" as a consciousness of our own body amongst others (as cited in Łaguna, 1996). Firstly body image research was dominated by the paradigm of body schema investigations connected with neural mechanisms. Later in the mid-30s of the 20th century Schindler introduced a body image concept moving away from neuropathology and in the late 50s Fisher and Cleveland who introduced it into more psychological research as we know it today (Pruzinsky & Cash, 2004). However it was not until the 90s when scholars started to investigate different aspects of body image and its influence on the self-esteem.

Body image is part of a self-image. It applies to our own body, it is an idea of how your body looks like and feels like. It is associated with self-esteem, which is the degree of satisfaction about the body. When studying literature it can be seen that authors create their own definition of body image, based on personal beliefs and experiences. Despite the different approaches they agree, however, that it is a complex and multidimensional concept. Thompson (as cited in Pruzinsky & Cash, 2004) noted that many aspects of the concept has its roots not only in different paradigms of research, but also in the intricacies of terms that are used interchangeably to describe body image. He singled out 16 categories of definition of this concept, identifying the following groups: satisfaction with weight, accuracy of the perception of size, satisfaction with one's own body, satisfaction with appearance, evaluation of the appearance, orientation towards one's appearance, self-esteem in terms of one's own body, concern with the body, body dysphoria, body dysmorphia, body schema, the perception of the body, perceptual distortions of the body concept, body image, disruption of the body image, and body image disorders (p. 7). These concepts suggest that researchers are trying to define the concept of body image taking into consideration both the positive and negative aspects. Modern psychology mainly uses four terms: body image, body schema, body self, and body concept (Brytek-Matera & Rybicka-Klimczyk, 2009).

Broadly body image can be defined as "the image of our own body we create in our mind, that is the way it appears to us" (Schilder, 1950, as cited in Grogan, 1999, p. 1). So body image is the cerebral representation of our body schema created in the parietal cortex. This definition assumes that body image reflects at the neuronal level how we look, but also refers to our body well-being. Another definition states, however, that body image is a subjective image of our body that we create based on our appearance and reactions of other people (Stedman's Medical Dictionary, 2006).

In this article I will refer to the definition of S. Fisher presented in 1990, which defined the body image as "perceptions, thoughts, and feelings of a human referring to his own body" (Grogan, 1999, p.1). This definition emphasizes the existence of three aspects: perceptual estimation of the size of the body; cognitive, or a subjective evaluation of the attractiveness of the body; and emotional-behavioural, meaning emotions and behaviours that accompany the body assessment. These aspects are closely linked, although researchers are attempting their independent measurement. Perceptual aspects are measured, i.a., by Figure Rating Scale and other drawings scales, as well as many experimental procedures. The cognitive aspects that I decided to pursue are measured by e.g. Body Esteem Scale (Jakubiec & Sękowski, 2007; Franzoi & Shields, 1984), as well as many other methods of questionnaire (Brytek-Matera, 2008). An example of a scale to investigate the behavioural aspect may be the Body Image Avoidance Questionnaire.

Body image is an extremely complex construct, and as such it has many correlates. Among the factors associated with body image, researchers mention weight, age, sex, race (Celio et al. 2004; Kawamura, 2004; Altabe & O'Garo, 2004; Grogan, 1999), the media, relationships and habits prevailing in the family, social relations, traumatic events (e.g. sexual harassment – Fallon & Ackard, 2004), sport (Ostrowska, 2010), and situational factors. In this article I will try to discuss the relationship of body image with BMI.

Weight is probably the most obvious and also the most tested correlative of body image. There are many measures that can be used: weight in kilograms, WHR (waist-to-hip ratio), and mostly used by researchers – the body mass index (also called weight-growth index, BMI).

Most studies show a significant relationship between body image and BMI (Holsen, Carlson Jones, & Skogbrott Birkeland, 2012; Lawler & Nixon, 2011; Raustorp et al. 2006), although it is not always clear. Researchers Kostanskii and Gullone (1998) showed that BMI is significantly associated with dissatisfaction with the body, measured as PBID (Perceived Body Image Dissatisfaction). They examined a group of 516 people aged 12–18 years. The authors concluded that the weight is not the only predictor of negative body image. It is also gender, self-esteem, and anxiety. These results are reflected in the literature. Dissatisfaction of the body in adolescence is in fact conditioned not only by the cognitive component (body size assessment, perception), but also by the affective (how one feels in one's body) (Kostanski et al. 2004). These studies, however, showed no correlation of BMI with negative determinants of well-being (low self-esteem, depression, anxiety).

The results show that BMI affects body image also at a later stage of life (Cororve Fingeret & Gleaves, 2004; Sánchez-Villegas et al., 2001). Women with a higher BMI express more negative evaluations of their bodies than those with lower BMI and often avoid exposure situations (Weaver & Byers, 2006). Danish studies show that 10 % of women aged 27–38 years with a BMI in the range 18,5–21 kg/m^2 are dissatisfied with their body and believe that they weight too much. Risk factors in this group were early traumatic experiences, risky behaviour from the period of youth, previous episodes of eating disorders, weight fluctuations, overwork, and poor health and physical condition (Kjærbye-Thygesen et al., 2004).

BMI also has different meanings in different cultures. Studies have shown that it plays more important role in the highly developed English-speaking countries than in non-English-speaking (Tiggemann et al., 2005). Not all research, however, agrees on this—it is often that the role of BMI in different countries is also important in predicting body dissatisfaction (Mahmud & Crittenden, 2007).

A significant finding was that the relationship between BMI and body image in women is linear—dissatisfaction with the body increases with increasing weight, while in men it is curvilinear (an inverted U)—only men with a normal BMI are satisfied with their bodies (Frederick et al., 2007).

An example of this trend is the research done by Kostanski et al. (2004), which showed that body image is significantly dependent on BMI. The girls aged 7–10 and 12–18, with a low BMI, had a minimum degree of dissatisfaction with the cognitive (as I think I look like) and affective (as I feel that I look) aspect of body image. The opposite effect occurred in the case of girls with normal or high BMI—they showed a significantly higher level of dissatisfaction with the body. In the group of boys both age groups showed a curvilinear pattern of behaviour. Both boys with low BMI and high BMI were significantly more dissatisfied with the body in comparison to the cognitive and affective aspect of the group with normal BMI.

Also Polish study of Zarek (2007) showed that, in the case of women, the increasing BMI is associated with increased dissatisfaction with the body, while this relationship in men is not clear.

Based on the preliminary evidence and the above assumptions, it was hypothesized that the use of body image (a) will decrease with weight gain in women, (b) will be more negative in both under- and overweight men.

Method

Participants. The study involved nearly 800 adolescents. For formal reasons (incorrect or incomplete questionnaires) and due to the considerably higher number of women over men part of the questionnaires were rejected. Participants were 360 adolescents, 180 women, and 180 men. The age of respondents ranged from 15 to 20 years. Table 1 shows the distribution of participants.

Table 1. Distribution of Participants According to Gender

Gender	*Minimum*	*Maximum*	*M*	*Standard deviation*
Women	15	19	16.73	0.907
Men	15	20	16.86	0.872
General	15	20	16.79	0.890

Participants attended high schools in large cities, but not all were coming from large cities. 24% of the participants lived in rural areas and 10.3% in small towns (up to 100 thousand inhabitants). Due to the nature of the research, respondents were also asked to give weight and height. The weight of the subjects ranged from 38 to 120 kg, and height from 150 to 196 cm. Tables 2 and 3 present the basic statistics for these descriptives.

Table 2. Distribution of Weight of Participants According to Gender

Gender	*Minimum*	*Maximum*	*M*	*Standard deviation*
Women	38	90	58.56	8.529
Men	43	120	68.43	12.421
General	38	120	63.49	11.731

Table 3. Distribution of Height of Participants According to Gender

Gender	*Minimum*	*Maximum*	*M*	*Standard deviation*
Women	150	187	166.,32	6.392
Men	160	196	178.30	7.037
General	150	196	172.31	9.001

Among the respondents, I was able to extract three groups on the basis of BMI. This indicator is calculated using the following formula:

BMI is a commonly used measure in the determination of normal weight of people according to their height. The standards in this field are determined, among others, by the World Health Organization (WHO). Classification from 1995 specifies ranges of BMI and determines the risk of the incidence of various diseases. Based on the analysis of indicators in the group I have identified three groups of participants. In my work I use the following definitions:

- people with a low BMI are people whose BMI rate does not exceed 18.5 points;
- people with normal (average) BMI are those whose BMI ranges from 18.5 to 25 points;
- people with high BMI have a BMI of more than 25 points.

Indicators of BMI in women ranged from 14.84 to 30.48, and in a group of men from 16.32 to 35.06. Group of female and male adolescents with low and high BMI were of 30 participants, while groups of women and men with a normal BMI were of 120 adolescents. In my research, we have to deal with two-stage selection into groups. First one was incidental and second purposeful and proportional.

Instruments

The variables tested were verified using the Body Esteem Scale (BES) Franzoi and Shields in my own translation and BMI self-reported by the participants.

Results

Body image measure consists of an overall score on the BES scale operationalized as a general satisfaction with the body and three indicators for women and men, as well as satisfaction with the various parts and functions of the body, covered in the scale. In addition, the study also asked a direct question about the claimed satisfaction with physical condition, physical/sexual attractiveness, upper body strength and weight concerns.

Weight-growth index (BMI) in the study group ranged between 14.8 to 35.1. Individuals declared the highest satisfaction with the physical condition (M = 2.11), and the smallest with the figure (weight concerns, M = 2.62). Participants declared that physical condition (M = 2.43) and strength (M = 2.42) are the most important ones for body satisfaction. The possible limitation is that the respondents seemed to treat the scale inversely (where 1 would mean *the smallest importance* and 5 *the highest*). If, however, we interpret the study results, we should be considering the fact that the subjects used the defensive strategy, as they indicated the greatest importance of those scales that they felt most satisfied with. Women were the most satisfied with their physical condition (M = 2.18), followed successively by the attractiveness (M = 2.62), strength (M = 2.66), and figures (M = 2.97). Exactly in the same order they lined the importance of those aspects towards the general well-being in the body, which is in line with the general trend. Men were most satisfied with the physical condition (M = 2.04), followed by the figure (M = 2.27), strength (M = 2.33), and attractiveness (M = 2.49). As the most important they recognized strength, efficiency, attractiveness, and figure

(in that order). Based on these results, it is considered that men are less satisfied with their strength in comparison to the desired result.

In terms of satisfaction with various aspects of the body, the respondents were most satisfied with the appearance of the eyes (M = 4.28), mouth (M = 3.99), body scent (M = 3.94), and sex drive (M = 3.94). They were the least satisfied with the thighs (M = 2.99), weight (M = 3.10), appearance of stomach (M = 3.14), figures (M = 3.25), body hair (M = 3.26), legs (M = 3.25), and waist (M = 3.30). When it comes to body image scales, men obtained the highest scores in upper body strength satisfaction (M = 3.82), and subsequently satisfaction with physical attractiveness (M = 3.56) and physical condition (M = 3.49). It is quite interesting in the light of the results previously mentioned. The men asked explicitly declared the greatest satisfaction with the physical condition (here the last place) and the smallest of the upper body strength (here in the first place). It is worth considering why such discrepancies arise.

Women were most satisfied with weight concerns (those aspects of the body which can be changed by means of exercise, so the figure, M = 3.60), physical conditions (M = 3.46), and least with sexual attractiveness (M = 3.16). Again there are differences here. Women questioned openly declared least satisfaction with the figure, and the greater the efficiency and attractiveness.

Studies have shown that the increase in the results in BMI may coexist with increasing dissatisfaction with the declared physical condition and figure satisfaction, in both women and men, as well as the increase in the stated dissatisfaction with the attractiveness in women. Increase in BMI is also associated with an increase in satisfaction with strength in men. However, these correlations should be classified as very low. The results of the studies are presented in Table 4.

Table 4. Correlations between BMI, Physical Conditions, Attractiveness, Strength, and Figure

			Declared physical condition satisfaction	*Declared attractiveness satisfaction*	*Declared strength satisfaction*	*Declared figure satisfaction*
BMI	General (N = 360)	tau-c Kendall	.176	.110	-.071	.131
		p	.000	.006	n.i.	.002
	Women (N = 180)	tau-c Kendall	.192	.150	-.034	.175
		p	.000	.007	n.i.	.003
	Men (N = 180)	tau-c Kendall	.136	.065	-.190	.060
		p	.029	n.i.	.002	n.i.

These results indicate that women consider themselves to be less physically endure, satisfied with the figures, and less attractive when their weight increases. In men higher weight is associated with increasing declared muscle strength satisfaction—a higher weight men

consider themselves to be stronger, but also less physically endure and satisfied with their own figure.

Statistically significant correlations are also found between the declared physical condition, attractiveness, and figure satisfaction scales and body image in women: sexual attractiveness, weight concern, physical conditions, and the result of the overall BES scale. Declared upper body strength correlates with weight concerns, physical condition, and overall body satisfaction. The increase in satisfaction with body coincides with an increase in the declared performance, attractiveness, upper body strength, and figure. The correlation of the declared performance with sexual attractiveness, as well as the upper body strength and the declared satisfaction with the overall body is considered very low. In contrast, the correlation between the declared satisfaction with sexual attractiveness and declared satisfaction with attractiveness, and satisfaction with figure with the general indicator of satisfaction with body should be classified as moderate. Other correlations are low. All the results are presented in Table 5.

Table 5. Correlation between Declared Physical Conditions, Attractiveness, Strength, and Figure and BES Scales in Women (N = 180)

		Declared physical condition satisfaction	*Declared attractiveness satisfaction*	*Declared strength satisfaction*	*Declared figure satisfaction*
Sexual attractiveness	tau-c Kendall	-.184	-.400	-.068	-.532
	p	.000	.000	n.i.	.000
Weight concern	tau-c Kendall	-.229	-.392	-.265	-.313
	p	.000	.000	.000	.000
Physical condition	tau-c Kendall	-.259	-.398	-.226	-.372
	p	.000	.000	.000	.000
General BES score	tau-c Kendall	-.278	-.460	-.193	-.514
	p	.000	.000	.001	.000

Note. Colours indicate the strength of correlation.

The above correlations indicate that declared (explicitly) and tested (implicitly) satisfaction with various aspects of the body goes hand in hand. However, not all is unequivocal. The scale of sexual attractiveness is primarily composed of various aspects of facial appearance and sexual function. This scale should therefore correlate highest with declared attractiveness satisfaction and not the figure. The highest correlation can be found between and weight concern scale which in turn comprises with items connected to figure and appearance of the body, and thus it should correlate highest with declared figure satisfaction. These correlations may indicate that women feel attractive and happy with their own figures

when they are satisfied with the different aspects and functions of the body, and not just those directly related to the attractiveness or figure.

In men, statistically significant correlations appear between all BES scales (physical attractiveness, physical condition, upper body strength) with declared physical condition, attractiveness, strength, and satisfaction with figure. Moderate correlations can be found between declared satisfaction with the figure with physical attractiveness, upper body strength and overall body satisfaction. Other correlations are shown in Table 6.

Table 6. Correlation between Declared Physical Conditions, Attractiveness, Strength, and Figure and BES Scales in Men (N = 180)

		Declared physical condition satisfaction	*Declared attractiveness satisfaction*	*Declared Strength satisfaction*	*Declared Figure satisfaction*
Physical attractiveness	tau-c Kendall	-.314	-.357	-.255	-.445
	p	.000	.000	.000	.000
Physical condition	tau-c Kendall	-.293	-.316	-.262	-.355
	p	.000	.000	.000	.000
Upper body strength	tau-c Kendall	-.392	-.303	-.312	-.416
	p	.000	.000	.000	.000
General BES score	tau-c Kendall	-.375	-.367	-.323	-.449
	p	.000	.000	.000	.000

Note. Colours indicate the strength of correlation.In men, like in women, there are links between body satisfaction explicitly and implicitly examined. Just as in women, the strongest correlation can be found between declared figure satisfaction with all scales of BES and declared sense of satisfaction with appearance, strength, and fitness is associated with all elements of satisfaction from the body.

Significant correlations were also found between BMI and body image scales, both in women and in men. The increase in weight-growth rate was associated with an increase in dissatisfaction with sexual attractiveness, physical condition, and a general dissatisfaction with the body in women and the increase of discontent with physical attractiveness, upper body strength, and the general dissatisfaction with body in men. Interestingly increase in BMI was not associated with an increase in women dissatisfied with these parts of the body which can be changed with diet and exercise, so the scale weight concerns. Detailed results are presented in Table 7.

Table 7. Correlations between BMI and BES Scales in Men and Women

	Sexual attractiveness	*Weight concern*	*Physical condition*	*General BES score*

BMI	Women (N = 180)	Pearson R	-.321	-.091	-.165	-.265
		p	.000	n.i.	.027	.000
			Physical attractiveness	*Physical condition*	*Upper body strength*	*General BES score*
BMI	Men (N = 180)	Pearson R	-.198	-.087	-.220	-.207
		p	.008	n.i.	.003	.005

Note. Colours indicate the strength of correlation.

I also tested the differences between men and women in terms of satisfaction with various aspects of the body. Analyses show that men declared significantly more satisfaction than women in the declared satisfaction with strength and satisfaction with the figure. When it comes to satisfaction with various aspects of the body many significant differences were found between men and women. Men were found to be significantly more satisfied with their appetite, nose, physical strength, reflexes, muscle strength, waist, energy level, thighs, biceps, chin, body building, coordination, buttocks, agility, hips, legs, figures, sexual attraction, feet, sex organs, appearance of stomach, sexual activity, body hair, physical condition, and weight. While women were significantly more satisfied than men with the mouth, ears, and eyes. These results show that women were significantly more satisfied with various aspects of the face, whereas men were more satisfied with the body parts included in weight concern scale for women, and so pleased with these parts of the body which can be changed with exercise and diet, and the scale of physical fitness, as well as sexual function of the body. Statistically significant results are shown in Table 8.

Table 8. Differences in Body Parts Satisfaction between Women (N = 180) and Men (N = 180)

	Women *M rank*	*Men* *M rank*	*Manna-Whitney U*		
			U	*Z*	*p*
declared strength satisfaction	196.23	164.78	13369.5	-3.119	.002
declared figure satisfaction	214.39	146.61	10100.5	-6.478	.000
Appetite	142.03	218.97	9275	-7.231	.000
nose	160.42	200.58	12585.5	-3.781	.000
physical stamina	161.39	199.61	12761	-3.602	.000
reflex	165.7	195.3	13535.5	-2.851	.004
lips	193.5	167.5	13860	-2.523	.012
muscular strength	163.23	197.77	13091.0	-3.269	.001
waist	167.64	193.36	13885	-2.416	.016
energy level	167.23	193.78	13810.5	-2.53	.011
thighs	135.73	225.28	8140.5	-8.35	.000
ears	194.91	166.09	13606.5	-2.789	.005
biceps	168.96	192.04	14123	-2.183	.029

	Women *M rank*	*Men* *M rank*	*Manna-Whitney U*		
			U	*Z*	*p*
chin	161.04	199.96	12698	-3.707	.000
body build	152.34	208.66	11131.5	-5.301	.000
physical coordination	164.2	196.8	13265.5	-3.142	.002
buttocks	147.12	213.88	10191	-6.255	.000
agility	167.13	193.88	13792.5	-2.565	.010
appearance of eyes	190.64	170.36	14375.5	-2.027	.043
hips	153.88	207.12	11408.5	-5.001	.000
legs	147.22	213.78	10209	-6.232	.000
figure	152.13	208.88	11092.5	-5.31	.000
sex drive	156.23	204.77	11831	-4.652	.000
feet	169.45	191.55	14211.5	-2.092	.036
sex organs	146.66	214.34	10109.5	-6.473	.000
appearance of stomach	144	217	9629.5	-6.849	.000
sex activities	151.58	209.42	10995	-5.557	.000
Body hair	152.45	208.55	11151	-5.311	.000
physical conditions	161.38	199.62	12758.5	-3.608	.000
weight	143.83	217.17	9600	-6.858	.000

Differences in terms of overall satisfaction with the body were also analysed. Men, as expected, turned out to be significantly more satisfied with their bodies than women. These results are presented in Table 9.

Table 9. Differences in Body Image between Women and Men

	Women (N = 180)		*Men (N = 180)*		*Student test t*		
	M	*s*	*M*	*s*	*t*	*df*	*p*
Body image	117.76	20.463	132.71	20.407	-6.941	358	.000

In order to clarify results in three groups (low – medium – high BMI) of women and men were compared. There were no differences in body image in women's groups and men's with low BMI. In the group with normal and high BMI we found that men were significantly more satisfied with their bodies than women. The results are presented in Table 10.

Table 10. Differences in Body Image between Women and Men with Varied BMI

	low BMI women (N = 30)		*low BMI men (N = 30)*		*Student test t*		
	M	S	M	S	t	df	p
BODY IMAGE	128.03	14.87	128.28	19.95	-0.055	58	.956
	normal BMI women (N = 180)		*normal BMI men (N = 180)*				
	117.62	21.05	136.31	19.45	-7.144	238	.000
	high BMI women (N = 30)		*high BMI men (N = 30)*				
	108.03	18.37	122.72	21.06	-2.879	58	.005

In order to explore the phenomenon of body image in adolescent the differences between the groups of women and men with varied BMI were tested. Due to the large number of groups discrepancies between normal (N = 120), high (N = 30), and low BMI (N = 30), random sampling was introduced. This procedure was compatible with the guidelines described by Brzezinski (2004) and was held on the basis of a table of random numbers contained in this book. A group of men and women were drawn independently.

In women, there were significant differences in terms of the declared physical condition and satisfaction with figures, as well as appetite, reflexes, muscle strength, waist, thighs, body built, coordination, buttocks, agility, width of shoulders, chest, hips, legs, figure, appearance of stomach, physical condition, and weight. Women who are overweight reported significantly lower satisfaction with their own physical condition and were less satisfied than other groups of appetite. They also assessed their figure (declaratively), coordination, agility, shoulder width, physique, hips, and weight lower than the group of women with low BMI. The group with normal BMI was less satisfied with the physical condition, reflexes, and muscle strength. While underweight women were significantly more satisfied than other groups with the thighs, buttocks, legs, figure, appearance of the stomach, and waist. Groups with high and normal BMI were significantly more satisfied with their breasts than women with low BMI.

These results show that women with a BMI below the standards are a more contented particularly with those aspects of the body which are an important element of femininity and you can change them using the diet (lower body area and weight). Nevertheless, they are satisfied with their breasts. Women with high weight are less satisfied not only with part of the body including the lower parts, but also often of high weight or worse physical condition. Detailed results are presented in Table 11.

Table 11. Differences in Body Image Aspects Between Women with Varied BMI

	Low BMI (N) N = 30		*Normal BMI (S) N = 30*		*High BMI (W) N = 30*		*Kruskal--Wallisa H*		*Manna-Whitney U*		
	M	*SD*	*M*	*SD*	*M*	*SD*	*H*	*p*	*N-S*	*S-W*	*N-W*
declared physical condition satisfaction	1.80	0.66	1.90	0.71	2.73	1.08	18.83	.000	0.072	0.007	0.001
Declared figure satisfaction	2.53	0.90	3.00	1.05	3.30	1.24	9.12	.010	0.219	0.888	0.014
appetite	3.40	1.25	3.37	1.25	2.20	1.24	15.23	.001	1.000	0.003	0.002
reflex	3.87	0.97	4.30	0.70	3.40	1.19	10.41	.006	0.393	0.007	0.387
muscle strength	3.13	0.94	3.63	1.03	2.83	0.95	8.68	.013	0.229	0.015	0.919
waist	4.07	0.87	3.07	1.31	2.41	1.26	22.93	.000	0.015	0.228	0.000
thighs	3.53	1.38	2.37	1.47	1.83	1.12	19.59	.000	0.014	0.513	0.000
body built	3.53	1.04	2.97	1.25	2.47	1.43	9.56	.008	0.289	0.536	0.008
physical coordination	4.00	0.83	3.73	1.17	3.30	0.88	8.86	.011	1.000	0.162	0.018
buttocks	3.87	1.07	2.90	1.42	2.47	1.28	16.41	.000	0.022	0.703	0.000
agility	4.23	0.86	3.97	1.00	3.30	1.06	13.73	.001	0.902	0.052	0.002
width of shoulders	3.97	1.00	3.73	1.17	3.13	1.25	7.89	.019	1.000	0.166	0.026
chest/breasts	2.80	1.10	3.70	1.37	3.70	1.21	10.63	.005	0.016	1.000	0.022
hips	3.80	1.13	3.20	1.40	2.50	1.28	13.35	.001	0.307	0.161	0.001
legs	3.77	1.25	2.77	1.52	2.48	1.20	13.40	.001	0.023	1.000	0.002
figure	3.77	1.07	2.77	1.45	2.43	1.28	15.15	.001	0.019	1.000	0.001
appearance of stomach	3.80	1.03	2.47	1.50	2.13	1.31	21.76	.000	0.002	1.000	0.000
physical condition	3.53	1.14	3.73	1.05	2.83	1.09	10.30	.006	1.000	0.009	0.066
weight	3.40	1.48	2.80	1.58	1.90	1.03	14.14	.001	0.405	0.097	0.001

Similarly, assays were conducted in a group of men. Tests showed significant differences between men with different levels of BMI in the declared physical condition, attractiveness, strength, and figure satisfaction. It also showed differences in satisfaction with physical strength, waist, body, hips, legs, figure, appearance of stomach, physical condition, and weight. Men with a normal BMI proved to be more satisfied with their own performance and attractiveness (declaratively), physical stamina, body built, physical condition, and weight in comparison with a group with high BMI. Men with high weight were significantly less satisfied with their own waist, thighs, abdomen, and appearance compared to the other groups and less satisfied with the hips and legs from the low BMI group. These body parts are most vulnerable to changes in weight, which may suggest that the weight is the main reason for dissatisfaction here. Men with low BMI were significantly less satisfied with the strength of the other groups. Detailed results are presented in Table 12.

Table 12. Differences in Body Image Aspects between Men with Varied BMI

	Low BMI (N) N = 30		*Normal BMI (S) N = 30*		*High BMI (W) N = 30*		*Kruskala--Wallis H*		*Manna-Whitney U*		
	M	*SD*	*M*	*SD*	*M*	*SD*	*H*	*p*	*N-S*	*S-W*	*N-W*
declared physical condition satisfaction	2.27	1.01	1.67	0.71	2.80	1.06	18.50	.000	0.067	0.000	0.231
declared attractiveness satisfaction	2.53	0.73	2.13	0.90	3.00	0.79	14.57	.001	0.384	0.001	0.115
declared strength satisfaction	3.00	1.02	2.07	0.69	2.23	0.86	14.18	.001	0.002	1.000	0.030
declared figure satisfaction	2.40	0.77	2.17	0.87	2.80	1.06	6.20	.045	1.000	0.060	0.449
physical stamina	3.27	1.34	3.97	1.10	2.97	1.27	9.42	.009	0.130	0.011	1.000
waist	3.60	1.13	3.53	0.97	2.63	1.07	13.47	.001	1.000	0.009	0.004
thighs	3.50	0.86	3.77	1.01	2.73	1.05	14.30	.001	1.000	0.001	0.031
body built	3.40	0.97	3.80	1.13	2.93	1.26	8.24	.016	0.447	0.017	0.549
hips	3.82	0.79	3.73	0.78	3.20	0.89	8.10	.018	1.000	0.088	0.045
legs	3.93	0.74	3.67	0.92	3.20	1.13	7.64	.022	0.991	0.312	0.028
figure	3.57	1.07	3.53	0.94	2.93	1.14	6.52	.032	1.000	0.097	0.107
appearance of the stomach	3.87	1.01	3.63	1.03	2.60	1.10	19.41	.000	1.000	0.004	0.000
physical condition	3.60	1.30	4.10	1.03	3.03	1.22	11.58	.003	0.425	0.003	0.210
weight	3.30	1.37	3.93	1.11	2.93	1.28	9.33	.001	0.222	0.009	0.752

Comparisons of means between the groups of women with varying BMI were made taking into consideration the scales body image. The results showed statistically significant differences in all four dimensions. In terms of overall satisfaction with body the groups with low and high BMI were significantly different from each other. Higher results were obtained with a low BMI group. In terms of sexual attractiveness low BMI group differed significantly from a normal BMI and high BMI. A group of women with low BMI group was significantly more satisfied with their own attractiveness in relation to the other two groups. Given the scale of concern about weight significant differences were found only between the group of normal and high BMI. Women with average BMI obtained significantly better results than the group with high BMI. In contrast, the physical performance of high BMI group differed significantly from the other two. Women with high BMI were significantly less satisfied with their physical condition than women with low or normal BMI. Detailed results are presented in Table 13.

Table 13. Differences in Body Image Satisfaction in Women with Varied BMI

	Low BMI (N) N = 30		*Normal BMI (S) N = 30*		*High BMI (W) N = 30*		*UNIANOVA*		*Tukey HSD, p or Dunnett T3*		
	M	*S*	*M*	*S*	*M*	*S*	*F*	*p*	*N-S*	*S-W*	*N-W*
Body image	128.03	14.87	120.90	23.37	108.03	18.37	8.37	.000	.413	.062	.000
sexual attractiveness	47.22	6.27	41.30	8.47	38.33	8.12	10.42	.000	.010	.296	.000
weight concerns	35.87	4.22	37.83	5.74	33.83	6.30	3.99	.022	.352	.016	.326
physical condition	32.27	4.25	32.03	6.07	28.57	5.60	4.48	.014	.984	.037	.024

In men, the situation was quite different. The tests did not show any significant difference between men with varied BMI in terms of body image.

In summary, it has been demonstrated that BMI correlates with scales which measure satisfaction with the body in both groups of adolescents. The results of correlation analysis showed that significant correlations were observed between body image and dissatisfaction with sexual attractiveness, physical fitness, and general dissatisfaction with the body in women and dissatisfaction with physical attractiveness, muscles, and general body dissatisfaction in men. There were no significant correlations between BMI and weight scale care for women and dissatisfaction with physical function in men. Weight gain in women was associated with less satisfaction with various aspects of the face and sexuality, and especially those parts that can be changed with plastic surgery, however, also with general physical condition, health, and strength. However, it did not correlate with satisfaction with appetite and those parts of the body which can be changed by diet. In men, an increase in weight was associated with a decrease with the aspects of facial appearance and figure, which have an impact on the attractiveness, and the upper half of the body, especially those aspects that can be changed by exercise. On the other hand it did not correlate with the overall physical condition, health, and strength. Weight-growth ratio correlated well with the declared lower satisfaction with the performance, attractiveness, and figures in women and less satisfaction with the performance and strength in men.

Discussion

These results confirm the outcomes of studies found in the literature, where BMI correlated negatively with body image (Raustorp et al. 2006; Weaver & Byers, 2006; Cororve Fingeret & Gleaves, 2004; Sánchez-Villegas et al., 2001; Kostanski & Gullone, 1998). An interesting aspect of the study is the lack of correlation between BMI and weight concern scale for women, which means that women, regardless of weight, showed a similar level of satisfaction with these aspects of the body, which is confirmed by testing the differences and the lack of correlation of BMI and physical function scale in men. Women in our culture

based their attractiveness on the appearance, men on the physical (Franzoi & Klaiber, 2007). This claim may therefore explain the lack of correlation between these variables and body image scales mentioned earlier. In today's world figure seems to be the most important for women, so perhaps women of different shapes and weight show a similar degree of dissatisfaction with these aspects of the body that make it up, so the legs, hips, thighs, buttocks, or abdomen, and those parts of the body included in a weight concern scale. Confirmation of this thesis can be found in the results of declarative satisfaction, where women evaluated their satisfaction with the figures lowest and tests showed significant differences only between women with normal and high BMI. In contradiction, women achieved the highest scores in weight concern scale.

A similar contradiction arises in men. Indeed, they declared the highest satisfaction with physical fitness. However, the BES scale connected with physical fitness was evaluated the lowest, and tests indicate no differences between groups with different BMI. So the assertion of Franzoi and Klaiber (2007) does not find confirmation. Perhaps, then, declarative answers differ from test results due to the different approaches of men and women to study. Perhaps also in the case of a body image it is generally accepted that men hide their true feelings about their relevant aspects of the body and try to disguise their displeasure, and women openly express their satisfaction with the figures, which in our culture is widespread and even well seen. In this context argument of Franzoi and Klaiber (2007) is reflected in the tests (see Lipowska & Lipowski, 2008).

Also the nature of the relationship is not consistent with the hypothesis stated by Kostanski et al. (2004). Although in the case of a general body image and sexual attractiveness we can see a downward linear trend, however, not all differences are large enough to achieve the required level of significance. In the case of a weight concern scale results in groups of normal and low BMI are comparable, but only high BMI group has slightly lower results. Results also do not confirm the curvilinear nature of the relationship in terms of overall body image, as well as all three scales in men. These results are therefore inconsistent with the results obtained in American (Frederick et al., 2007a; Kostanski et al., 2004) and Polish (Zarek, 2007) literature.

Overall, men were significantly more satisfied than women, but comparing groups with similar levels of BMI we can observe that the group of men and women with low BMI did not differ in the level of satisfaction with the body (we are talking about overall satisfaction, which alone is calculated in the same way in men and women) and the results are very similar. In the other two groups, men are significantly more satisfied than women. Lack of differences in the groups with low BMI may result from the fact that this group of women is most satisfied with their body. Although a cursory analysis of the results indicates compliance of the results with the results in literature (Knauss et al., 2007; Zarek, 2007; Canpolat et al., 2005; Miller & Halberstadt, 2005; Głębocka & Kulbat, 2004; Palladino-Green & Pritchard, 2003; Forbes et al., 2001), this in-depth analysis shows that the assumption is not so simple. Moreover, an analysis of the various parts of the body shows that men are happier than women with 25 out of 35 parts and functions of the body.

In women, there are significant differences in the overall satisfaction of the body between the groups with normal and high BMI—satisfaction is decreasing with increasing BMI. Groups of women differ also in the subscales of the body image. On a scale of sexual attractiveness group of women with low BMI achieves significantly higher scores compared to the other two groups. A group of women with a high BMI is, however, significantly less

satisfied with their physical fitness compared to the other two groups and significantly less satisfied with the weight and the body parts that can be changed by means of diet and exercise in relation to the group with normal BMI. There are also differences in the various parts and functions of the body (appetite, reflexes, muscle strength, waist, thighs, body building, coordination, buttocks, agility, shoulder width apart, arms, breasts, hips, legs, figures, abdomen, physical, and weight). It is noticeable that they are mostly parts of the body particularly sensitive to changes in weight and important from the point of view promoted by the media ideal of feminine silhouette. It is not surprising that women with low weight are more satisfied with these aspects of the body which can be modelled through proper eating habits and exercise, as well as the resulting physical and motor coordination.

In men, the differences between the groups with different levels of BMI are less significant. Men do not differ from each other in terms of body image. However the group with a normal BMI is more satisfied with their strength, body building, fitness, and weight compared to a group with a high BMI. These are mainly functions of the body perceived as physical fitness. These aspects are shaped by exercise and achievable only to persons of the appropriate muscle mass, and therefore weight. Men with high BMI were significantly less satisfied with their own waist, thighs, hips, legs, abdomen figure, and appearance. As in the case of women, we are dealing with body parts, particularly dependent changes in weight, which explains the lower dissatisfaction of overweight.

There are also limitations to this study. Firstly, my sample size was quite small, especially when it comes to the low and high BMI groups. The sample of Polish adolescents all attending high schools might also not be representative for the whole population. While high school students were useful for this particular study, the topic is for sure not limited to students learning in big cities and possibly with a high level of intelligence. Moreover all measures were self-reported and data was collected in groups of adolescents thus pressure might have existed to answer in a certain way. Studies show that participants often underestimate their true weight, with women doing it more frequently (Betz, Mintz, & Speakmon, 1994). The weight given by the participants, however, significantly correlated with their actual weight (Stunkard & Albaum, 1981), which lets us safely assume that the information collected is reliable. Other scales measuring body image could have been used or other aspects taken into consideration.

In conclusion, the results show that the general satisfaction with the body is associated with the BMI index in both women and men, and the correlation results show that with the increase in the weight of the body satisfaction decreases. As research indicates that body image can influence general self-esteem thus a careful analysis of this relationship might be advised. As body image disturbances affect the quality of life and relationships with other people, prophylactic programmes might be introduced in Polish high schools.

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Psychoprevention Studies 1/2015
ISSN 2391-548X

Classic and Contemporary Approach to Creativity

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ABSTRACT

The intention of this article is to revise the classical and the contemporary understanding of the phenomenon of creativity. The paper presents various definitions and theories of creativity arising out of psychological science. Simultaneously it puts forward the standpoint of the most popular psychological approaches. The article draws particular attention to the attitude of a creative person, the creative process, and the end result of the creative activity, meaning the piece of work.

Keywords: creativity, psychoanalysis, behaviourism, humanistic psychology, cognitive psychology

Introduction

Creativity has always accompanied the development of our species. It has been the inseparable result and the driving force of evolutionary change. For a long time the creative work has even been identified as a privilege of gods (Popek, 1996). In the 19th century the phenomenon of creativity was incorporated into art and science, and popularised through these. In the beginning "the creator was a poet, then a painter, a sculptor, musician-composer, so artists, discoverers, inventors; science representatives—seekers of truth, able to express their investigations in the form of new theories and hypotheses, joined the group much later" (Troskolański,

1978, p. 15). The contemporary creative activities are a form of expression and may take material (e.g., a particular piece of work) or ideological (e.g., a thought, an image) form (Popek, 1996). The human mind not only assimilates various information but it can also produce them itself. In favourable conditions what is potential can become real. Therefore, creativity is "any externalised manifestation of something . . . what is accepted as a sign of a specified internal state" (Reber, 2000, p.184).

Currently the issue of creativity is a widely explored subject in many scientific fields such as psychology, sociology, pedagogy, philosophy, and anthropology. Creativity in psychology is discussed both theoretically and empirically in the area of, among other things, personality psychology, developmental psychology, cognitive psychology, social psychology, or psychology of individual differences. In terms of psychological research it is one of the oldest topics (A. R. Arasteh & J. D. Arasteh, 1968; Dobrołowicz, 1982; Nęcka, 2005; Sękowski, 2010).

Notion of creativity

Creativity is an ambiguous phenomenon, the term *creativity* itself is in fact used in a variety of contexts, and thus—difficult to define. Nevertheless, there are many definitions and theories which attempt to present the subject of creativity in a full and comprehensive way. Some of them focus on the creative process, other on the piece of work, the approach of the creative person or the creator themselves. For instance, Stein defines creativity as a process which leads to the creation of a piece of work. It is characterised by features of novelty, utility and value (aesthetic, pragmatic, cognitive, and ethical) for a certain group in a certain period (Stein, 1997; Stein, 1953; as cited in Nęcka, 2005; Tęcza, 2007). Moreover, creativity, understood as a feature of personality, is an ability to look at a given issue from a point of view different from the previous one, and to question and restructure the possessed knowledge. A person is creative if they have an ability to create new and valuable pieces of work (Strzałecki, 1969; Wertheimer, 1945; as cited in Nęcka, 2005; Tęcza, 2007).

An interesting definition, covering probably all attributes of creativity, was presented by-Hurlock (1985) who stated that creativity is an ability to create various pieces of work, ideas, and compositions, characterised by novelty and innovation. It includes mental synthesis and the activity of imagination, while their product is not only a summary. Creativity may in fact cover creating new models, integrating information from the previous experiences of the individual as well as transferring old relations to the current situations, however, with certain changes. The author assumes that creative activity "must be purposeful and focused on the goal, and it cannot be an idle imagination—but it should not have direct application or to be a perfect or a finished product" (Hurlock, 1985, p. 75). Due to that, creativity can take the form of a piece of scientific, artistic, or literary work. On the other hand it can also be of methodological or procedural nature (Hurlock, 1985).

The phenomenon of creativity with its range therefore covers the creative person, creative attitude, the creative process, and the products of creative activity. Literature contains various opinions on characteristics of creative people. Generally, it can be assumed that a creative person is characterised with independence (Blatt & Stein, 1957; Peck, 1958; Parloff, 1965, as cited in Stein, 1997), extensive knowledge, and wide interests (While, 1931; Barron, 1956; McKinnon, 1963, as cited in Stein, 1997), strength of ego, faith in their own abilities,

and high level of action energy (Rossman, 1931; Shannon, 1947; Bloom, 1956, as cited in Stein, 1997). What is more, they present an aesthetic (Blatt & Stein, 1957; McKinnon, 1963, as cited in Stein, 1997) and narcissistic attitude, has more female interests and features than male aggressiveness (Mustenberg & Mussen, 1953; Bloom, 1956; Blatt & Stein, 1957; McKinnon, 1963, as cited in Stein, 1997), and is also tolerant to ambiguous and contradictory incentives (Nęcka, 2001, 2005).

Creative attitude is a developed (genetically and through personal experience) property of personality and cognition, which has a tendency or readiness to change the world of phenomena, objects, and even their own personality. Thus, it is an active approach to life and the world manifested with a desire to explore, experience and conscious reshaping of the reality and the *self* (Nęcka, 2005; Kozielecki, 2007).

In general, the creative process consists in specific performance of "ordinary" cognitive activities, while in the past their qualitative difference was highlighted in comparison to the non-creative actions. At this point the approach, called the *nothing special* view, suggested by Perkins (1981) can be quoted**,** as it reduces the differences between the ordinary cognitive processes and typically creative processes to targets of the cognitive activity and its results. So, the ordinary and the creative processes are built of the same mental operations, but in the case of the creative process the aim is to discover or invent a new quality, or reinventing the already existing solutions. The end result of the pursuit of that aim may be a new, valuable, and original piece of work or idea (Perkins, 1981; Nęcka, 1995, 2001, 2005).

Any piece of work (e.g., a painting, a sculpture, a piece of music), characterised by the previously mentioned novelty, value, and originality for the society in a particular period of time, is the product of the creative activity. However, for the product to be considered creative, it must exhibit these characteristics simultaneously (Nęcka, 1995, 2001, 2005). Creative work is nothing but the expression of the artistic representation of feelings, thoughts, and emotions of the creative person. At the same time it is a peculiar medium of impact on the recipient (Błasińska-Harasymowicz, 1985; Dąbrowski, 1986; Domański, 2009).

Classic approach to creativity

Over centuries, various trends have sought psychological explanation for this interesting aspect of human activity, which is creativity. The most important positions may include psychoanalysis, behaviourism, humanistic psychology, cognitive psychology, and *Gestalt* (psychology of character).

Psychoanalysis

Psychoanalytic approach, as the oldest trend in psychology, pays a lot of attention to the biological and psychological aspect of creativity. This approach assumes that the creative process is positioned between consciousness and unconsciousness, which is essential for its operation—it avoids excessive rigidity of reason and unconscious impulses (Nęcka, 1995). Creativity protects against excessive internal and external stimulation (coming from unmet instincts). One can talk here about the conflictual model suggested by the work of Freud (as cited in Kozielecki, 1987). According to it, frustration and the unconscious internal conflicts

between *id* and *superego* lie at the foundations of creativity, and the creative activity prevents existential crises. Thus, any creative activity is desirable and culturally accepted form of expression, which is based on the internal energy of libido of a creative person. Creative activity requires, in addition to this sublimation, the flexibility of repression, imagination, regression, and a strong *ego*. Flexible repression refers to the forbidden desires that do not always have to be suppressed, which allows access to any content that underpins the work of the creator—a replacement solution to the conflict. Imagination constitutes a substitute for the unmet needs, regression allows for creating innovative ideas and objects connections. A strong *ego* assists skilful control over the fantasies, as well as subordinating the unconscious and roused desires (Kozielecki, 1987; Dąbek, 1988; Tęcza, 2007).

Supporters of the psychoanalytic standpoint accepted after Freud that creativity is in fact the continuation of children's playground activity. In the course of the child's development play assumes a more mature form, while the ideas of creative individuals are derived from imagination, as unrealised wishes and desires of ambitious or erotic nature. Through the mechanism of sublimation they penetrate the consciousness of a person (Popek, 2003; Nęcka, 2005; Szmidt, 2007).

The psychoanalytic understanding of the creative process is based on two levels of the psychic functioning distinguished by Freud. The primary level is organised according to the rules governing the unconsciousness, and the secondary level—according to the conscious activity. Due to this, the thinking of the creative person takes place parallel and alternately on the two levels, which can be examined by exploring the erroneous actions and incubation processes, as well as metaphorical thinking (Kozielecki, 1987; Nęcka, 2005).

Wallas presented an interesting stance (1926, as cited in Nęcka, 2005). In the theory of incubation the author perceives the creative process as unconscious processing of information. This process takes place by four successive stages: preparation (gathering information, identifying problems, and other preliminary activities), incubation (spontaneous, unconscious "hatching" of the idea during a break in the deliberate dealing with it), revelation (sudden understanding of the problem and noticing the solution), and verification (checking the resulting solution for correctness, originality, and usefulness). Wallace claims that after gathering a sufficient amount of information (preparation) the human mind processes it in a way which is elusive for the creator (incubation). Then the result of this activity is transferred to the consciousness during illumination (revelation) and its outcomes are ultimately subject to development (verification) (Wygotski, 1980; Nęcka, 2005; Śmigórski, 2010).

In turn, Kries (1952, as cited in Nęcka, 1995) understands the creative process as the so called regression in the service of *ego*, which is nothing but a temporary return to the earlier (early childhood) forms of thinking. It consists in the fact that a person temporarily abandons mature creative thinking (secondary process) and returns to utter spontaneity, typical of children's playground activities (primary process). That regression is controllable and reversible, thereby inspires the activity of the person. By using less mature form of thinking, the process of converting information is more vigorous, chaotic, and creative. Finally, when the creator returns to the mature forms of thinking, develops their idea, making it more realistic (Nęcka, 1995, 2005; Popek, 2003; Strzałecki, 2003; Szmidt, 2007).

Behaviourism

A different stance on creativity is presented by behaviourism. The main representatives of the trend (i.e., Watson, Skinner, Wilhelm) focus primarily on the behaviour of a person as a creative individual. Behaviour is a set of particular motor and physiological reactions that are the body's response to external stimuli, or the environment in which a creative person lives, as well as to the problem situations requiring specific activity. In turn, the changes on behaviour are the result of the person's learning new reactions (Nęcka, 2001, 2005; Skinner, 2013). Moreover, Skinner (2013) in his theory of causal conditioning emphasizes positive reinforcement in learning new behaviours, creative work, interpersonal relations, and organisational activities.

In behavioural psychology the phenomenon of creativity is therefore considered in terms of causal behaviour, in which an important role is played by "the process of issuing unusual behaviours and accompanying process of instrumental strengthening and blanking" (Tęcza, 2007, p. 50). The behaviourists highlight the fact that in every situation there is a potential possibility of reacting in a variety of ways, while some reactions may be more probable and the other—less. Typical reaction (predictable) to a given situation is a case of reproductive thinking (standard). While the occurrence of a less probable symbolic reaction proves the existence of productive thinking (i.e., creating new content). Causative behaviour as a reaction, is thus relatively organised in a hierarchical structure, which refers to the so called family of habits according to Hull (Tęcza, 2007). Due to this, the less predictable the reaction is, the more creative it is perceived to be (Popek, 2003; Szmidt, 2007; Tęcza, 2007).

Humanistic psychology

The representatives of the humanistic psychology (among others: Fromm, Rogers, Maslow) concentrate on the typical characteristics of a creative person. To some extent the external reality may characterise a person but it refers to those areas of reality which are noticed by the person and correctly represented in their experience (Malicka, 1989). Creativity is thus a value which applies to all people and adds sense to their lives. This, what a person behaves like, comes out of themselves, not the external surrounding.

The humanists look for the reason for creative activity in the typically human need for development. Creativity itself is understood as the ability to perceive the world in a peculiar way. For Fromm (1959), Rogers (1954), or Maslow (1959, as cited in Nęcka, 2005) creativity is a part of nature and as such should be every man entitled to, regardless of the form of activity. The reason for creativity can be also explained with the so called humanistic model of realisation. It assumes that creativity is a form of updating the natural potentials of an individual. On the other hand it is a typical kind of self-fulfilment and meeting the need for self-realisation. However, hostile and restrictive external conditions, such as house or school, may prove to constitute a difficulty for creative thinking and activity (Kozielecki, 2007).

Humanistic psychologists talk about two kinds of creative activity—primary and secondary. The primary creativity is demonstrated in spontaneous actions and is devoid of effort. It is a feature of all people but it does not affect the outstanding creative achievements (i.e., discoveries, inventions, etc.). In turn, the secondary creativity is connected with talent

and special abilities. What is more, it requires the co-existence of features such as self-discipline, hard-working, and mastery of useful tools and techniques for working (i.e., literature, painting, composition, etc.). Secondary creativity is demonstrated in pieces of work of great artistic or scientific value. According to Maslow, there is also the third kind of activity: integrated creativity which is the combination of the primary and the secondary creativity. Great works of art, scientific discoveries, and outstanding inventions are the expression of creative activity (Szmidt, Rakowiecka, & Okraszewski, 1997).

Maslow defines creativity as self-realization which enables a person to be original in all activities. He also distinguishes between two distinct elements of creativity—creative skills and willingness for self-realization. Specific creative skills are less dependent on the personality, rather than the tendency to self-realization, which is closely associated with it (Strzałecki, 1969; Tęcza, 2007). In turn, Fromm highlights two criteria of creativity—the novelty of the material piece of work and the creative attitude. The condition for novelty is talent and appropriate socio-economic conditions which refers to e.g., artistic and scientific creativity. According to Fromm the creative attitude is the ability of "seeing, understanding, reacting, being amazed, asking questions, and engaging in the activity" (Tęcza, 2007, p. 64). A creative person perceives themselves as the subject of creation who exceeds the limits of their personality in social situations and in relation to the material world. An important role is played here by the ability to accept all the tensions and conflicts, and the courage to move away from the safe and secure situations, for the benefit of the unknown and new situations. The creative attitude is thus a feature of every act and process of creation, even when nothing new occurs in the reality. What is more, this is a feature of personality which is possessed by every person but only in the case of creative people it is especially vivid (Fromm, 1959; Tęcza, 2007). This humanistic understanding of the creative attitude is complemented by Rogers' standpoint. He treats the creative attitude as spontaneous expression, revealing feelings and thoughts without any embarrassment as well as accepting oneself (Rogers, 1954; Tęcza, 2007).

Cognitive psychology

An interesting approach towards creativity is represented by cognitive psychology. For example Trzebiński (1981) in his concept of the psychological creativity mechanism of cognitive nature assumes that the creator acts on the basis of a typical self-regulation mechanism. Now, new experiences both broaden and complicate the emotional and motivational, as well as cognitive structure of a creative person. This results in reorganising these structures which prefer new and varied experiences. Due to high self-esteem and self-acceptance, the creator leaves what is old, and begins to create new works (Trzebiński, 1981; Tęcza, 2007).

In the cognitive trend creativity is understood also as a process which refers to the property of the so called creative thinking. The result of this process is a work meeting the criteria of creativity: novelty, usability, originality, relevance, and social value (Szmidt et al., 1997). Slightly different criteria for creativity are specified by Nęcka (1995, 2005) who divides them into three groups. The first group refers to the features of a work: originality, relevance, necessity, uniqueness, and aesthetic value. The second group includes the specific and desired reaction of the recipient, which means the so called effective amazement. The

third group defines the characteristics of the process of thinking: active attitude towards thinking, spontaneous changing of the ways of thinking (i.e., mobility) and bonding into a new whole distant ideas and facts (which is synthesising) (Nęcka, 1995, 2005).

In addition, the representatives of the cognitive ideology most often mention the creative thinking features such as: preparatory information dominance over the executive information (Getzels & Csikszenmihalyi, as cited in Nęcka, 2005), a higher degree of selectivity in accepting and processing the acquired information (Sternberg & Davidson, as cited in Nęcka, 2005), and thinking by analogy and transfer (Holyoak, as cited in Nęcka, 2005; Nęcka, 2007).

Cognitive psychologists assume that in the creation of art an important role is played by cognitive motivation. This kind of motivation satisfies curiosity of the world, helps to understand it better and explain the unknown phenomena. A creative person activates their motivation in situations which are new, interesting, contradictory, and doubtful. Cognitive motivation is disinterested and non-hedonistic, and the individual experiences satisfaction due to the discovery itself (creation). In addition, it promotes the pursuit of mastery and affects consolidation of self-esteem (Kozielecki, 2007).

Contemporary approach to creativity

Summing up the classic standpoint on creativity it is worth to mention the contemporary theories, i.e., the concept suggested by Perkins (1981), theory of gradual growth of Weisberg (1986, 2006), the component model of creativity of Urban (Matczak et al., 2000), the Styles of Creative Behaviour model of Strzałecki (1996, 2003), or the concept of creative interaction of Nęcka (2005). Generally, it is assumed that the contemporary approaches are a kind of revision of classic theories. They are primarily characterized with theoretical and methodological eclecticism because only such approaches allow for a full view of such a complex phenomena as creativity. In addition, they refer to empirical research, as well as offer new ways of perceiving creativity, taking into account the cognitive paradigm (Sękowski, 1988; Nęcka, 2005). For instance, Perkins (1981) recognises creativity not as an unusual phenomenon, but one typical for all people. It is only distinguished by the result of the creative activity and the peculiarity of the aim specified by the individual.

In reference to the subject of the present article, the theory of gradual growth suggested by Weisberg seems interesting (1986, 2006). The author of the theory, analysing historical sources—documents and biographies of people who became famous due to valuable inventions or discoveries, said that the creators of these works have usually achieved them with tedious and hard work. He assumed it to be the proof for the thesis that creativity is not a sign of genius but is common and results from diligence in pursuing the assumed goals. Moreover, the mere process of finding creative solutions not associated with the so called mystical insight, shows no breakthroughs and revelation. It in fact results from the normal, active, and laborious searching of the existing knowledge and finding the right information to solve the problem. Therefore, the creative process defined by Weisberg is a gradual and quite systematic cycle of acquiring the knowledge necessary to achieve the creative aim. The author does not exclude the phenomenon of expertise, but it requires systematic learning and the so called immersion in the field. During this period, which lasts about 10 years, the

person acquires the relevant knowledge and tries it in practice to be able to make creative discoveries and inventions in the future (Weisberg, 1986, 2006; Nęcka, 2005).

The phenomenon of creativity can also be treated multidimensionally and interactively. In the Styles of Creative Behaviour model proposed by Strzałecki (1996, 2003) creativity is discussed as a specific set of features which represents a particular style of the person's activity. As a complex psychological construct, creative work includes the reliability of the axiological, cognitive, and personality system. The operational definition of the model consists of five factors characterising the creative behaviour: approval of life, strong *ego*, self-fulfilment, flexibility of cognitive structures and internal controllability. The approval of life is the tendency to enjoy life, despite the experienced setbacks, it is making one's own decisions and following one's own value system. Thanks to it a person believes in their own abilities, as well as in the sense of working for people and with people in the world full of various values. The strong *ego* is demonstrated in the ability to identify and accept ones own "self." A person can independently deal with different situations, and they are also always ready to overcome anxiety and to direct their activity in a constant way. The strength of *ego* indicates the relative emotional stability, lack of the symptoms of neurotic exhaustion and lack of excessive focus on oneself. Self-realization, in turn, is the willingness of a creative person to set and fulfil long-term goals, even at the cost of resigning from immediate gratification. In addition, self-realization stimulates optimistic attitude, promotes confidence in one's own strength and experiencing satisfaction from one's own achievements. It is nothing else but the projection of one's own "self," the desire to act, the will to succeed, and the joy of competition. Flexibility of cognitive structures is the ability through which a person approaches a difficult problem and is flexible in the use of different strategies to solve it. They try to be innovative and original with this. The person can skilfully and effectively analyse, synthesize, and seek analogies, while obtaining logical, simple, and beautiful solutions. In turn, the internal controllability means that a creative person is ready to resist peer pressure and to courageously present their views based on a consistent and mature system of values. In the taking up and implementing a variety of activities the person exhibits independence of thought, impetus, energy, and perseverance (Strzałecki, 1996, 2003).

According to Urban the co-existence and co-operation of certain elements is essential for the occurrence of a creative process. The scientist has synthesized the results of the previous studies, theories, and concepts referring to the concept of creativity into the so called component model of creativity. The model is composed of six elements whose operation and the action is involved in the creative process. Depending on the type and stage of the process of solving the problems, they are activated into the corresponding functional systems with temporary variable sub-components. The first three elements refer to cognition and the last three to personality (Matczak et al., 2000). These are: divergent thinking (fluency, flexibility, elaboration, originality, and sensitivity to problems), general competence (the ability of reasoning and logical thinking, analysis and synthesis, evaluation, and memory, and perception width), specific knowledge and specific skills (necessary in the individual areas of creative thinking and activity), involvement into the task (the ability to focus, perseverance, and selectivity), motives (need for novelty, curiosity, desire for knowledge, self-updating, need for being the doer, readiness to play, communicate with others, and take responsibility), and tolerance of ambiguity (openness on experience, nonconformity, humour, willingness to take risks, relaxation). It should be emphasized that one component is not able to initiate the creative process, and the distinct elements build a functional system. Urban's model,

apart from the creative individual, takes into account the role of environmental factors. In the analysis of the creative process, the attention is drawn to the environment or local group as well as the socio-historical background (Matczak, 1982; Matczak et al, 2000).

Psychologist Nęcka explains the creative process in his concept of creative interaction (Nęcka, 1986, 1995, 2001). The concept allows to describe different types of creative processes, regardless of their subject matter. At the same time it highlights the difficulty in separating the fixed stages of the creative process. It appears that it is typical for creativity to constantly return to the previous moments or to look ahead. Therefore, the division of the creative process into the various stages may result in false conclusions. At the foundation of the concept lies the assumption that creativity results from the interaction of two different elements, namely the aim of the creative process and making various attempts to achieve it. Each time a person desires to create a solution (the work) unattainable in one's own resources and those of the environment, it refers to that objective. In turn, the trial (trial structure) is any product that brings a person closer to their goals of material (symbolic) or intangible (imaginary) nature. In reality, a situation in which the target completely coincides with the final result of the creative process happens rarely. In this respect, the position of the similarity of the two structures is accepted, which, however, is combined with the imperfection of the resulting work. The author pays particular attention to critical thinking, specific creative strategies and specific executive actions that help a creative person in reducing discrepancies between the objective and the trial. There are nine types of strategies (i.e., embryo strategy and vigilance strategy), which have the ability to change and penetrate with each other, and can even be compared to a particular style of solving problems. Creative strategies often occur without the awareness and intention of the person. In turn, the executive actions are of cognitive nature and directly interact to minimize the discrepancies between the objective and the subsequent attempts. Such executive actions include: abstraction, metaphors, inductive and deductive reasoning, carrying out transformation, and making associations (Nęcka, 1986, 1995, 2001).

Conclusion

Concluding the discussion on creativity one can assume it is a peculiar way of exceeding the self and the world, expressing the self and the world. Creativity serves the creative person in terms of updating and self-fulfilment, and is also an expressive method of satisfying the needs of the person and the society. In fact, referring to the words of Kozielecki, a person is "causative entity that—going a step ahead—exceeds the reality and creates new real and virtual worlds" (Kozielecki, 2007, p. 21).

It should be emphasised that creativity helps to explain the interindividual and intraindividual differences in many different dimensions of human activity (Sękowski et al., 2009). Today, it is assumed that creativity is typical for each person but the intensity of that property is what differs (e.g., Gardner, Kozielecki, Nęcka, Popek, Sękowski). Creativity as a feature can be expressed on the continuum from no or minimal creativity shown, until outstanding creativity, even typical only for the chosen people (Nęcka, 2001, 2005; Sękowski, 2001). The intensity of creativity depends on the level of external (environmental) and internal motivation, and on the emotional state of the person. In addition, creative talents are gradable and

may be shaped simultaneously, based on two poles—the creative and the imitative (Popek, 1996, 2008; Tęcza, 2007; Tychmanowicz, 2009).

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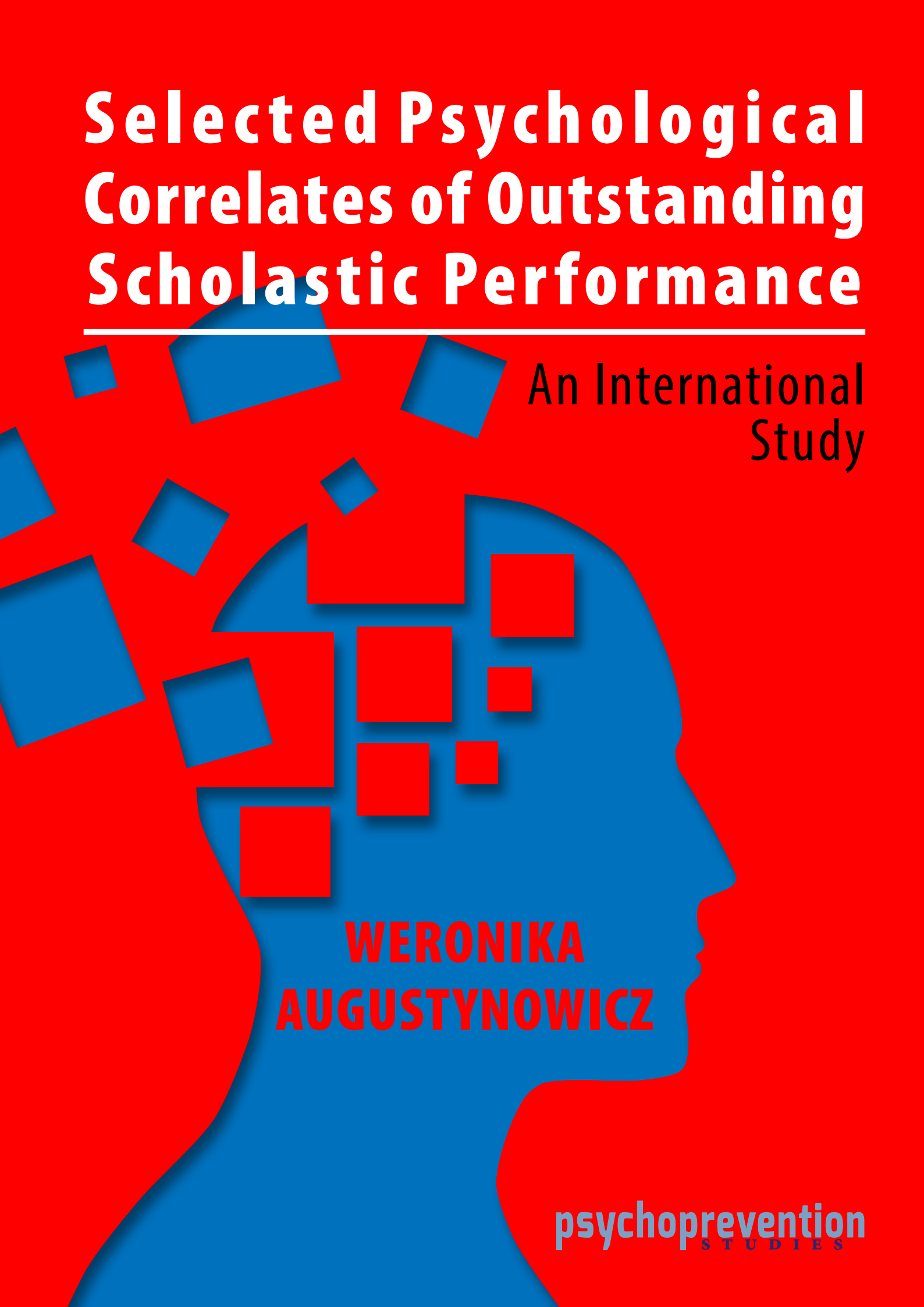

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Published by:
Natanaleum Association Institute for
Psychoprevention and Psychotherapy
Al. Gen. Wł. Sikorskiego 1/101, 20-814
Lublin
www.natanaelum.pl
sekretariat@natanaelum.pl

ISBN: 978-83-940389-1-5

With a special "Thank-you" to Professor Andrzej Sękowski,
to whom I owe a debt of gratitude for his scientific leadership
that made this publication possible.

Table of Contents

Introduction 41

Chapter 1
The Issue of Strong Scholastic Performance in the Literature on the Subject 44

Chapter 2
The Psychosocial Functioning of High-Performing Students 68

Chapter 3
The Methodology of the Author's Own Research 104

Chapter 4
The Presentation and Analysis of the Author's Own Research Results 115

Chapter 5
The Verification of the Hypotheses and an Attempt at Interpreting the Findings 144

Conclusions 150

References 152

ISBN 978-83-940389-1-5

Introduction

> "No country can indeed afford to waste talents and it would be a waste of human resources not to identify in good time any intellectual or other potentialities" (EU Committee on Culture and Education, 1994).

For many years it was believed that high intelligence was enough to achieve success at school, and subsequently in adult life. Intelligence quotient, or IQ, was considered to be the only and unquestionable predictor of one's future achievements. However, a number of studies show that it is not always people with high intellectual capabilities who deliver the expected results. Research into non-intellectual factors which determine human accomplishments has now moved to the forefront of modern science. The importance of this area of investigation seems particularly crucial in two spheres of life—individual and social. Each individual seeks self-fulfilment, optimum growth, and achievement. Therefore, it is vital that today's science recognises these needs to meet them and support personal growth, which in the end determines the well-being of society as a whole. This has become especially important in the contemporary era of the advancement of civilisation, when effective actions are among the priorities. This is reflected, for example, in the emergence of philosophies which focussed on human performance, such as utilitarianism, with usefulness at its core; pragmatism, with effectiveness and practicability as the guiding principles of all human activities; and praxeology, the special domain of effective performance, as developed by Kotarbiński (Markiewicz & Zachariasz-Łobodzińska, 1996). When extraordinary intelligence, or "academic" intelligence, proved insufficient to guarantee outstanding performance in one's scholastic or professional life, other relevant factors began to be explored. Although the current state of the art does not dismiss analytical intelligence as a prerequisite, other general personality traits and environmental factors are considered as equally significant. What is advocated today is an approach to achievement which encompasses all mental capacities, including cognition, emotions, and motivation (Ledzińska, 2004; Sękowski, 2000). After a centuries-long divide between the mind and the body, as introduced by Descartes, the time has come to reunite them and make some generalisations.

Even though a number of modern studies have investigated the relationships between achievement and the cognitive, emotional, social, moral, volitional, and religious spheres of an individual, their conclusions often vary substantially. Consequently, it seems reasonable to investigate these correlations further by extending the exploration to include international data. This is not only due to the need to establish some theoretical foundations which will bring us closer to the truth; what is also crucial is the applicability, or how the theories

work in practice. The research undertaken for the purposes of this study will produce data which might be helpful in arriving at a better understanding of how students with strong performance function in Poland and Ukraine. The exploration of psychological correlates, limited in this study to such variables as personality traits, as understood by the **five-factor model (FFM**), emotional intelligence, and the sense of solitude, will help align formative and educational influences in the students' social milieu with their needs. There is a false but widespread belief that smart students do not require support from their teachers and families, and that the emphasis should rather be put on those individuals who exhibit educational problems. Nevertheless, the individual mental characteristics of smart students can often underlie their struggle with social interactions, cause maladjusted peer relationships, give rise to misunderstandings in student–teacher relations, and even result in performance incommensurate with their cognitive potential (Goleman, 1997, 1999; Sękowski, 1998, 2000, 2004; Rimm, 2000; Przybylska, 2007; Boryszewska, 2008; Ledzińska, 2010; Wołpiuk-Ochocińska, 2010). The sooner they receive the appropriate support, the greater their chance of normal and balanced growth in their cognitive, emotional and social domains. This, in turn, is important for their future achievements throughout school and in adult life.

A significant role in exploring performance-related factors is played by cross-cultural studies (Sękowski, 2000). They provide a better understanding of the psychosocial functioning of an individual and stand in opposition to the absolutist approach which seeks universal, i.e. common-for-all-people, processes and disregards the differentiating role of culture (Koc, 2007). As noted by Brislin (1983), cross-cultural psychological studies should be aimed at capturing subtle differences between countries with similar cultural backgrounds. This study is an attempt at identifying the level of diversity, or similarity, for selected psychological correlates of strong scholastic performance between Polish and Ukrainian students.

Empirical examinations were carried out to answer two questions: (1) What differences, if any, are there in the psychological functioning of students with different scholastic performance levels? (2) What differences, if any, are there in the psychological functioning of students with poor, average, and strong scholastic performance in Poland and Ukraine? For the purposes of differentiating students with diverse scholastic performance levels, the study used a psychopedagogical criterion—the mean grade in all scholastic subjects.

This paper comprises the list of contents, an introduction, five chapters, conclusions, references, and lists of tables, diagrams, and charts.

The initial two chapters are theoretical in nature, with the first attempting **an analysis of the concepts** of comparing strong scholastic performance with ability, and describing the process of scholastic grading, as presented in the literature on the subject. Chapter 2 attempts to **describe and operationalise the psychological variables** measured in the subsequent empirical study, including emotional intelligence, the sense of solitude, and the Big Five personality traits. This part of the study ends with an analysis of the psychosocial functioning of students with strong scholastic performance on the basis of the aforementioned variables.

Chapter 3 describes **the methodology of the author's own research** in relation to the topic at hand, the hypotheses that are put forward, a description of the groups studied in Poland and in Ukraine, and the procedures for empirical studies. It concludes with a section which characterises the methods used in the author's own research.

Chapter 4 is entitled ***The Presentation and Analysis of the Author's own Research Results***. It observes the following data-presentation structure—a description of the results ob-

tained in a given test, then a presentation of the test results for each country separately, and finally a comparison of data for students from Poland and Ukraine.

Chapter 5 **examines the hypotheses proposed and tries to explain the study outcomes** in the light of the theoretical considerations from the first two chapters. It also attempts to identify a practical application for the obtained empirical data.

ISBN 978-83-940389-1-5

Chapter 1
The Issue of Strong Scholastic Performance in the Literature on the Subject

This chapter explores the literature's treatment of such issues as scholastic performance and its correlation with abilities and matters related to scholastic grades and grading itself.

1. Scholastic achievement and the issue of abilities

As defined by the Oxford English Dictionary, the verb *to achieve* means to succeed in reaching a particular goal, status, or standard, especially by making an effort for a long time (www.oald8.com). The pursuit of achievement is part of human nature—hence this issue has been investigated across various fields of study. Psychologists have also analysed this phenomenon. Among the considerable human accomplishments are successes achieved throughout school education, which are of interest both to psychologists and educators. Considering that the period of learning is also a time of intense development across all domains of human functioning, the individual history of successes and failures has a significant impact on our future lives as adults. Bearing this in mind, both psychologists and educators have focussed on identifying the factors that might significantly affect student performance. Currently this research is not limited solely to analysing the relations between learning performance and the cognitive domain of the human condition. A number of studies have linked personality traits and environmental factors with individual achievements.

1.1. Scholastic performance and the concept of ability

The notion of *an ability* has a number of connotations, since it can be related both to an object—a human, who has some abilities—and to the type and nature of the abilities themselves (Klinkosz, 2010). Western psychology defines abilities as the current level of ability, or proficiency, in a given field. Soviet and Russian psychology, on the other hand, perceives abilities as the relatively fixed mental characteristics of an individual, which depend on the capabilities of the innate Central Nervous System (CNS) and acquired behaviour. Abilities can be assessed on the basis of external indicators, such as educational and psychological measurements, types of behaviour and achievements in one area or another. These indicators show that an individual can outperform the majority of people (Giza, 2006, p. 36). Mądrzycki defined abilities as

> personal qualities which determine performance levels for certain activities and actions, and also learning aptitude. People who, with the same level of motivation, prior preparation, and under the same external conditions, achieve better outcomes in learning and in action, are considered as particularly talented (2002, p. 167).

In Polish, the adjective *zdolny* (able) is used to describe individuals with an aptitude for certain abilities (sjp.pwn.pl) This aptitude can be described by various terms, such as *uzdolnienia* (aptitude), *zdolności* (abilities), *dar* (gift), *talent* (talent). The term *zdolności* is used to describe those characteristics of an individual which allow them to learn, memorise, and process things quickly, and are, therefore, closely connected with cognitive processes. This definition reflects a more general understanding of this concept. When we use the term *uzdolnienia* we generally refer to *specific* or *special abilities*, i.e. those capabilities of an individual which allow them to perform very well in a given area of activity, such as language learning, mathematics or playing musical instruments (Limont & Cieślikowska, 2005). The above-mentioned distinction between abilities and aptitude reflects the simplest division into general and special abilities, as found in the literature on the subject.

In order to describe different abilities, the literature in English on this subject uses such terms as *capacity*, *ability*, *aptitude*, *giftedness*, *talent*. The term *aptitude* is used to describe natural ability, which allows an individual to acquire general and specialist knowledge. The term *ability* refers to the individual's capacity for adapting to one's environment and understanding what happens within it. The term *capacity*, in turn, expresses the potential of an entity which allows it to develop certain competences, so it is a primary faculty, a fountainhead from which abilities can develop. The terms *gifted* and *talented* are used to describe higher levels of competence (Limont, 1994; Nęcka, 2006).

Ukrainian literature on the subject identifies two terms with different denotations, namely *zdatnosti* (здатності) and *zdibnosti* (здібності). Anyone described using the adjective *zdatnyj* is a person who has the ability to do something, and a *zdibna* person is one who has the ability to do something, or is talented, in a given area (Waszczenko & Jefimow, 2004). Therefore, *zdatnist'* is in a way a primary ability, while *zdibnist'* is a special competence, an aptitude. According to Kostiuk *zdatnist'* is "the ability of a living organism to reflect the surrounding reality and express its attitude towards it; the human ability to perform some basic cognitive acts, such as feeling, memorising or thinking" (Kostiuk, 2004, as cited in Skrypczenko et al., 2005). The term *zdibnist'* is connected with the process of forming and developing various *zdatnostej*. This can be illustrated in children who take music lessons in identical conditions and are characterised by the same motivation and a similar amount of time for practising, but still their performance varies—this shows different levels of *zdibnostej* for music. Therefore, *zdibnosti* are individual, mental capabilities, or a personal aptitude for a certain skill set, connected with the knowledge, competence, habits, and needs of a given individual. These cannot, however, be reduced only to the cognitive capabilities and habits of an individual. They are manifested in actions aimed at a specific objective, determining success in a given area of activity. They are connected with a high level of mental process integration and generalisation, and with the temperament and character of an individual, but most of all, they determine how fast and successful the individual is in internalising new knowledge, skills, or habits, in relation to others under similar circumstances (Kosiuk, 2004, as cited in Skrypczenko et al., 2005).

Both *zdatnosti* and *zdibnosti* are formed on the basis of *zadatkiw*, or innate aptitudes for certain types of activities, passed to children via their parents' genes. Without the appropriate *zadatków* no *zdibnostej* can develop. At the same time, these can serve as the basis for various *zdibnosti*.

To sum up, notions identified by Ukrainian psychologists can be correlated with their English equivalents in the following manner: *zadatky–aptitude*, understood as a natural ability which allows an individual to obtain general or specific knowledge and develop specific skills; *zdatnist'–ability* defined as a developed skill, manifested in the course of different actions; and *zdibnist'–talented*, understood as having a special ability, a talent.

Sternberg noted that abilities have been invented, not discovered, by humans and therefore scientific studies provide so many definitions to describe their nature. A bibliographical study identifies two approaches to the analysis of this phenomenon, with the first focussing on human cognitive abilities—a quantitative and qualitative intelligence analysis—and the second emphasising the domain of aptitudes—their types and characteristics (Strelau, 1995, 1997a; Czerniawska, 2000; Nęcka, 2005, 2006). Recently, there has been a trend to combine these two approaches, seeking correlations between intelligence and various human aptitudes, as well as the impact of these relations on the personal, scholastic, and professional achievements of an individual (Kossowska & Schouwenburg, 2000; Sękowski, 2000, 2004; Klinkosz, 2003, 2004, 2010; Siekańska, 2004; Boryszewska, 2008). A classic definition by Pietrasiński (1976, p. 736) identifies abilities as "individual peculiarities, which make particular people perform differently in learning or acting under comparative circumstances and with identical motivation and prior preparation." Ledzińska (2010, p. 68), defines abilities as any of the following four concepts:

1. individual peculiarities which might account for different performance under identical or similar situations, no matter what the source of such peculiarities is;
2. the current ability to perform some tasks, or an aptitude, or else a capacity (a proficiency achieved as a result of an innate aptitude);
3. the relatively fixed characteristics of cognitive processes which determine strong performance in problem solving;
4. primary individual capabilities which serve as the basis for developing other skills.

On the basis of a detailed analysis of the literature on the subject, Porter distinguishes eight classes of ability and talent definitions (as cited in Uszyńska-Jarmoc, 2005, p. 119):

1. **Ability as intelligence expressed by the intelligence quotient (IQ)—**the abbreviation being coined by psychologist Stern for the German term *Intelligenzquotient*. This is a traditional and narrow approach, currently being criticised for failing to account for the accomplishments of children in non-academic areas, for ignoring meta-cognitive aptitude and creativity, and disregarding dynamic, developmental human nature, cultural diversity, and environmental factors in human growth and operation.
2. **Ability as intelligence understood as multidimensional capabilities.** This approach is exemplified by ability models developed by Thurstone, Guilford, Gardner, Taylor, and Sternberg.
3. **Ability as a meta-cognitive skill, which means cognition about cognition, knowing about knowing.** It advocates that able children learn faster because they use meta-cognitive abilities. This approach is also criticised since it emphasises important details of intellectual functioning but fails to account for environmental and social factors.

4. **Ability as qualitative distinctiveness in information processing.** It argues that able children not only process information faster, using their meta-cognitive abilities, but also are emotionally sensitive to problems and highly motivated, which allows such children to explore problems and reduce their complexity more easily, thus understanding them better.
5. **Ability as a creative act.** In line with this approach, creative abilities are typical for talented children. Some researchers consider creativity as an essential aspect of ability, while for others it is just one of its constituents.
6. **Ability as a performance capability, defined post factum.** The term *ability* refers to adults only and is a mature human characteristic which determines superior performance in one's social and professional life.
7. **Ability as a talent.** These terms are considered synonymous in a number of publications, for example by Tannenbaum and Gagne. Other researchers advocate semantic differences between the two, arguing that ability is an internal capability, while talent is an ability which can be developed by every-day activities.
8. **Ability as a cultural and historical phenomenon subject to specific criteria for gifted individuals.** In line with this group of approaches, human abilities can be defined on the basis of values cherished by a given social group, culture, or nation. Take, for instance, Japanese culture, where values have been determined by three primary religions, i.e. Buddhism, Shinto, and Confucianism, making the Japanese able to control their emotions and undemonstrative in expressing their emotional state through facial expressions.

Abilities are usually manifested by their external indicators or successes in a given field, which provide information on outperforming the majority of people (Giza, 2005, 2006) in respect of certain standards. Therefore, we can distinguish, for instance, athletic, professional, and musical accomplishments. There are also scholastic achievements. Their classic definition is provided by Okoń (1996, p. 201), who considers them as:

> the result of the education and personal development provided to students at school or the degree to which students master this knowledge and skills, develop their abilities, interests, and motivation, and shape their beliefs and attitudes; scholastic achievements also include such formal outcomes of scholastic work as passing exams, completing another year of school, graduating, or learning a profession.

A semantically similar definition of educational achievement is provided by Niemierko (1993, pp. 498–503) who emphasises the importance of the school environment and its purpose-driven operation based on educational systems which describe the ways of achieving success. Jensen also identifies scholastic accomplishments with the level of knowledge and skill obtained in an educational facility (as cited in Strelau, 1997, p. 210). Boryszewska (2008, p. 17) links educational achievement with the notion of scholastic success defined as the culmination of admirable actions, whose effects go beyond the accepted standard, above the ordinary. From the educational perspective, it is important to determine what level of achievement a given student represents, as this will influence the type of educational measures applied to that student. These include, in particular, methods of delivering curriculum content, its difficulty, and ways of checking and reinforcing knowledge. One of the major measurements for determining scholastic performance is the grades obtained by students across different subjects. The mean grade is one of most frequently used measures

of how successfully young people operate in the school environment (Sękowski, 2000; Boryszewska, 2008). Three criteria can be used to identify able students, namely educational, psychological, and mixed (Ćwiok, 2000; cf. Department of Structural Funds, Ministry of National Education, 2010). Under the first criterion, an exceptionally able student is one who performs very well in learning and various competitions and contests. In addition to a high mean grade, the psychological and educational criteria also attribute to such individuals certain mental characteristics connected with motivation and good social functioning. The psychological understanding of exceptional performance is either much narrower and is based on the diagnosis of personality traits, intellect, and temperament, or it reduces both the definition and diagnosis to intellect characteristics (Tokarz, 2005; cf. Sękowski, 2000; Siekańska, 2004; Klinkosz, 2010).

The literature on the subject uses a number of terms to describe able children and teenagers. These can vary considerably depending on the adopted etymology, cultural milieu, and definition of ability. Research, as well as educational practice, recognises two types of identifying an able student, namely egalitarian, where anyone can be creative, and elitist, where only a few people are considered exceptional (Tokarz, 2005, p. 36). Terminologies used across different countries are often connected with their educational policies. In definitions adopted by the majority of European countries, the most popular terms to describe children and teenagers characterised by certain aptitudes or exceptional performance are *gifted* and *talented,* depending on the context. They are found in 13 European states and regions. Other prefer such terms as *young people with considerable potential*; *children and teenagers with considerable abilities*; *children with exceptional intelligence for their age*; *students with considerable intellectual abilities*; *students with an aptitude for good performance*; *students with exceptional abilities* (Directorate General, Education and Culture, 2008, p. 7). In this paper, the terms *able*, *talented* or *gifted student* and *student with strong scholastic performance* will be used interchangeably, as it is consistent with the educational student identification criterion. As shown in a number of studies (but not all), the mean grade correlates highly with the intelligence quotient and is a reliable predictor of student performance (Czerniawska, 2000; Ćwiok, 2000; Kossowska & Schouwenburg, 2000; Sękowski, 2000, 2004; Kossowska, 2004; Tokarz, 2005; Turska, 2006, 2006 a). Research conducted by Kossowska and Schouwenburg (2000) shows a statistically significant correlation between scholastic performance and intelligence level. Ledzińska (1996) compared average scholastic grades obtained by students with different intelligence levels and found out that the disparities show a high level of statistical significance. Gifted students obtained considerably higher grades than their less able peers. Average final-exam grades in secondary school, as obtained by university students, were correlated to their scholastic performance. Czerniawska (2000), in her research on students who had just started their secondary-school education, showed that feeling seriously at a loss intellectually is associated with poor scholastic performance. Studies carried out by Ćwiok (2000) show that exceptionally intelligent individuals achieve statistically better grades than average students. According to Sękowski (2004) multiple empirical data show that special accomplishments are associated with high IQ. A high intelligence Qquotient is a prerequisite to exceptional accomplishments defined as the achievement of objectives which require prolonged activity, such as convergence and divergence problems faced throughout education or professional work. What is necessary, therefore, is high intelligence, which can be measured in an IQ test, but also successes in a given field of knowledge. Psychologists have emphasised that intelligence has a certain

threshold above which its level has no major influence on one's accomplishments. A number of studies have confirmed that these are accompanied by a high IQ but the IQ itself does not guarantee exceptional achievements in education. As suggested by Lin and Humphreys (1997; cf. Strelau & Zawadzki, 2008; Ledzińska & Czerniawska, 2011) a low, but at the same time positive, correlation between intelligence and scholastic performance can already be observed in the early stages of education. However, the higher the education level, the weaker the relationship between intelligence and scholastic performance. This fact can be due to the higher intellectual diversity of students and the crucial importance of other, non-intellectual, factors. As noted by Turska (2006, 2006a), recently psychology has observed changes in the understanding and means of expressing the term *effectiveness*. Subjective impressions have been replaced by objective measures of the ability to satisfy certain requirements. This role is played by the grades awarded by teachers. "It is the level of scholastic grades (or, more precisely, the level of the mean grade) that forms the socially acceptable basis for assessing educational success, or even formulating expectations towards the future of a young individual" (Turska, 2006, p. 7).

1.2. Theoretical models of ability

Over the years, studies of ability—its understanding, division, gradation—have attempted to introduce various models, systems and ways to organise what had already been established in this area. Attempts to systematise this vast area of knowledge moved towards a broader research perspective. This is how the most famous theories of ability were developed, starting from the historic concepts of Galton, to Binet, Stern, Terman, and Spearmanado, to the more contemporary systems, such as **Leontiev's activity theory**, Renzulli and Mönks' models, Heller's Munich model of giftedness and talent, and the **theory of successful intelligence** by Sternberg.

Until well into the 19th century, the school was a place of intellectual formation and development of purely mental abilities. Students were treated as a homogeneous group, disregarding their needs and both the social and the emotional aspects of their lives. A breakthrough came with the 20th century. The shift was initiated by the publication of *The Century of the Child* (1900) by Key, a Swedish teacher. Since that time there has been a different approach to understanding students and scholastic education (Mönks, 2005, p. 19). The entire 20th century was a period of a smooth transition from purely ability-centred interest to exploring the gifted individual (Ledzińska, 2004).

Already in late 19th century Galton, one of the minds behind the psychology of individual differences, had introduced such concepts as the individual variability of characteristics and adaptation to environmental requirements. He studied *genius*, which, in his opinion, was characterised by the capacity for prolonged, intensive effort and extremely high sensory sensitivity. He ascribed mental ability to the power of action and sensory sensitivity. Galton also deserves credit for initiating an empirical study on ability and introducing its first tests (2006; Sternberg, 1999).

Another eminent author behind the concept of intelligence and ability is Binet. Unlike Galton, he was interested in mental impairment. He started with theoretical considerations and attempts to define what intelligence itself is. In his view, the fundamental intellectual ability was sound judgement, or as he called it, common sense. Another contribution of this

researcher was the development of a series of tests to measure intelligence, which aimed to evaluate the mental capabilities of students in order to assign them to the appropriate educational facilities, either general or special (Galas & Lewowicki, 1991; Sternberg, 1999; Nęcka, 2006; Sękowski, 2010).

The next step towards discovering how human intellect functions was the work of Stern, a German psychologist. He is known mainly for introducing the notion of **the intelligence quotient**, or **IQ** for short (Galas & Lewowicki, 1991; Sternberg, 1999; Nęcka, 2006; Sękowski, 2010). He also argued that outstanding achievement in any field requires concerted effort on many fronts; what matters in addition to intelligence are interests and strong will (Ledzińska, 2004; Stachowski, 2007). Contemporary theories on intelligence frequently define this notion as the ability to cope in new situations. A precursor of this approach was Stern, who considered the ability of an individual to adapt to new tasks and circumstances as a sign of intelligence (Nęcka, 2006). As noted by Mönks (2005, pp. 20–21), this researcher pioneered the concept that even though the abilities one has facilitate achievement, they do not constitute accomplishments in themselves. In 1916 Stern published an article in which he postulated that accelerated education programmes did not cover only 2% of the most talented students but also the subsequent 10% (Mönks, 2005, p. 20).

Terman also contributed to changing the way achievement is approached. On the basis of a longitudinal study of 1500 people whose IQ was 135 or more, he stated that intelligence quotient itself was not enough for success. Other preconditions include the appropriate motivation and social support (Mönks, 2005, p. 21; cf. Ledzińska, 1996; Giza, 2006; Strelau, 2008).

Spearman, a student of Galton, laid the foundations for the study of intelligence structure. In his research, carried out among his students, he took into consideration their grades and measures of sensory discrimination levels. Spearman argued that there was a certain hierarchy in the individual scores in correlation factors. On this basis, he identified two factors responsible for variations in scores, namely a general factor (g) and a specific factor (s). G was present in all the measurements made, and the higher it was the more mental processes were involved in addressing the task at hand. This way in 1904 Spearman formulated what became the **two-factor theory of intelligence**. The theory systematised the factors hierarchically, with the g factor at the top of the intelligence structure and the s factors below (Galas & Lewowicki, 1991; Sternberg, 2001; Nęcka, 2006; Boryszewska, 2008; Strelau, 2008; Ledzińska & Czerniawska, 2011). It is important to note that general intelligence has ever since been considered one of the most fundamental predictors of human achievement (Sękowski, 2010). In addition, Spearman contributed to finding empirical evidence that academic success was the outcome of two factors—g (intelligence) and w (character), which were recognised in 1915 by Webb as relevant for achieving success at school. The w factor was described by Spearman as self-control (Kossowska & Schouwenburg, 2000; Kossowska, 2004).

One of the first attempts to look at student performance otherwise than from the perspective of intellectual determinism was the approach taken by Cattell, who postulated that talented individuals be considered in the context of their personality. The position represented by this researcher rested on the premise that both ability and personality shared the same foundation, hence being related to the psychophysical functioning of an individual as a whole. Cattell emphasised that there were four characteristics typical for exceptionally talented people, which were at the same time variable and dependent on one's living con-

ditions (Ledzińska, 1996; cf. Borzym, 1979). It is instructive to note that it was this scholar who introduced the division between fluid (G_f) and crystalised (G_c) intelligence. The former is innate and "defined as the ability to notice intricate relations between symbols and manipulate symbols, regardless of individual experience and the meaning of these symbols" (Ledzińska & Czerniawska, 2011, p. 139). The latter, on the other hand, is acquired through life experience and involves the management of knowledge and skills relevant in a given social context (Ledzińska & Czerniawska, 2011).

Inspired by the approach represented by Cattell and Tyszkowa (1990), a Polish scholar, has developed **the triad model**. This model comprises ability, personality, and activity. Together, these three elements develop and determine the activity profile of an individual. The nature and outcomes of such activities are determined by individual abilities which are also developed and cultivated during these activities. Personality influences the objectives set by individuals and the steps they take to accomplish them. It is the basis for the assessment of undertaken activities and in itself it is developed in the context of the other two elements of the triad—ability and activity. All these three elements are genetically and functionally interconnected.

> A well-developed personality governs abilities, using them in line with the formulated life goals. […] In her theory, Tyszkowa focusses on the assumption that students' activities depend on their characteristics. Ability and personality, which determine activity, are developed on the basis of feedback on the outcomes of activity and social interaction. The latter is indicated, for example, by the position within one's peer group (Ledzińska, 1996, p. 41).

Leotiev, in turn, divided abilities into (Giza, 2006, p. 37):

- Natural, or primary. These are directly related to hereditary predispositions, and especially the characteristics of one's nervous system.
- Real, specifically human, which are based on natural capabilities, but emerge only on contact with certain products of human activity.

In line with this theory, nature and one's environment have combined from the very beginning of human existence to develop one's abilities. In short, abilities are developed under the influence of two types of factor—biological and social.

It is important to remember that ability models stem from the **theory of intelligence**. The models that focus on the description of the ability structure, include, for example, those developed by Renzulli, Mönks, Tannenbaum, Popek, and Strelau. The development aspect, in turn, is accentuated in theories proposed by Piaget and Gardner (Boryszewska, 2008).

One of the most famous and often quoted is the three-rRing model of giftedness by Renzulli. His starting point was the question "what influences performance, including learning?" Renzulli assumed that this was not just the outcome of one's abilities, but a complex combination of elements such as extraordinary abilities, creativity and commitment, or motivation (Figure 1). Extraordinary abilities can be understood in two ways, either as general abilities, which might be measured with general intelligence tests, or as specific, connected with specific domains and involving particular skills, such as chemical, mathematical, or painting skills (Siekańska, 2004a). Motivation is defined as the involvement in addressing a particular task in a specific environment. What is also important is the environmental aspect, i.e. the attitude, expectations, requirements of the social environment or important people. Creative attitude, in turn, is manifested in divergent thinking, thoughtfulness and imagination (Tyszkowa, 1990; Limont, 1994; Ledzińska, 1996, 2010; Popek, 1996; Sękowski,

2000, 2004; Korczakowska, 2004; Giza, 2006). The fact that the model accentuates the importance of the motivational element clearly refers to personal characteristics. The literature on the subject argues that exceptionally talented individuals often work harder and are more persevering in their pursuit of established goals than their peers with average capabilities. By introducing the accomplishment dimension as the indicator of intelligence and ability, Renzulli has made a breakthrough in the way of thinking. Even though all three elements of the model are crucial, it is the intelligence and creative faculties that are vital to substantial accomplishment. Another contribution of this scholar, made together with Reis, was the distinction between scholastic and creative-productive abilities. This way, the two researchers explored the issue of the relationship between intelligence and creativity (Mönks, 2005; Boryszewska, 2008). Scholastic abilities facilitate rapid learning and test solving. As noted by Mönks (2005, p. 24):

> A number of studies have indicated that it is very likely that students who perform well in intelligence and aptitude tests will also perform well at school. Such students perform well in terms of non-creative thinking and are fit for functioning within the scholastic system; they are committed to achieving the best grades possible.

Creative skills, on the other hand, are connected with identifying and solving problems and unconventional approaches (Boryszewska, 2008).

Figure 1. The three-ring model of giftedness by Renzulli.

In addition to the characteristics identified by Renzulli, the multidimensional model of giftedness by Mönks includes the influence of external factors which determine development, as it emphasises the role of context as the determinant of performance. The most important environments, according to Mönks, are family, school, and peers. Impressive student performance is determined by outstanding abilities, strong motivation and creative thinking (Figure 2). These latter three elements are interconnected with student performance, and if any of them fails to correlate with the others, then a gifted individual is no

longer successful. Mönks has strongly focussed on the correlation between individual characteristics and external environment, which directly translate into successful performance (Limont, 1994; Ledzińska, 1996; Popek, 1996; Sękowski, 2000, 2004; Korczakowska, 2004; Siekańska, 2004, 2004a; Boryszewska, 2008). Poor performance can be attributed to a number of factors, such as hampered talent development, limited activity, and restricted social interaction (Ledzińska, 2010, p. 70).

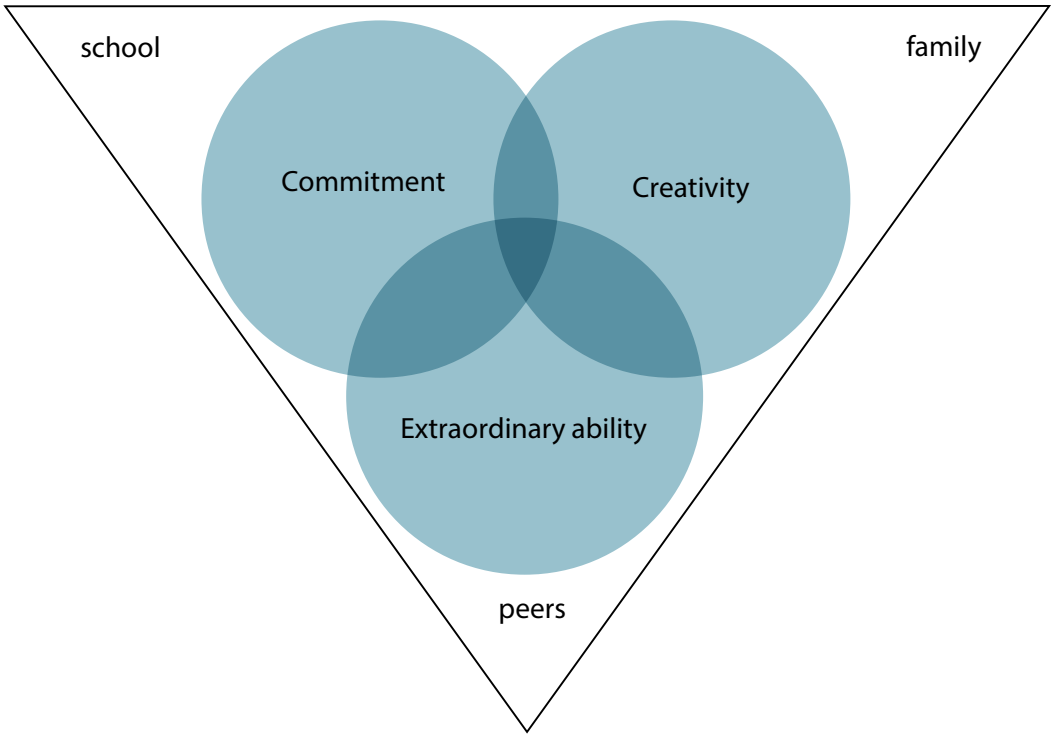


Figure 2. The multidimensional model of giftedness by Mönks.

It should be noted that Mönks' model of giftedness follows the three-ring model of giftedness by Renzulli. It is extended into the environmental context, which is crucial for the development of ability.

In his model of giftedness, Tannenbaum (Figure3) distinguishes five elements necessary for exceptional talent:

1. general ability;
2. special aptitude;
3. non-intellective requisites, such as the drive for accomplishment, emotional maturity, high stress tolerance, and personality;
4. environmental supports such as family, school, and peers;
5. the chance factor, or the so-called *stroke of luck*, often disregarded in other theories, since it is difficult to capture the essence of this phenomenon and measure it (Limont, 1994; Sękowski, 2000; Korczakowska, 2004; Siekańska, 2004, 2004a; Boryszewska, 2008).

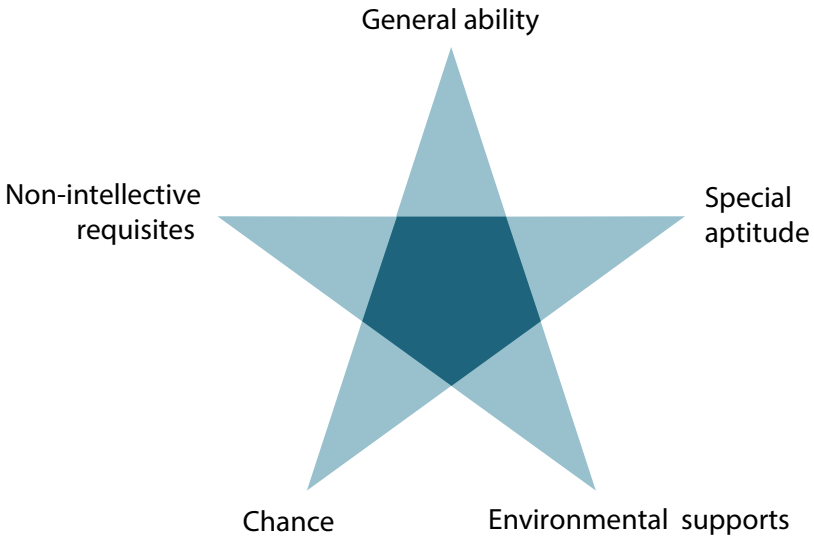


Figure 3. A. Tannenbaum's sea star model of giftedness.

A. Tannenbaum's model distinguishes five factors, which, as opposed to Mönks and Renzulli, are divided into general and special. What is also interesting is the factor referred to by the scholar as *chance*. Admittedly, this element is significant not only for the development of exceptional ability, but in many cases is also essential for other areas of human existence. It can be considered as the representation of different factors which are yet to be discovered and that might affect the development of extraordinary ability.

All the three aforementioned models belong to the structural-interaction group.

The Munich model of giftedness and talent has been developed by Heller and his associates for educational purposes (Figure 4). It identifies the personality and environmental influences, which activate and develop the potential capabilities and talents in an individual. This model attempts to define the bridge which connects potential with achievement (Limont, 2005; Mönks, 2005; Kosiarek, 2009; Śliwińska & Limont, 2009; cf. Terepyszczew, 2008).

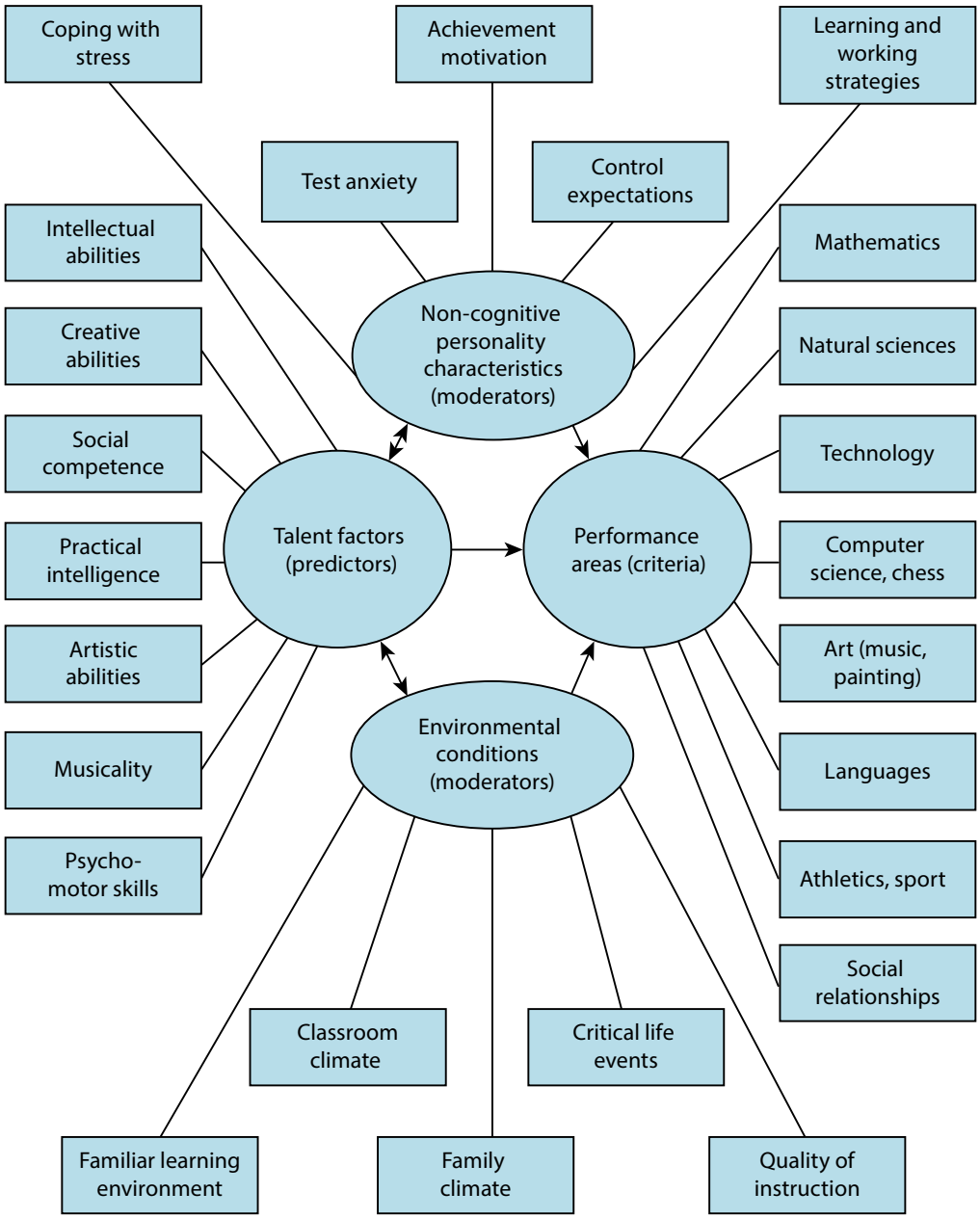


Figure 4. The Munich model of giftedness and talent by Heller.

This model is much more complex than those presented before, even though it also focusses on environmental and personality factors. It stands out in that it attempts to distinguish intermediate elements of a personal and external nature. It is not a complete model, as its structure can be further expanded, along with progress and advancement in science, with newly-discovered factors which affect ability development.

The above models of giftedness show a number of similarities, which are manifested in their authors' attempts to:

1. expand the description of the cognitive and extra-cognitive faculties and their correlations;

2. expose the social conditions for growth, living and functioning, as created by different environments;
3. explore the effectiveness of students' performance as the outcome of a balanced cooperation of selected groups of variables (Ledzińska, 1996, pp. 42–43).

One of the most popular contemporary approaches to the issue of talent is the one represented by Sternberg. His **triarchic theory of intelligence** served as the basis for **the theory of successful intelligence**, which expanded on it. According to Sternberg, whose opinions have roots in the cognitive approach to understanding intelligence, intelligence is an inseparable element of our scholastic, professional, and personal life. "This is a theory about individuals and their relations with the internal and the external world, and about the way experiences serve as mediators between the two worlds" (Sternberg, 1985, p. 317). Within his theory, Sternberg identifies three subtheories related to cognitive human mechanisms. These are connected with the relations with "(I) the internal world of the individual, (II) experience, and (III) the external world" (Sternberg, 2001, p. 383).

I. The componential subtheory—based on Catell's fluid intelligence, it refers to solving those problems which are important for intelligence, such as logical thinking, appropriate problem identification and understanding, and finding connections between concepts. All these tasks refer to inductive thinking. Within this subtheory, the author identified three further components:
1. Performance components—information-handling processes which contribute to problem-solving. The role and arrangement of these elements depends on the task at hand.
2. Knowledge-acquisition components—information-handling processes which play their part in learning and knowledge acquisition. Intelligence is measured by the speed of learning.
3. Metacomponents—monitor lower-order processes, i.e. performance and knowledge acquisition. Metacomponents, as higher-order processes, are responsible for planning, monitoring and evaluation processes.

II. The experiential subtheory—composed of two primary abilities:
1. dealing with novel situations,
2. automatising information processing.

III. The contextual subtheory—intelligence is understood as adaptation to the environment. If an individual decides that adaptation is not possible, he/she takes steps to change that reality. If it is unattainable, the individual selects the environment to match his/her adaptation abilities. Therefore, this subtheory distinguishes three elements connected with the internal functioning of individuals:
1. adaptation;
2. selection;
3. shaping, or changing (Popek, 1996; Mądrzycki, 2002; Boryszewska, 2008; Strelau, 2008; cf. Ledzińska & Czerniawska, 2011).

Correlations between the individual subtheories and their components are presented in the figure below.

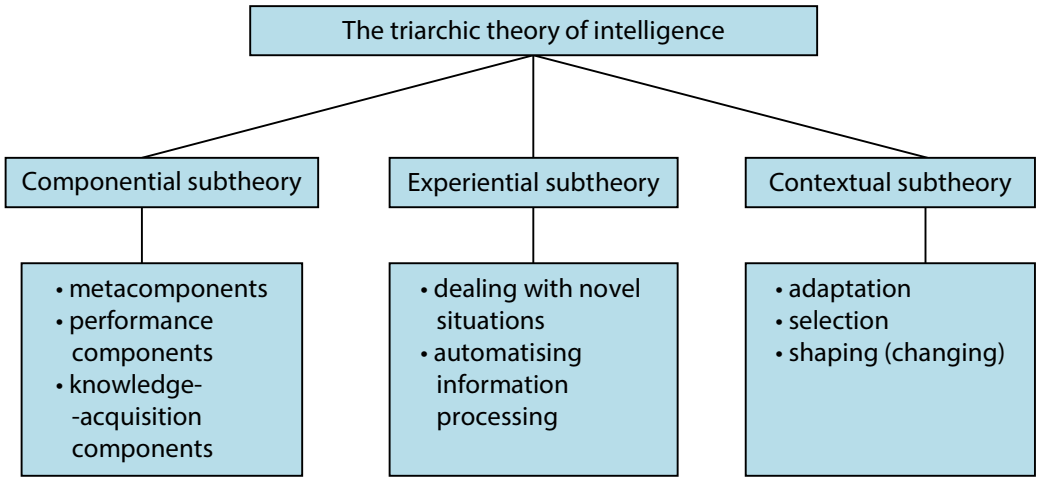


Figure 5. The structure of the triarchic theory of intelligence. Adapted from Strelau, 1985, p. 320.

Sternberg argues that intelligence should be manifested in a successful life. This claim has been reflected in his theory of successful intelligence. According to this approach, the traditional understanding of this concept fails to explain a number of life's situations, such as the problem of inadequate performance (when either above or below the intellectual level of an individual). The theory of successful intelligence is based on the following four premises (Ledzińska & Czerniawska, 2011, p. 144, as cited in Sternberg, 2001, 2001a):

1. Intelligence is defined as the capacity to achieve success in life by one's personal standards in a specific socio-cultural situation.
2. The ability to achieve success depends on using one's own capabilities and on correcting or compensating for one's weaknesses.
3. Balanced abilities foster selecting, adapting to, and shaping the environment.
4. Success is achieved as a result of the successful combination of analytical, creative and practical skills.

Sternberg introduced the distinction into three types of intelligence, relatively independent of one another (Sękowski, 2004; Sękowski, Siekańska, & Klinkosz, 2009; Ledzińska & Czerniawska, 2011), namely:

1. Analytical intelligence, or academic intelligence. This largely corresponds to the intelligence measured as IQ and is responsible for scholastic performance, and, to a lesser degree, academic attainment. This type of intelligence is defined as the processes underlying thinking and problem-solving.
2. Creative intelligence—this type of intelligence can manifest itself across all areas of one's life. It is understood as the ability to cope in novel, unfamiliar situations; it also facilitates the discovery and use of innovative solutions to known problems and recognising different relations between concepts.
3. Practical intelligence—often described as common sense or the wisdom of experience. This type of intelligence is manifested in coping with everyday life, the ability to shape one's internal environment in accordance with one's needs. As confirmed in empirical studies, high practical intelligence is possible without a high IQ. Therefore, it is a major determinant of one's success in life. "Generally, this type of intelligence involves the ap-

plication of previously acquired knowledge, whether declarative or procedural, which comes from formal training and scholastic education (cold knowledge), but also is the result of everyday life experiences (warm knowledge). Practical intelligence is also manifested in social skills" (Ledzińska & Czerniawska, 2011, p. 145).

The approach advocated by Sternberg has a significant practical dimension, while also suggesting that intelligence is not a homogeneous construct responsible solely for scientific achievement. Its level is measured with successes across various domains of life. In addition, this theory identifies opportunities for growth and intellectual improvement, especially in terms of practical abilities.

2. Scholastic grades and assessment

Assessment is an inseparable element of human life, from one's early days to advanced age. It spans various domains of human existence, such as behaviour, accomplishments, appearance. What is of particular importance for individuals and their continued functioning is assessment throughout different stages of education and vocation. Scholastic performance has considerable influence on the choice of studies and line of work. Work assessment, on the other hand, largely carves out one's professional career (cf. Siekańska, 2004).

The following will be an attempt to describe the nature of assessment at school. It is relevant to the main focus of this study, whose very title includes *scholastic performance*, since in order to confirm achievement, one must first assess it.

The term *assessment* refers to an activity which leads to a judgement on an item, person, or phenomenon. This judgement is formed by reference to one or several criteria, irrespective of the subject of assessment and the criteria themselves (Noizet & Caverni, 1988). Student performance monitoring and evaluation is at the core of the educational process. Scholastic assessment is perceived as the process of obtaining information on students to keep track of their progress and account for their individual needs in the course of education. Assessment covers not only the individual but also the progress made by the class as a whole (Kozłowska, 1999; Ostrowski, 2008).

> Assessment is about evaluating the results of checking, measuring and otherwise diagnosing student performance, and ascribing these results to appropriate scale positions. Such scales can be dichotomous, i.e. pass vs failure (such as a driving-licence exam) or gradual. [...], in scholastic practice final grades are awarded in a six-grade scale (*fail – pass – satisfactory – good – very good – excellent*) (Stróżyński, 2003, p. 172).

Education requires constant verification of whether and how well the students have mastered the curriculum, how they have understood it and what problems they have faced (Państak, 1998). Learning progress is assessed on a long-term basis and constitutes an important element of educational evaluation, and shows how effective a school is. Its outcomes are not limited to scholastic grades. First and foremost, assessment is to provide students with feedback and reflect their successes and deficiencies. These data must be supplemented by the teacher with constructive criticism to suggest what can be done to overcome any obstacles. This way, students share responsibility for their educational outcomes at school (Denek, 2007; cf. Niemierko, 2005). Students' efforts are assessed to formulate opinions on

their performance, but even more to obtain information which might prove useful in better, or more effective, student and teacher work (Wojciechowska, 2005).

Evaluation is not an end in itself. It is a process and a system designed to support the efforts of educators and parents to ensure the normal growth of children under their care. These measures are aimed at evaluating the theoretical and practical abilities of young people. Assessment is to help them in the following areas (Kosińska, 2000, pp. 11–13):

1. **Discovering one's potential** – as a result of assessments, students receive feedback on their knowledge in a given area, on the skills they need to acquire and find out what they should do to improve their knowledge. By awarding a grade from 1 to 6, teachers show their students at what level they are in terms of their knowledge and skills. This information is reliable if it is also followed by a verbal commentary and provided that students know the assessment criteria for a given level corresponding to the numerical grade.
2. **Psychosocial development** – assessment provides the student with a point of reference in relation to the rest of the class. This way, it determines one's position within the peer group. Using assessments which reflect their knowledge and skill levels, students can change this position by becoming one of those students who are considered as bright, when they obtain good grades, or end up among the poor performers, when they obtain poor grades. It is important that the grade be provided by the teacher with appropriate feedback, especially when it is bad, providing information on how to improve. The hope of improving the grade can motivate the student and result in greater learning effort.
3. **Building the right motivation** – in general, when it comes to student motivation, children who want to study regularly and systematically are relatively rare. At school one of the top motivators are grades. A grade, followed by the appropriate feedback, offers hope that it can improve if certain conditions are satisfied. An incentive to learn is based on the sense of satisfaction or hope offered by authority, one that should be represented by the teacher. If the teacher is not respected by the students, or is not an authority or a role model, he/she will not inspire positive motivation for learning.
4. **Developing interests** – the appropriate feedback following a grade, especially if it encourages students to continue their efforts and develop in a specific direction, can have a major impact on guiding, developing, and reinforcing their interest in a particular subject. Assessment can either motivate children to make effort, or discourage them from learning.
5. **Acquiring knowledge** – students' knowledge must be assessed and graded from time to time so that they are aware of their skills, or deficiencies, and are able to improve. A numerical grade on a scale from 1 to 6 is not enough here. Feedback is necessary to show the current level of achievement, but also for identifying any deficiencies and explaining what needs to be improved.

In line with the Regulation of the Minister of National Education of 30 April 2007 (as amended) on the conditions and rules for student and learner assessment, classification and promotion, and examinations and tests in public schools, "assessment covers

1) the educational achievements of students;

2) students' behaviour" (Journal of Laws of 2012 No. 0, item 262).

And scholastic-performance assessment, in accordance with §2.1 section 2:

> "involves the teachers' identification of the level of and progress in the mastery of information and skills by the student in relation to the educational requirements specified in the curriculum, defined in separate regulations and imple-

> mented at school through teaching programmes based on the curriculum" (Journal of Laws of 2012 No. 0, item 262).

In line with the aforementioned regulation, the assessment of scholastic performance takes place as part of evaluation within schools and is intended to (§3.2.):

1) provide students with feedback on their educational achievements, behaviour and progress in learning;
2) provide students with assistance in planning their personal development;
3) motivate students to continued progress in learning and behaviour;
4) provide parents (or guardians) and teachers with feedback on the students' progress, difficulties in learning, behaviour and **exceptional talents**;
5) allow teachers to improve the organisation and methods of their educational work.

Given the enormous importance of assessment in education, there are various classifications of the objectives and functions fulfilled by scholastic grades (c.f. Niemierko, 1991; Meighan, 1993; Stróżyński & Giermakowski, 1998; Arends, 2002).

Arends (2002) distinguishes educational and summarising assessments. The former involves collecting information prior to or during the learning process that can be used by teachers to plan their work. The latter category, identified by Arends, involves collecting information after the teaching which provides information on the degree to which each student and the class as a whole have accomplished the educational objectives formulated by the teacher.

A similar classification has been proposed by Bloom, who distinguished between summative and formative assessments. The former is general in nature and includes all mid-year and interim grades obtained by students. It serves as the basis for assigning students a rank within the class, from top students to poor performers (cf. Denek, 2007). It is important to note that this method of assessment has a negative character because it encourages stigmatisation. Formative assessment is considered as having importance in upbringing and it is the grade obtained by the child in the course of learning during a semester. It is designed to detect difficulties in learning at an early stage to help eliminate them (Bloom, Hastings, & Madaus, 1971, as cited in Kozłowska, 1999, p. 14).

In terms of place where students' performance is evaluated, Denek (2007) distinguishes between assessments inside (internal) and outside (external) the school. The evaluation inside the school is to determine the level of and progress in the mastery of information and skills in relation to the applicable curriculum. It is to provide children with feedback on their educational performance and to provide guidance on how to plan their own development and to motivate towards it. The aim of assessment inside the school is to provide parents with knowledge on their children's progress and to help teachers enhance the organisation, techniques and methods of their educational work. The evaluation outside the school, on the other hand, reflects student's knowledge on the completion of the subsequent stages of education. The assessment generally takes the form of the externally assessed final primary-school test and middle- and secondary-school exams.

Scholastic assessment is about determining and communicating grades. Grades, in turn, reflect learning outcomes and offer feedback (Niemierko, 2002, pp. 184–185). Stróżyński (2003, p. 172) defines scholastic grades as

> information on educational outcomes and a way to communicate these to the student. They constitute learning outcomes expressed in the form of scholastic marks; this concept covers the aspects of criteria (or determining the type of

skill) in relation to different requirement levels. What is important in scholastic grading is its overriding objective, consistent with the overriding objective of education as a whole, i.e. its positive impact on students' development. In order to achieve this overriding objective it is not necessary to adjust the value of the grade but to use the opportunity to provide feedback. Grades should be as accurate as possible in reflecting students' skills and knowledge. In the school reality, the way grades are communicated to students is at least as important as their values.

Scholastic grades are given immense importance, because they are widely accepted and clear indicators of how well the educational requirements have been satisfied, which can be regarded as the value of the student. They are considered as an important predictor of one's future performance in academic studying or at professional work. Finally, they impact on students' well-being and their attitudes towards work and school (Babiuch & Czerniawska, 2002; Turska, 2006; Denek, 2007). What is interesting to note is the distinction proposed by Okoń (1996), who divided the goals and functions of scholastic grades into three major criteria:

- **The cognitive criterion**, which covers the quality and scope of knowledge and is the starting point in the assessment of students' performance.
- **The educational criterion**, which is related to students' development and includes requirements connected with thinking, speech, abilities, observation, imagination, and memory.
- **The formative criterion**, which includes requirements involving the scientific nature of students' opinions and the consistency of their standpoints on some fundamental issues.

Sołtys and Szmigiel (1997; cf. Kosińska, 2000), in turn, identify seven functions that can be fulfilled by scholastic grades:

- **Educational** – provides students with feedback on their level of mastery of the curriculum content.
- **Educational and forecasting** – reflects students' knowledge on a particular subject and is the basis for predicting their future performance.
- **Guiding and methodological** – either shows the teacher that his/her methods have proved ineffective and it is necessary to change the previous ways of working with students, or the opposite—confirms that the adopted methodology was right.
- **Psychological** – reflects students' psychophysical condition.
- **Formative** – takes account of students' effort, involvement, and work, as well as their environment.
- **Selective** – distinguishes between the students who are able to continue their education and those who might have some difficulties with it.
- **Social** – determines relationships within the class and reflects the ability of individuals to continue their education and undertake work.

As shown by Łęczycka (1998) in her research carried out among third-graders in secondary schools, the students believe that assessment is something approved of and desired in the course of education. Grades rank students at specific places within the hierarchy of their class, affect the level of experienced success, and are perceived as rewards for scholarly activity or punishments for the lack thereof (as cited in Denek, 2007). Studies show that students' progress is determined by the specific nature of their data-processing capabilities,

resulting from the way their brains operate, which facilitates their mastery of the curriculum. It is also vital that the grading system does not differentiate performance too much. Scholastic grades, which constitute a form of feedback on one's performance, are carefully processed by students. As a result, talented individuals, often generalising that they do not have any control over their grades, do not give up on their cognitive activities (Ledzińska, 1996, p. 242). It is crucial that grading at school is effective in inspiring in young people the internal motivation to pursue knowledge and new skills, thus reinforcing their willingness to continue their education with a view to acquiring practical skills.

One of the ways to assess scholastic performance is didactic measurement, which attributes the individual's cognitive performance in a given curriculum to specific marks within a defined achievement scale, or grading scale. Niemierko (2002, p. 153) defines didactic measurement as "assigning symbols (numbers, letters, words, sentences, other signs), which represent specific achievements, to students, according to empirically verifiable rules." Gnitecki (1993, p. 294), in turn, believes that

> didactic measurement is an analytical activity designed to determine whether an individual has satisfied specific requirements (set a priori or a posteriori) regarding the skills to perform certain operations on a curriculum (learning) content under precisely defined external and internal educational conditions. In other words, didactic measurement is about determining which operations on the curriculum content have been mastered by an individual and to what extent.

Therefore, it can be concluded that the accurate indicator of students' performance is their mean grade in all subjects (Turska, 2006). The mean grade in the compulsory scholastic subjects taught throughout the year reflects the educational performance of individual children—the higher the grade, the more fully they have mastered the required curriculum. The mean grade in all subjects is a widely available and clear indicator of the extent to which the most specific and relevant educational requirements have been satisfied, going well beyond the standard typical for a school class as a relevant reference group. It is an important marker of one's performance as a student (Nikitorowicz, 1990; Turska, 2006). It should be noted that it was intelligence that was credited in research on scholastic performance as being the major independent variable (Kohlberg, Ricks, & Snarey, 1984, as cited in Turska, 2006). Studies on correlations between intelligence and scholastic performance helped to discover the existence of a strong link between these two variables (Seligman, 1995; Ledzińska, 1996). As argued by Nęcka (2005) and Strelau (2008), this link is even stronger when educational attainment is measured with the results of school tests. This well-proven relationship between learning outcomes and intelligence allows the use of the average scholastic grade as a measure of talent. However, a study conducted by Ledzińska (1996, p. 235) shows that even though talented students obtain higher average scholastic grades, their levels of intelligence are poor predictors of their scholastic performance and general abilities are not properly reflected in their performance in secondary school.

2.1. Formative assessment as the new approach in educational systems

"How do you assess performance and progress, not current status, to show the student what has been done well and how much does he/she already know, not what does he/she

doesn't know yet?" (A Revised Education System Draft by WSiP, 1998, as cited in Gałązka et al., 1999, p. 1). This question is still faced by teachers, educators, and school psychologists. The assessment of students' performance and progress is a very important task for teachers and its outcomes have direct impact on the functioning of young people. Therefore, it is crucial to refrain from assessment as a purely classification-oriented tool to determine what is there that the student has yet to master, and to pigeonhole them; and to go towards support-oriented, or formative, assessment (cf. Stróżyński, 2003; Organisation for Economic Co-operation and Development, 2005; Organisation for Economic Co-operation and Development, 2006), aimed at integrating the processes of teaching and evaluating, monitoring the development of students, and providing them with opportunities to demonstrate their knowledge and skills. Such understanding of assessment has positive implications and is focussed on taking note of students' progress, rather than only on their deficiencies and inadequacies. In the course of support-oriented teaching, grades serve as carriers of information on the knowledge already internalised by students but also that which has yet to be learned to improve their skills. This form of assessment is intended to motivate young people to continued effort, to support and reinforce the process of learning, and to create opportunities for self-assessment (Gałązka et al., 1999; cf. Denek, 2007). Support-oriented assessment should address the following three questions:

1. Why do you assess?
2. What do you assess?
3. When do you assess?

The answers to these questions should be multifaceted and oriented in multiple directions, as pictured in Figure 6 below.

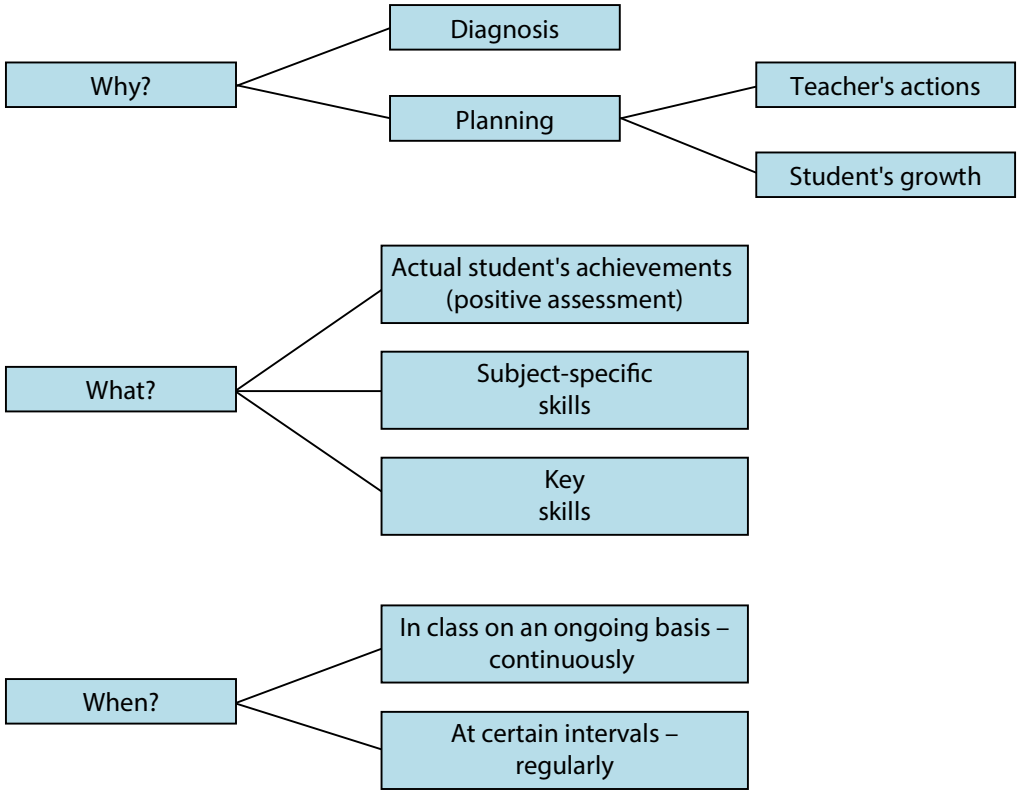


Figure 6. Support-oriented assessment.

Formative assessment—frequent, interactive assessment of students' knowledge and progress to identify their needs connected with learning, and adjust teaching accordingly; it is often contrasted with summative assessment, i.e. common tests and exams which are designed to determine the students' level of competence (Organisation for Economic Co-operation and Development, 2006, p. 7). Formative assessment is different from summative assessment in that the information collected during education is used to make changes, not recapitulate on learning outcomes (cf. Niemierko, 2002, pp. 186–189). Its goal is to re-evaluate children's usually negative approach to studying and to prepare them for life-long learning. It is to be based on partnership, in which feedback is not only provided to the student by the teacher but also the other way round. In the course of education, such a framework builds a relationship based on partnership between the two parties. Teachers not only communicate their knowledge to students but also ask them for feedback to evaluate the curriculum content, the way it is communicated and understood by students. This information is used by the teacher to continuously adapt to the individual needs of each lesson participant, to involve passive students in the enhancement process, and help to develop methods and techniques of knowledge transmission adjusted to the individual development pace of each of them. The value of such an assessment lies in building shared responsibility between the teacher and the student for their educational performance. Each of them has a different role to play in it, but at the same time they complement each other and can achieve successful outcomes through cooperation. The development of partnership-based relationships, shared responsibility, openness to new experiences, and the constant search for new ways and solutions are all characteristic of the contemporary knowledge society—hence educational facilities should adapt their operations to these new social requirements. Schools which use formative assessment support students in obtaining the ability to learn, which is more and more necessary in the information society, since knowledge is now quickly becoming out of date. Modern schools defined in this way will educate young people prepared to function in this new reality and will meet the expectations created by the emerging society (Black, Rarrison, Lee, Marshall, & Wiliam, 2006; Organisation for Economic Cooperation and Development, 2006; Turewicz, 2009).

Formative assessment has been implemented in the educational systems of a number of countries, such as Australia, Canada, Denmark, England, Scotland, Germany, Finland, Italy, and New Zealand. All the national and regional authorities of these countries have promoted this model of assessment as a way to accomplish life-long learning objectives. Analyses conducted by the Centre for Educational Research and Innovation (CERI), Organisation for Economic Cooperation and Development (OECD—known in Poland for its PISA research), have shown that schools using formative assessment recorded not only an improvement in the overall performance but also noticeable progress in learning among the students whose previous results had been unsatisfactory. The implementation of this form of assessment has directly translated into improved quality of student performance and achievement levels (Organisation for Economic Cooperation and Development, 2005, 2006). It proved to be a useful tool in bridging gaps in education and produced marked effects in work with people who had had difficulties in learning.

Formative assessment comprises eight stages (Sterna, 2005):

1. **Defining lesson objectives and expressing them in a student-friendly language.** At this stage, the key role is played by the teacher, who specifies his/her objectives before the lesson. It is important to consider why specifically the selected content is being taught

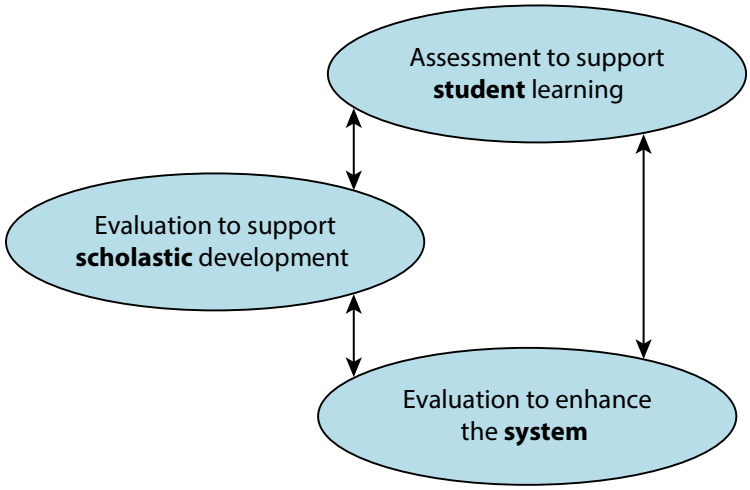
and how the teaching is to be accomplished. It is also vital to determine what outcomes are to be produced in students. These objectives should be formulated in a way that is understandable to the target audience. At the end of the lesson, the teacher will check together with his/her students if the goal has been achieved. Therefore, goal-setting comprises the following phases: before the lesson the teacher determines the objectives to be accomplished during the lesson, either alone or together with the students, and communicates them to the students; students know what and why they are going to learn, and reflect on what they have learnt after the lesson.

2. **Determining assessment criteria together with the students to show them what will be taken into account by the teacher during grading.** This stage involves active participation by both parties. It is necessary to determine what evidence and facts will indicate that the lesson's objectives have been accomplished. Such criteria also help to prepare for tests and perform school work in such a way that the defined objective is met. The teacher should only assess the things that have been specified before.
3. **Distinguishing between the functions of summative and formative assessments.** The former is to recapitulate on the knowledge acquired by the student and is usually limited to awarding a grade. The latter, in turn, shows the student what has been done well and what wrong and how it can be improved. This model uses less grading and marks, rather than more feedback from the teacher and other students.
4. **Creating an atmosphere for studying.** When deciding to introduce formative assessment it is vital to ask students how they acquire knowledge and what they find helpful in the process. An atmosphere conducive to learning results in increased self-confidence in young people, greater involvement in education, independence, ability to cooperate, and conscious expansion of knowledge.
5. **Formulating relevant questions**, i.e. those which get students thinking. They show them a wider context for the issue at hand and encourage them to find answers, thus engaging them stronger in learning.
6. **Asking questions appropriately.** In formative assessment it involves all students in the class in addressing the problem. This is achieved, for example, by giving students more time to answer, asking questions to all the students in the class, not only those who raise their hands, addressing questions in pairs, and refraining from castigating for wrong answers.
7. **Using effective feedback** as the key element of formative assessment. Teachers provide students with feedback regarding their school work. Successful feedback should include four elements:
   - emphasising strong points in students' work;
   - indicating what needs to be improved or what needs extra effort on the part of the student;
   - suggesting how a specific aspect can be improved;
   - channelling students' further efforts.

   Feedback needs to be closely connected with the criteria established during stage two. It should also reflect the information provided to the teacher by the student.
8. **Introducing peer assessment and self-assessment.** Here, students bear in mind the assessment criteria specified before, review one another's work, and provide comments on how to improve it. There are two points to this—first, they understand each other very well because they have completed the same task, and second, they learn from one

another to determine assessment criteria (what am I evaluating?) and to provide feedback (how do I communicate it?). Self-assessment, on the other hand, is, as the very name suggests, about evaluating one's own work. Students determine how much they have learned and what they need to do to achieve the established objective. This way they become actively involved in the process.

Although the effectiveness of formative assessment has been proven in multiple studies (Organisation for Economic Cooperation and Development, 2006), there are many obstacles to the wider application of this approach. One of the main barriers to introducing it into educational policies is the distinct disparity between formative assessment at school and external summative tests, whose results are used to account for student performance at school. Another serious hurdle is the gap between the approach to assessment and evaluation at the educational system, school, and class levels. Information from national or regional monitoring systems, or obtained during internal school evaluation, are commonly considered to have no connection with teaching itself. Sometimes data collected in class are perceived as irrelevant for policy-making. A perfect solution would be to have the information collected during assessment and evaluation used to create strategies to enhance the education system at all levels (educational policy – school – class). At the class level teachers would gather information on how students understand the curriculum in order to adjust teaching to their individual needs. The school management would then use this information to determine the strong and weak points of the faculty and devise improvement measures. At the policy-making level, decision-makers could use the data collected during national and regional tests, or during scholastic-performance monitoring, to determine the necessary investments in training and support for schools and teachers. This way summative information could be obtained in a formative way at each level of the educational system. The proposed assessment and evaluation coordination is illustrated in the figure below.



Note: Information collected at each level of the system could be used to identify strengths and weaknesses, and to devise improvement measures.

Figure 7. Assessment and evaluation coordination. Adapted from Organisation for Economic Cooperation and Development, 2006, p. 28.

The experience of other countries, research findings, and multiple international publications demonstrate the considerable effectiveness of formative assessment. Educational systems based on it might be the future of education. However, a lot of time will pass before it supersedes the approach based on summative assessment, which is deeply rooted in the educational systems of both Poland and Ukraine.

ISBN 978-83-940389-1-5

Chapter 2
The Psychosocial Functioning of High-Performing Students

This chapter will undertake a theoretical analysis of psychological variables such as emotional intelligence, the sense of solitude, and the Big Five personality traits. It will also characterise students with strong scholastic performance in the light of the aforementioned variables.

1. Emotional intelligence as a psychological variable

Emotional intelligence was introduced into the psychological nomenclature in 1990 and it can still be considered as a new concept. Nevertheless, as with any other innovative term, it aroused great interest among people who are generally not interested in psychology, and sparked much controversy among scholars professionally involved in this field of study. Where did this exceptional popularity come from, then? One of the answers might be the recent uncertainty regarding individuals who are characterised by a high level of so-called general, or academic, intelligence (Jaworowska & Matczak, 2001; Nęcka, 2005), which is reflected, for instance, in their impressive university and professional performance, but failures in interpersonal relations (Sękowski, 2000, 2004). Therefore, it is not surprising that emotional intelligence, considered by its ardent advocates (Goleman, 1997, 1999) as the single most accurate predictor of success in life, is such a popular term today, since it helps establish interpersonal relations, acquire knowledge, and function at work more efficiently, and gives people a sense of fulfilment and happiness. The rise in the currency of this term is also connected with the view that the level of emotional intelligence can increase as a result of the right training, hence the multitude of the available courses and self-help books with exercises that are there to advise people on experiencing their own and other people's emotions in an intelligent way (Goleman, 1999; Konrad & Hendl, 2000; Kępińska, 2005a, 2005b).

1.1. The development of emotional intelligence as a concept

Throughout the whole previous century, from the moment Binet created the first test to measure intelligence and Stern introduced the notion of the intelligence quotient, or simply IQ (Nęcka, 2006), it was intelligence, defined by different theoretical approaches by various scholars as comprising the ability to learn, adapt, understand, guide oneself, think in ab-

stract terms, and generally engage in all typically human cognitive processes, which was the principal determinant of success (Reber, 2000; Nęcka, 2005; Rathus, 2006). This can be due to the long-established notion of the superiority of mind over emotions, which were considered as something irrational (Tatarkiewicz, 1981). But, as opined by Maslow (2006, p. 264)

> I do not think there is any great harm in separating out the specific concept of high IQ. The only trouble is that in a psychology that limits itself so, the more important subjects—wisdom, knowledge, insight, understanding, common sense, good judgement—are neglected in favour of the IQ because it is technologically more satisfactory.

This disregard for the issue of human functioning in society can also be explained by the correlative approach to intelligence, which dominates in psychology, where the categories of abstract and mechanical intelligence, were strongly correlated with social intelligence. It was accounted for by arguing that the latter is closely connected with the verbal and spatial, or executive, functioning of an individual. In such a situation, it was not justified to consider social intelligence as a separate ability. Therefore, in their concept, Salovey and Mayer replaced it with emotional intelligence, because, in their opinion, it covered a set of abilities which differed markedly from those included in abstract and mechanical intelligence (Mayer & Salovey, 1999).

As described above, it is possible to distinguish either a set of definitions of intelligence which refer solely to the cognitive human faculty, ignoring the domain of one's emotional or social functioning, or concepts which distinguish a separate type of intelligence which refers to the emotional aspect of life. In his definition of intelligence, Greenspan combines cognitive and emotional processes, but is far from considering it as distinctively new.

> Intelligence, in its most general sense, is based on our ability to connect affect or intent to our growing ability to sequence behaviour and symbols, both verbal and spatial. . . . We observe its progress in global patterns and responses in interactive exchanges with affective cues. When our feelings are connected with more complex abilities to sequence symbols in more dynamic problem-solving situations, we are dealing with intelligence in its higher forms (Greenspan & Benderly, 2000, pp. 158–159).

This way the author subscribes to the view that human intelligence is developed through the process of creating and processing emotional experiences.

The actual term *emotional intelligence* was first used by Ghent, a literary critic, in the 1960s. Then it appeared in the works of Launer, and in 1986 it was explored in more detail in a doctoral dissertation by Payn (Przybylska, 2007). However,

> the creators of emotional intelligence are psychologists Salovey of Harvard University and Mayer of the University of New Hampshire. They were the first to use the term emotional intelligence in the sense of a new type of intelligence in 1990 in the article "Emotional Intelligence" published in *Imagination, Cognition and Personality* (Salovey & Mayer, 1990, p. 189, as cited in Przybylska, 2007, p. 12).

However, the emotional-intelligence concept can be seen as having forerunners in the intelligence theories of Thorndike, Sternberg, and Gardner.

As early as 1920 Thorndike proposed that social intelligence be defined as the ability to understand people and deal with them in a smart way. At the same time, he concluded

that it could not be measured by any test, although it manifested itself in our everyday life (Nęcka, 2005).

Sternberg, in his triarchic theory of intelligence, in addition to the componential subtheory referring to internal cognitive processes, and the experiential subtheory dealing with functioning in situations characterised by various levels of novelty, in relation to one's knowledge and experience of three components common to all human beings, namely performance, knowledge-acquisition, and meta-components, as defined in the componential subtheory, identifies a third subtheory, a contextual one, which describes how the above-mentioned components operate in everyday life (Nęcka, 2006). It is nothing but practical intelligence, or, in more general terms, resourcefulness – "the ability to adapt to the requirements of one's own environment and use one's knowledge to solve practical problems"" (Rathus, 2006, p. 414). Practical intelligence understood this way can be easily colligated with the concept of emotional intelligence (Przybylska, 2007).

Gardner is the author of the theory of multiple intelligences. He has identified seven universal modalities characteristic of mankind, which create an intelligence spectrum. These include musical, bodily-kinesthetic, logical-mathematical, linguistic, spatial, interpersonal, and intrapersonal (Gardner, 2002); especially interpersonal intelligence, understood by Gardner as "the ability to notice and make distinctions between individuals, especially their temperaments, motivations, moods, and intentions" (Gardner, 2002, p. 47), and intrapersonal intelligence, defined as "(involving) the development of the internal aspects of a person. Capacities at work are the access to an individual's range of emotions, the ability to identify feelings, and to label them and enmesh them in symbolic codes as a means of understanding and guiding one's behaviour" (Gardner, 2002, p. 49) are particularly connected with the notion of emotional intelligence (Mayer & Salovey, 1999; Karwowski, 2005). It was Gardner's theory of multiple intelligences, and specifically his definition of interpersonal intelligence, which can be also described as social, that allowed Salovey to formulate the concept of emotional intelligence (Przybylska, 2007; Rathus, 2006).

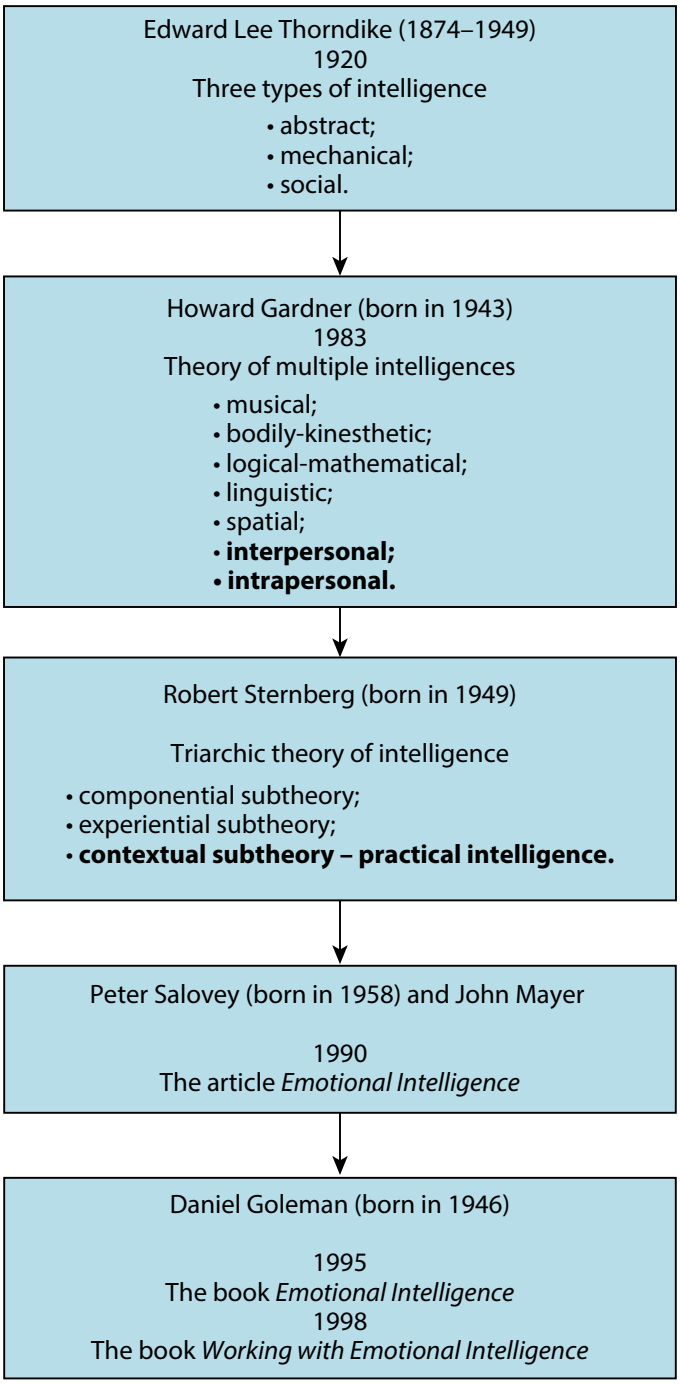


Figure 8. The Development of the Concept of Emotional Intelligence

The above diagram shows how the concept of emotional intelligence has developed throughout the last several dozen years.

1.2. Emotional-intelligence concepts

Emotions play an important role in the lives of all people. They can be defined as the reaction of the human body to everyday events, as the stimulus which makes people ready to perform, a drive towards action, a special type of mental state, which, when experienced, causes somatic changes, changes in behaviour and mimic and pantomimic expressions in the individual (Doliński, 2006). Descartes referred to emotions as *the passions of the soul* (Descartes, 1986). Although for centuries they have been considered as destructive or even pathogenic forces, and characterised as being in opposition to the mind (Tatarkiewicz, 1986), emotions are crucial in human life, and Le Doux argues that they actually have a privileged position (Le Doux, 2000, as cited in Przybylska, 2007). Their special significance can be evidenced by a disorder known as alexithymia, diagnosed as impaired emotional awareness and problems with identifying and expressing emotions (Maruszewski & Ścigała, 1998; Jaworowska & Matczak, 2001; Carson, Butcher, & Mineka, 2005; Maruszewski & Zdankiewicz-Ścigała, 2006; Przybylska, 2007). Therefore, it comes as no surprise that emotional intelligence has become so popular today when emotions are perceived as a vital element in our everyday lives and serve the purpose of establishing and maintaining positive interpersonal relations.

> **"I think, therefore I am"**—this famous quote by Descartes has long been the guiding principle for defining humans. It was common to believe that the body, mind, and soul operate independently of one another, and only thinking determines our actions. But the recent findings confirm what everyday life experience has suggested since time immemorial, namely that the intellect and reason themselves do not make up a complete human being, and it is only understanding and feelings that make us human (Sehr, 1999, p. 22).

It seems, however, that some advocates of emotional intelligence (Goleman, 1997, 1999; Sehr, 1999) have gone to extremes, and, just as the ancient or mediaeval scholars glorified the power of the mind, they attribute too much importance in human life to emotions. Considering various concepts of emotional intelligence, there are several of particular importance from the scientific point of view. On the basis of their cognitive nature, they can be divided into cognitive, with the ability model as the best example, the concept of emotional intelligence, as defined by Salovey and Mayer, and mixed models, by Goleman and Bar-On (Przybylska, 2007; Śmieja & Orzechowski, 2007).

1.3. The cognitive-ability model—emotional intelligence according to Salovey and Mayer

As argued by the authors themselves, the definition of emotional intelligence should combine the notions of emotion and intelligence without distorting the meanings of these terms (Mayer & Salovey, 1999). It needs to be noted, however, that not everything that combines emotions with cognitive processes can be considered as emotional intelligence. Many studies have shown that emotions can impact on reasoning in a variety of ways, sometimes even impairing this process, which certainly cannot be termed emotional intelligence. In Salovey and Mayer's view, using the word intelligence in relation to their concept is completely justified.

> Empirical research conducted by these authors shows that emotional intelligence, considered as an ability, meets the criteria of intelligence, i.e. it is operationalised as a set of interconnected mental capabilities, correlates with the existing types of intelligence, manifesting its own idiosyncrasies, and is developed with age (Śmieja & Orzechowski, 2007, p. 11).

Initially, when developing their concept, Salovey and Mayer defined emotional intelligence as

> "the ability to perceive emotions, to access and generate emotions so as to assist thought, to understand emotions and emotional knowledge, and to reflectively regulate emotions so as to promote emotional and intellectual growth." This definition combines the ideas that emotion makes thinking more intelligent and that one thinks intelligently about emotions. Both connect intelligence and emotion" (Mayer & Salovey, 1999, p. 26).

In their further work on the concept its authors concluded that in explaining emotional intelligence they have limited themselves to the abilities connected with it. Below is a revised definition:

> Emotional intelligence involves the ability to perceive accurately, appraise, and express emotion; the ability to access and/or generate feelings when they facilitate thought; the ability to understand emotion and emotional knowledge, and the ability to regulate emotions to promote emotional and intellectual growth (Mayer & Salovey, 1999, p. 34; cf. Jaworowska & Matczak, 2001; Nęcka, 2005; Rathus, 2006; Schmidt, 2006; Przybylska, 2007; Ogińska-Bulik & Juczyński, 2008; Asanowicz, Orzechowski, Taraday, & Śmieja, 2009; Stolarski, 2009).

According to the authors, the abilities considered by them as part of emotional intelligence are different from the components of what is traditionally understood as "academic" intelligence, since they operate on a different type of matter—an emotional one (Matczak, 2007). Nevertheless, it needs to be noted that, as shown in the table below, Salovey and Mayer have systematically attempted to relate emotional intelligence, in a well-thought-out and purposeful manner, to the concept of intelligence established in science (Śmieja & Orzechowski, 2007; Piekarska, 2008).

Table 1. Mayer and Salovey's Concept of Emotional Intelligence and its Relation to Intelligence and Personality

Aspect of intelligence	Examples from emotional intelligence	Skill set	Relation to intelligence and personality
Meta-processing	Knowing that helping someone can make oneself feel better	(4) Managing emotion	Interface with personality and personal goals
Abstract understanding and reasoning	Being able to analyse an emotion and identify its parts and how they combine	(3) Understanding emotion	Central locus of abstract processing and reasoning about emotions and emotional information

Knowledge base processing	Having knowledge (and remembering analyses) of prior instances of feelings	(2) Facilitating thought with emotion	Calibrates and adjusts thinking so that cognitive tasks make use of emotional information
Input processing	Being able to perceive emotions in faces	(1) Perceiving emotion	Inputs information to intelligence

Note. Adapted from Mayer and Mitchell, 1998; Mayer et al., 2001, as cited in Piekarska, 2008, p. 235.

Initially, the concept of emotional intelligence comprised three main component groups. Its final version, developed with a contribution from Caruso, ultimately identifies four groups of abilities and recognises the developmental aspect, distinguishing four stages of development within each group (Jaworowska & Matczak, 2001; Karwowski, 2005; Nęcka, 2005; Przybylska, 2007). The four branches in the figure below present the mental processes arranged in an ascending order of complexity. Each of the columns comprises four levels, made up of four representative abilities. These are presented bottom-up, as they progress throughout the development of an individual.

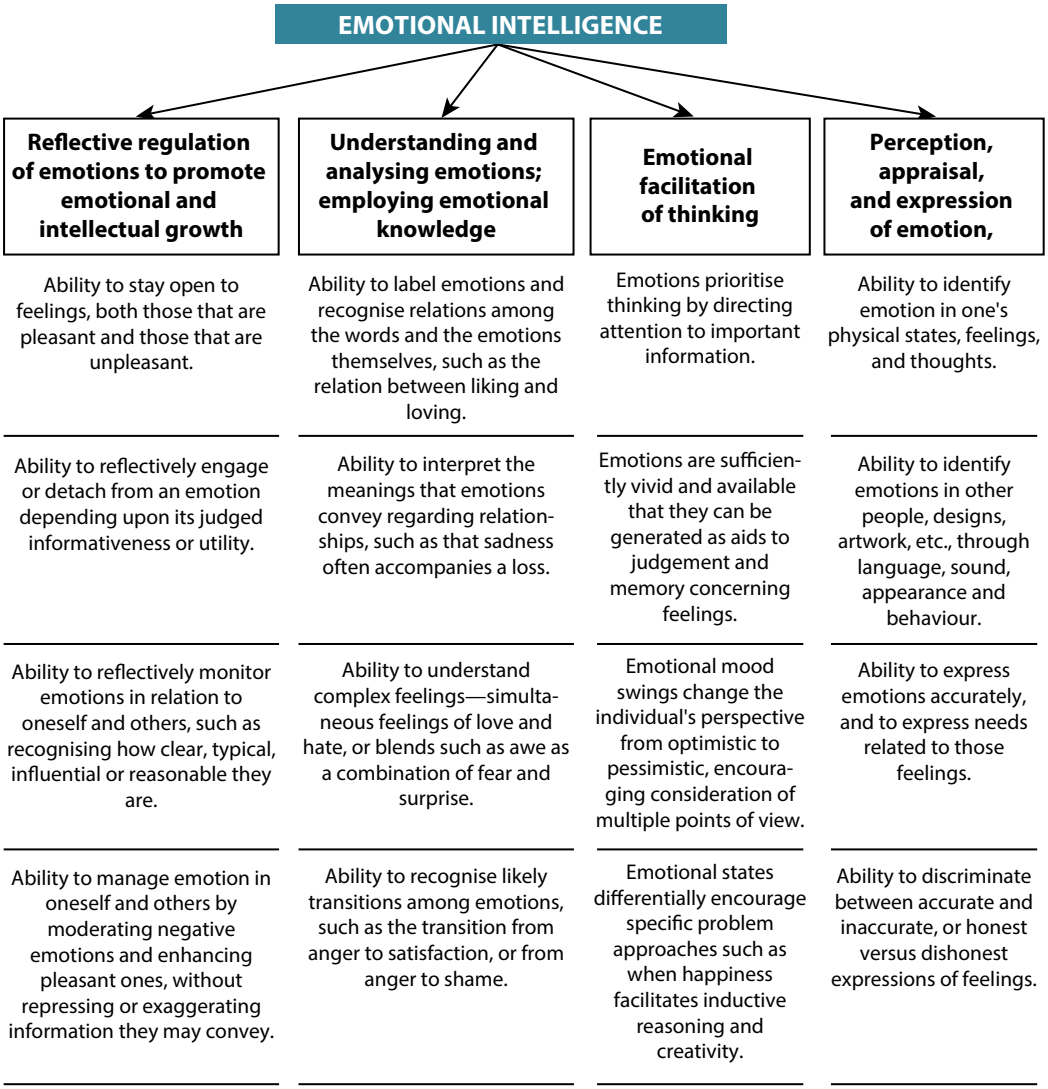


Figure 9. Four ability groups making up emotional intelligence in terms of the developmental aspect.

1.4. Mixed models—emotional intelligence concepts by Goldman and Bar-On

Contrary to the above-mentioned concept of emotional intelligence by Salovey and Mayers, which is considered as one of cognitive theories, the concepts developed by Goleman and Bar-On are known as mixed models, since they relate not only to the cognitive abilities of the individual, but also his/her personality traits, character and motivation (Jaworowska & Matczak, 2001; Nęcka, 2005; Matczak, 2007; Przybylska, 2007; Śmieja & Orzechowski, 2007). Such a combination of elements met with criticism from the originators of the concept of cognitive emotional intelligence, since it makes it easy to criticise the very term *emotional intelligence*, questioning the validity of using the word *intelligence* in this context.

One of the most famous models of emotional intelligence is that of Goleman. Its popularity is due to the views expounded by the author in books such as *Emotional Intelligence* and *Working with Emotional Intelligence*. Goleman argues that it is the high level of emotional intelligence, not IQ, as previously advocated, that is the determinant of one's success in life (Greenspan & Benderly, 2000). "67 per cent—two out of three—of the abilities deemed essential for effective performance were emotional competencies. Compared to IQ and expertise, emotional competence mattered twice as much" (Goleman, 1999, p. 55).

Goleman defines emotional intelligence as self-control, enthusiasm, perseverance, and the ability to motivate oneself (Goleman, 1997, p. 17). Emotional intelligence determines our capacity to acquire practical skills which are based on five elements (Goleman, 1999 pp. 48–50):

1. Self-awareness, or knowing one's internal states, preferences, resources, and intuitions.
2. Motivation, understood as emotional tendencies that guide or facilitate reaching goals.
3. Self-management, or self-regulation—management of one's internal states, impulses and resources.
4. Empathy, understood as the awareness of others' feelings, needs, and concerns.
5. Social skills, or good management of interpersonal relations—adeptness at inducing desirable responses in others.

The above-mentioned elements are classified by Goleman into two competence groups—*personal*, which determine how we manage ourselves (the first three elements) and *socia*l, which impact on how we handle relationships (the last two elements) (Goleman, 1999; Jaworowska & Matczak, 2001). Emotional intelligence defined this way seems to evidence that in his search for the characteristics which make up this concept, the author took the exclusive approach and considered all the positive human traits which are not part of general intelligence as emotional intelligence (Śmieja & Orzechowski, 2007). Including non-cognitive elements such as empathy, self-control, and motivation in the concept of emotional intelligence blurs the distinction between intelligence and personality, and seems unfounded, or even terminologically confusing. Neisser argued that the abilities described by Goleman were undoubtedly important milestones to human achievement in life, but it brought no true benefit to call them an intelligence (Neisser, 1997, as cited in Rathus, 2006).

Bar-On created his own concept of emotional intelligence by addressing the question of the source of success in life. In the literature on the subject he found the characteristics which seemed to have a major influence on achievement (Śmieja & Orzechowski, 2007). He defined emotional intelligence as "an array of non-cognitive capabilities, competencies, and skills that influence one's ability to succeed in coping with environmental demands and pressures" (Bar-On, 1997, p. 3). Similarly to Goleman, his theory combined personality traits, referred to as abilities, with cognitive characteristics. Bar-On identified five groups which comprise individual components. These are:

1. intrapersonal competencies – selfregard, assertiveness, emotional self-awareness, self-actualisation, and independence;
2. interpersonal competencies – empathy, interpersonal relationships, and social responsibility;
3. adaptability – problem-solving, reality-testing, and flexibility;
4. stress management – stress tolerance and impulse control;
5. General mood – happiness and optimism (Jaworowska & Matczak, 2001, pp. 6–7).

The table below shows a summary of the above-mentioned models of emotional intelligence broken down by cognitive and mixed approaches.

Table 2. A Summary of Emotional Intelligence Models

Peter Mayer and John D. Salovey (cognitive approach)	**Reuven Bar-On** (mixed approach)	**Daniel Goleman** (mixed approach)
DEFINITION OF EMOTIONAL INTELLIGENCE		
Emotional intelligence involves the ability to perceive accurately, appraise, and express emotion; the ability to access and/or generate feelings when they facilitate thought; the ability to understand emotion and emotional knowledge; and the ability to regulate emotions to promote emotional and intellectual growth.	Emotional intelligence is an array of non-cognitive capabilities, competencies, and skills that influence one's ability to succeed in coping with environmental demands and pressures.	Emotional intelligence includes abilities such as self-control, enthusiasm, perseverance and the ability to motivate oneself.
BASIC EMOTIONAL ABILITIES		
Reflective regulation of emotions to promote emotional and intellectual growth.	Intrapersonal competencies—self regard, assertiveness, emotional self-awareness, self-actualisation and independence.	Self-awareness.
Understanding and analysing emotions; employing emotional knowledge.	Interpersonal competencies—empathy, interpersonal relationships, and social responsibility.	Motivation.
Emotional facilitation of thinking.	Adaptability—problem solving, reality testing, and flexibility.	Self-regulation.
Perception, appraisal, and expression of emotion.	Stress management—stress tolerance and impulse control.	Empathy.
	General mood—happiness and optimism.	Social skills.

Note. Cf. Mayer, Caruso, and Salovey, 2000, p. 401; Mayer, 2001, p. 10, as cited in Przybylska, 2007, p. 23.

1.5. Emotional intelligence and success

Emotional intelligence has become such a buzzword due to its predictive power in relation to success in life, as advocated by the supporters of this concept. It is not a new view that people who perform well in intelligence tests do not always do as well in their everyday lives, and conversely, personal success can be accompanied by poor test performance. These conclusions are reflected in scientific research, where the average correlation between school grades and IQ is about 0.5, and in respect of professional achievement it shows an even lower reading (Matczak, 1994).

Advocates of mixed emotional intelligence theories, and in particular Daniel Goleman, will attribute an exceptional role to this concept in achieving success in life. Goleman supports his views with a number of studies he has conducted in multiple American businesses and international corporations. They show that the secret to the successes of those companies is in hiring people who are emotionally intelligent (Goleman, 1999). However, if you look closely at the people examined by Goleman, you will find that the majority of them are managers or distribution or sales operatives. These positions are based mainly on contacts with other people, either subordinates or clients, where performance depends more on interpersonal skills or qualifications than expertise. This conclusion is consistent with the views of Matthews, who believes that the intelligence quotient (IQ) is a much stronger determinant of professional success, especially in jobs characterised by high levels of complexity. Emotional intelligence, in turn, can in his opinion be more important in everyday life, when we experience social interactions, it is personal growth and the quality of relationships with other people that matter (Matthews & Chrzanowska, 2009).

Even the creators of the concept themselves forewarn of the dangers of being too enthusiastic about emotional intelligence as the superior predictor of professional achievement or success in life. Indeed, what Salovey and Mayer argue is that this type of intelligence generally contributes to success, accentuating its role in interpersonal relations.

> More emotionally intelligent individuals might succeed at making their workers feel better, at communicating in interesting ways, and at designing projects that involve infusing products with feelings and aesthetics (Mayer & Salovey, 1999, p. 49).

In considering the impact of emotional intelligence on strong school performance, it needs to be noted that it is approached as an intervening variable. Recent research show general, or academic, intelligence as the most important determinant of school performance (Karwowski, 2005). Interestingly, what emerges from the studies carried out by Karwowski (2005) is that the greatest impact on learning performance in men, as compared to women, is created by nonconformity and emotional intelligence.

Still, the literature treatment of talented students suggests that they do not stand out as being particularly endowed with emotional intelligence. As shown in a number of studies, although they achieve high mean grades at school, they often have emotional problems and experience difficulties in establishing and maintaining satisfactory peer relationships, which can testify to low emotional intelligence. This conjecture is backed up by data showing that students who performed well at school or at university very often fail to achieve spectacular professional success.

> The abilities to communicate, negotiate, solve conflicts, show empathy, etc. connected with social intelligence are of particular importance and frequently determine real achievement, not only in academic, but also in professional terms. The lack of accomplishments corresponding to the potential intellectual capacity of talented students is often connected with shortcomings in the area of social interactions, which are the outcome of, e.g., neglecting this area in the course of education and upbringing. (Sękowski, 2004, p. 42).

Therefore, the authors of the cognitive concept of emotional intelligence believe that families and schools share special responsibility for developing emotional abilities in children and teenagers. And, as argued by Salovey and Mayer, it is not necessary to implement any special courses to improve these qualities—it is enough to put more emphasis on stud-

ying the liberal arts, literature, and music, and to expose students to various value systems (Mayer & Salovey, 1999).

2. The sense of solitude as a psychosocial variable

2.1. Loneliness and solitude defined

Loneliness is a timeless and transcultural phenomenon and is experienced by everyone at some point in their lives. It is a very difficult concept to define, since it relates to people with their individual, unique inner worlds, to the personal experiences and feelings of the individual, and consequently it is experienced in different ways, thus becoming a largely subjective phenomenon. Loneliness is something which is very easy to define intuitively by providing examples from one's own experiences in this area. It gets more difficult when it comes to establishing an objective definition, hence literature on the subject provides a multitude of descriptions, concepts and theories on loneliness, its causes, consequences, and therapeutic interventions (cf. Rembowski, 1992; Olearczyk, 2007). This can also be due to the fact that the issue of loneliness has been investigated by scholars involved in the study of such sciences as philosophy, anthropology, psychology, sociology, pedagogy, and theology (Bukowska, 2008). The significance of loneliness in the lives of people today can be evidenced by the attempts to create a new sub-discipline in the domain of philosophy, namely mono-seology (Greek *monosé* – loneliness, and *logos* – science) (Domeracki, 2006; Parszutowicz, 2006), which would explore and describe this phenomenon. An analysis of the literature on the subject also shows the multitude of terms used to describe loneliness. This is hardly surprising, given that the Polish language alone offers four notions related to this concept, namely *samotność* [loneliness] (a state developed as a result of introverted introspection), *osamotnienie* [solitude] (a state/feeling of desolation and rejection), *odosobnienie* [isolation] (being alone, living in seclusion), and *wyobcowanie* [alienation] (a state/feeling of being alien or condemning other people to such fate; alienation, isolation) (Domeracki, 2006, p. 17). Referring to the concept of loneliness, the creators of other theoretical approaches have employed various synonyms or semantically similar designations, such as *samotność/loneliness*, *osamotnienie/solitude*, *alienacja/alienation*, *izolacja/isolation*, *wykluczenie/exclusion*, *odosobnienie/seclusion*, *opuszczenie/abandonment*, *odrzucenie/rejection*, *dezolacja/desolation*, *samość/aloneness*, *bierność społeczna/social inertia* (Rembowski, 1989, 1992; Izdebska, 2004; Dubas, 2006; Olearczyk, 2007). The term loneliness, similarly to other words with similar connotations, such as sadness, suffering, love, are vague, hence difficult to define (Król, 2006). Nevertheless, Rembowski mentions several features characteristic of loneliness:

1. It results from a lack of desirable interpersonal relations.
2. It is a subjective feeling and therefore cannot be identified with objective social alienation.
3. It involves negative emotions, thus being an unpleasant experience (Rembowski, 1992, pp. 27–28).

Due to the complexity of the loneliness experience, as well as its subjectivity and empirical elusiveness, which make it difficult to study it properly, the literature on the subject provides a number of its definitions, sometimes very different from one another. Tarnogórski, for instance, describes it as follows

> Loneliness is usually a matter of conscious decision. It does not prevent oneself from being open to other people; on the contrary, it is conducive to it. Frequently a lonely person is a more attentive and shrewd observer of other people's lives, who notices the events and problems which might escape the attention of people more concerned about their own everyday lives, and who do not seem to have time to contemplate the affairs of other people (Tarnogórski, 1988, p. 4).

Similar views on loneliness are expressed by Szczepański (1989), who defines it as the ability to become confined to one's own inner world, affording oneself to have a rest from the external reality, providing the opportunity for reflection, contemplation, prayer, and fostering creativity. Both the aforementioned definitions focus on the positive aspects of loneliness, neglecting the issue of emotions accompanying this frame of mind (cf. Wolf, 1995, p. 19). Contrary to the above-mentioned authors, Rembowski emphasises the negative emotions experienced by people who find themselves in such a state. Loneliness is "a nasty mental state resulting from dissatisfaction with the quantity and quality of social and emotional relationships between the individual and other people" (Rembowski, 1992, p. 33). In addition to accentuating emotions caused by loneliness, this definition also focusses on its reasons—the unsatisfactory quantity and quality of one's relationships with other people. In this respect, the understanding proposed by Rembowski is semantically similar to the definition of solitude, a state which is considered by scholars dealing with the issue of loneliness as more severe and painful for the person who experiences it. In their descriptions of this phenomenon, scholars usually use the term solitude, which is intended to emphasise the subjective nature of this state. As opposed to loneliness, whose severity can be measured in a way by analysing the number and quality of one's interactions with other people, thus making it more objective, the sense of solitude is a very personal experience, having different effects on individual people. The word *sense* is used to stress the subjective and individual nature of this experience. "In view of this, there is a clear division between the sense and the concept of loneliness" (Dołęga, 1999; Parszutowicz, 2006, p. 165). The only thing that is shared by all the people experiencing the sense of solitude are negative emotions it involves, such as the feeling of rejection, alienation, lack of love, understanding, and acceptance. The sense of loneliness "is connected with many negative emotions that are difficult to accept and can be associated with experiencing a sense of hopeless emptiness and loss, as well as longing for intimacy and warmth" (Rembowski, 1989; Oleszkowicz, 2003, p. 16). Solitude, referred to by Olearczyk as mental loneliness

> is related to individual experiences, one's sensitivity and needs; it is insufficient mental contact with another human being, experienced in spite of physical presence, which causes inner imbalance, mental discomfort, a sense of marginalisation within a family or any other social group (Olearczyk, 2007, p. 95; cf. Izdebska, 2004, p. 23).

A prolonged and painfully experienced sense of solitude can be a menace, which in extreme cases might lead to suicide (Hołyst, 2006).

It needs to be noted that a lonely person does not always have to experience a sense of solitude. Loneliness, as a conscious and well-thought-out choice, does not have any negative consequences; on the contrary—it can lead to a richer and more-developed inner world, while also contributing to the establishment and maintenance of satisfactory interpersonal relationships. It is even considered as a developmental necessity faced by young people who are looking for their identity and goal in life (Oleszkowicz, 2003). The opposite of it is a concept known as *being alone in a crowd*, when despite the multitude of people around them, people are experiencing a sense of solitude because they cannot be with others. "Existentialists have argued that the majority of us experience a feeling of deep loneliness, even, or perhaps especially, when we are among other people" (Heidtman, 2003, p. 8). Polish scholars emphasise the ambivalent nature of this phenomenon, as it can be the vehicle of both positive and negative emotions. Loneliness as the vehicle of positive values is prerequisite for, e.g. creativity, contemplation, responsibility, and privacy protection. It helps people create their identity, understand themselves and the world around them better, and is necessary for self-improvement, growth, maturity, and self-fulfilment (Kobierzycki, 1998; Romanowska-Łakomy, 2006; Wadowski, 2006; Bukowska, 2008). On the other hand, negative, or bad, loneliness "restricts one's development, disturbs normal functioning, and is a burden and difficult life experience, which often seems insurmountable" (Dubas, 2000, p. 112). As shown in various studies, distinguishing between good loneliness, which has positive consequences and is the result of individual decision and is designed to cope with current developmental objectives; and bad loneliness, or a sense of solitude, which is a long-term state involving negative consequences, takes place in the intermediate and late stages of adolescence (Dołęga, 1997).

In conclusion, it should be ascertained that the primary difference between loneliness and the sense of solitude is the fact that the former is an objective state which can have positive developmental consequences, contribute to a better understanding of one's inner and external worlds, help interpersonal relationships flourish, and lead to creativity, while the latter is a subjective state which always triggers negative emotions and causes pain at all stages of human development, with self-destruction as the ultimate tragic outcome.

2.2. Typologies of loneliness

Given the fact that loneliness is a vague, multifaceted and hard-to-define concept, it hardly comes as a surprise that the literature on the subject offers a number of classifications and systems. One of the most popular is the dichotomous distinction between physical and mental loneliness. Generally speaking, physical loneliness is the objective state of an insufficient number or lack of other people in one's environment, or a kind of bodily separation from others, if you will. Mental loneliness, in turn, involves discontent over one's existing interpersonal relationships, resulting from the lack of agreement, intimacy, satisfactory social bonds, and inability to establish emotional and intellectual relations, which causes painful experiences and breeds negative emotions, making it semantically similar to the feeling of solitude (Rembowski, 1992; Gadacz, 1995; Dubas, 2006; Latawiec, 2006; Romanowska-Łakomy, 2006; Olearczyk, 2007). The figure below illustrates the sources of, relations between and consequences of these two types of loneliness.

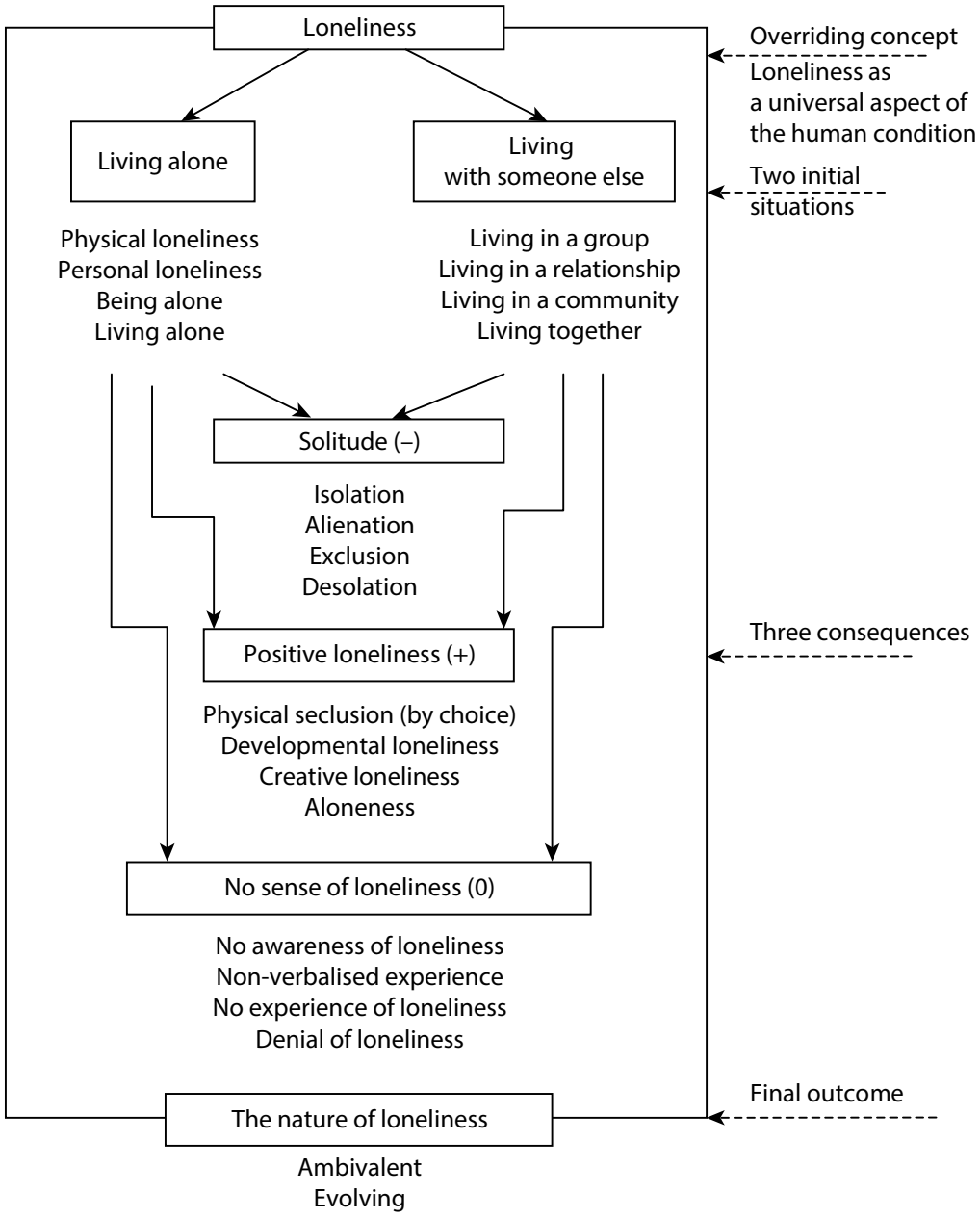


Figure 10. Loneliness – the interpretation of its meaning (Dubas, 2006, p. 337).

One of the oldest typologies, created by Weiss, identifies two kinds of loneliness—emotional and social. The former is the result of having no close, intimate relationship with another person. The latter, in turn, comes from the lack of a social-relationship network (DiTommaso & Spinner, 1997; cf. Pawłowska & Jundził, 2000; Bukowska, 2008). Weiss based his typology on the belief that different types of social interactions have different interpersonal needs or "social provisions." He distinguishes six such provisions, or social relationships:

1. attachment, which provides a sense of security;

2. social integration, which creates a sense of belonging to a community;

3. opportunity for nurturance, which creates a sense of responsibility for the well-being of others;
4. reassurance of worth, or the acknowledging of one's abilities by other people;
5. reliable alliance, or the ability to count on the support of the community in difficult situations;
6. guidance, or integration with an esteemed and authoritative person (as cited in Rembowski, 1992, pp. 29–30).

Many scholars believe that distinguishing between only two types of loneliness, physical and mental, or emotional and social, does not do justice to this phenomenon as a whole—hence the proposals of further classifications. The most frequently cited third type of loneliness is its spiritual variety (Kobierzycki, 2006; Latawiec, 2006). Romanowska-Łakomy argues that this type of loneliness is the most difficult to recognise by the people who experience it, since although satisfactory interpersonal relations with their loved ones, both in biological and psychological terms, are in place, they still experience some sort of internal loneliness, missing some sense of life and experiencing an existential vacuum, or lack of spiritual bonds (Romanowska-Łakomy, 2006). Spiritual loneliness defined in this way is semantically similar to moral loneliness connected with failing to see a purpose in life and experiencing a crisis of values (cf. Gadacz, 1996).

> No sense in life, the inability to define long-range plans, are signs of the crisis of values, which drives an individual into a state of moral loneliness. It happens when ideals, values, and role models seem alien, i.e. the individual does not approve of them internally (Gajda, 2006, p. 182).

This type of loneliness is termed *existential loneliness* by Dołęga (Dołęga, 2003, p. 23; cf. Janukowicz, 1996, p. 246).

In addition to the aforementioned forms of loneliness, we can also distinguish metaphysical and ontological types. The former arises from the realisation of the transience of human life and can lead to fear and despair. The latter is inherent in human life, due to the uniqueness of human existence. It is born out of the fact that human experiences are one of a kind and cannot be shared by anyone, i.e. no one can experience your love, your fear, or your sense of guilt for you. The loneliness of dying combines both the physical and ontological types (Gadacz, 2002; Król, 2006). As argued by Gadacz (2002, p.102), death is a state of perfect solitude. At the same time it seems to be a promise of the ultimate victory over loneliness.

Dubas proposes yet another classification of loneliness. She distinguishes different types of solitude based on the situations in which they appear. This way she identifies 38 typical human experiences when people can feel lonely. Due to the focus of this study, i.e. the psychosocial functioning of people with strong school performance, four of such solitude-invoking situations, as identified by Dubas, are of interest here.

1. Solitude in the face of success – experiencing different types of success can be difficult. Although it involves an array of positive emotions, such as joy, contentedness, a sense of satisfaction and fulfilment, it can lead to solitude if the individual is unable to share these achievements with other people, thus making them jealous.
2. The solitary life of creative minds – the creative process requires seclusion and often induces incomprehension and envy in others. In their work, creatives go beyond what is now, often exposing themselves to alienation.

3. The solitude of individualists – people who are different and unique, go against the established standards and customs, do not fit into their environment, are original and unconventional. Such individuals often pay a high price for being nonconformists—they become lonely, although it is not always this reality that breeds the sense of solitude.
4. Solitude in early life – during a period when young people, looking for their own identity, embark on many steps and roles to lay the foundations for their adult life. The course of these processes might be very violent, adding to their inner turmoil and loneliness (Dubas, 2000, pp. 121–122).

The above-mentioned forms of solitude make up what Dębińska calls *total solitude*.

> Total solitude, in its pure form, is experienced as the lack of acceptance by anyone, the sense of complete uselessness, the feeling that the world is a desert and our existence in it the result of a horrible mistake and punishment. This struggle in a gloomy maze with no way out is a desperate call for help without any hope for a response; it is the feeling of being stuck in limbo (Dębińska, 1988, p. 64).

In her description of total solitude, Dubas also emphasises that people with explicit and acknowledged transcendental values break off their relationship with God (Dubas, 2000). Such situations are extremely rare, since they involve complete isolation from society, combined with the lack of an inner world. As regards the severity of loneliness, its partial form is more common. "It involves the individual experience of certain gaps in personal bonds, including with God and oneself, while also possibly involving the lack of objective relationships with other people without feeling lonely at the same time" (Dubas, 2000, p.114).

As shown in these deliberations, there are many typologies of loneliness. Depending on the author and scientific approach, some classifications are very concise, while others are characterised by a more general and complex structure. This fact only corroborates the view that loneliness is a complex and very difficult-to-define phenomenon.

2.3. The causes of loneliness

In order to understand loneliness better, it is necessary to explore its causes. The majority of scholars seek them either in objective external factors, or in the subjective inner world of the individual.

When Dołęga (2003, p. 54) identified the types of the sense of loneliness, she used the following formal criteria—duration, causes, and the ability to control it. On this basis, she distinguished between two types, namely occasional loneliness as a mental state, and chronic/characterological as a mental trait. Both these types are presented against all three criteria in the table below.

Table 3. Two Types of the Sense of Loneliness

	TYPE OF LONELINESS	
FORMAL CATEGORIES	*Occasional loneliness*	*Chronic/characterological loneliness*
Duration of loneliness-related experience	Short-lived loneliness experience brought about by a stimulus, one's current position, life situation, etc.	Long-term experiences not necessarily connected with one's current situation
The perception of its **causes**	Considering the causes of loneliness as external, objective and short-lived	Considering the causes of loneliness as internal, subjective, and permanent
Confidence in one's ability to **control** it	Confidence in one's capacity to bear this experience	Confidence in having no, or having lost, capacity to bear this experience

Note. Adapted from Dołęga, 2006, p. 269.

In her analysis of empirical data, Dołęga concludes that it cannot be settled incontrovertibly whether loneliness is a mental state or a trait, so it can have its source in both external and internal reasons (Dołęga, 2003).

Iwona Niewiadomska in her research has shown the relationship between personality traits and two dimensions of loneliness, namely the sense of no intimacy and the sense of alienation (as identified in the UCLA scale, used for the author's own research described later in this study).

> The sense of no intimacy is generally connected with difficulties in interpersonal interactions and the fear of engaging in relationships with other people. The sense of alienation was influenced by three types of personality traits (a) traits connected with poor self-control, impulsiveness, irascibility, and commitment to one's own goals; (b) traits resulting from poor confidence in oneself and other people, a reserved attitude to human interaction, and excessive self-control; (c) traits related to the orientation towards the accomplishment of one's objectives and the neglect of interactions with other people (Niewiadomska, 1997, pp. 187–188).

Nevertheless, the majority of the literature on the subject distinguishes between both external and internal types of loneliness. The former includes, for instance, the death of a loved one, the breakup of a marriage, the lack of or restriction on interpersonal relationships, emigration, and old age. Internal reasons, on the other hand, include poor self-esteem, insecurity, introversion, pessimism, distrust of other people, and the fear of change and taking risks (Bukowska, 2008).

Dubas (2000, pp. 116–118) goes one step further in her analysis of the reasons for loneliness, and distinguishes several categories:

1. External reasons, or the influence of affluence, involving the rapid development of technology, the increasing globalisation, urbanisation, and industrialisation, the culture of the consumerist lifestyle the superiority of the *to have* over the *to be* attitude, the success-oriented mindset, the unrelenting competition, the marginalisation of values and God in human life… all this aggravates the feeling of being lost and lonely in the contemporary world.

2. External, or environmental, reasons focus on one's immediate milieu from the moment of birth to one's death. What is important here is the attitude of the mother towards the child, relations between parents and other family members, satisfying the need for intimacy, love, and security. Important roles are also played by peer relationships and relations at work and in the neighbourhood. Loneliness occurs when there is no time to foster these relations or when they lack emotional and community bonds.
3. Internal, or personality, reasons refer to the special sensitivity to external, unfavourable influences. They include such personality traits as pessimism, apathy, passive attitude, scepticism, cynicism, egoism, and egocentrism. These make it difficult to establish the appropriate relations between the individual and the external world, while also hampering the development of an inner world where one can find shelter when the surrounding reality does not live up to one's expectations.
4. Ontological reasons – human beings are by nature full of contradictions, dichotomies, existential paradoxes, unsatiated in their desires and dreams, full of inner conflicts and dissonances. Therefore, due to their very nature human beings are doomed to loneliness, as it is the immanent element of the human condition. It cannot be separated from human existence and people can only seek to go beyond this "bad" loneliness, looking for its positive aspects that lead to personal growth.

The overview of the stages in the development of loneliness, as described in the literature on the subject, leads to the conclusion that its evolution is affected by various factors (Lake, 1993; Wolf, 1995). Stage one is generally brought about by external reasons. Usually it is short-lived and people are cut off from contact with others, thus being deprived of interactions which provide them with information that they are liked and that other people care about them. Such reasons might include a change of residence or of job, a stay at a hospital, or a divorce. The sense of loneliness that grips people in such life situations has an upside to it, since it is a reaction to the change in their lives and motivates them to take action. During the advancement to stage two there are certain internal factors at play. At the core of this stage is the lack of trust in oneself and in others. The individual loses the ability to interact with other people via non-verbal means such as a smile. Gradually, the ways they behave and express themselves change, resulting in unattractiveness and a decline in social interactions. Stage three is described as a chronic loneliness. At this stage people lose all their capacities for establishing and maintaining interpersonal relations, which reinforces their conviction that they are unimportant and uninteresting. This type of loneliness hinders personal growth and is the result of a discordance between who you are and who you would like to be. Scholars argue that the advancement to stages two and three is determined solely by one's personality traits and is unrelated to any external circumstances. "Loneliness is generally a state of mind triggered by negative and destructive views" (Wolf, 1995, p. 23).

When it comes to reasons for loneliness, some researches emphasise factors connected with one's inner world, i.e. one's character, personality traits, and attitude towards life, while others are more inclined towards supporting external elements, such as one's environment, family, culture, and economic and social developments. Either way, it needs to be noted that both types of reasons have a considerable influence on the development, severity and ways of dealing with loneliness, and the dominance of external or internal factors at a given time is to be considered in view of one's uniqueness and singularity as an individual and the situation one finds oneself in.

3. The Big Five personality traits

The way people behave is not just the result of different situations or stimuli, but an outcome of specific, innate or acquired, characteristics of their bodies. These functions, which constitute a link between a stimulus and a response to it, have been of interest to personality psychologists. Personality, classically defined by Allport as "the dynamic organization within the individual of those psychophysical systems that determine his unique adjustments to the environment" (as cited in Strelau, 2008, p. 167), has been of interest to virtually all theoretical orientations. Today, there is a trend for this concept to be increasingly blurred as it is being used in a continuously wider sense, thus becoming difficult to define (Spendel, 2010; cf. Reber, 2000). As regards the psychology of individual differences, it focuses on personality theories which emphasise the fact of permanent differences between people, on the basis of which, to some degree, it is possible to predict human behaviour in specific life situations. In line with these theories, the primary unit to describe personality is a trait, a concept introduced to the field of psychology by Allport. Apart from a trait, as the individual tendency to act in a certain way, Allport also identified the concept of personal dispositions, characterised by "a generalized neuropsychic structure (peculiar to the individual), with the capacity to render many stimuli functionally equivalent, and to initiate and guide consistent (equivalent) forms of adaptive and stylistic behaviour" (Strelau, 2008; Hall & Lindzey, 1990). The only difference between the two concepts is that traits, as opposed to dispositions, are not peculiar to the individual. Nevertheless, both realities are to the same extent internal qualities of the individual, existing within them, yet unobservable—they can only be determined on the basis of behaviour (Hall & Lindzey, 1990). This new distinction between a trait and a disposition created two primary trends in personality research, i.e. nomothetic (universal) and idiographic (individual). The former approach focuses on a trait (a dimension), while the latter on a specific person. Therefore, assessments based on the idiographic view do not allow any general laws to be formulated. Such an opportunity is provided by studies conducted in the nomothetic paradigm, typical for the psychology of individual differences. Following their considerations of the multitude of traits that make up personality, Allport and Odbert have initiated lexical deliberations on personality, which, next to psychometric studies, have been used by scholars to describe the structure of personality on the basis of greater factors.

> The 20th century was, indeed, the time of grand theoretical systems, and each of them aspired to present its own concept of personality. The first half was the time of dynamic (Sigmund Freud, Carl Jung), psychosocial (Alfred Adler, Karen Horney, Erich Fromm), humanist (Carl Rogers, Abraham Maslow), behavioural (Burrhus Skiner, Edwin Guthrie), and factor-based concepts (Hans Eysenck, Paul Costa), with evolutional approaches (David Buss, Staeven Pinker), and in particular the cognitive (George Kelly) and the social-cognitive (Walter Mischel, Julian Rotter, Albert Bandura) gaining in importance. Polish psychology of the second half of the 20th century also had its influential concepts of personality, especially in the cognitive (Janusz Reykowski, Wiesław Łukaszewski) and eclectic domains (Andrzej Lewicki, Stanisław Gerstmann, Kazimierz Obuchowski, Tadeusz Mądrzycki) (Łukaszewski, 2010, p. 34).

Given the multitude of approaches and theories developed on the basis of personality psychology, this sub-chapter will present the five-factor personality model (FFM) by Costa

and McCrae, used as a theoretical background for the author's own research on the psychosocial correlates of outstanding school performance of students in Poland and in Ukraine.

3.1. Five-factor personality model

The works of Allport and Odbert, and Cattell, have given rise to a new trend in the factor-based approach to personality structure, i.e. the five-factor personality model (FFM). Initially, their research was purely lexical in nature, but then it was extended to include surveys. For many scholars, their point of departure was the list of 35 bipolar adjectives created by Cattell. The table below presents the authors considered as pioneers in the research on the development of the FFM, together with the names of the factors they identified.

Table 4. Pioneers in the Research on the Five-Factor Personality Model and the Factors They Have Identified

Author	*Factors*
Donald Fiske	Social Adaptability; Conformity; Confident Self-Expression; Emotional Control; Inquiring Intellect.
Ernest Tupes and Raymond Christal	Surgency; Agreeableness; Conscientiousness; Emotional Stability; Culture.
Warren Norman	Extroversion; Agreeableness; Conscientiousness; Emotional Stability; Culture.
Lewis Goldberg	Extroversion; Agreeableness; Conscientiousness; Neuroticism or Emotional Stability; Intellect.

Within the Polish context, it is important to note the research conducted by Szarota. On the basis of his study results, Szarota identified five factors: agreeableness, conscientiousness, dynamism (instead of extroversion), excitability (instead of neuroticism), and intellect (Szarota, 1995). This change in the generally accepted terminology was motivated by the fact that the description of dynamism was not accompanied by the adjective *sociable*, which is axiomatic for the dimension of extroversion, while excitability was not supplied with the axiomatic adjectives of neuroticism—*restless* and *anxious*.

De Raad, compared studies conducted in six European countries, namely the Czech Republic, the Netherlands, Germany, Poland, Hungary, and Italy, and he concluded that

despite the replicability of the Big Five model framework across the individual analyses the model was not validated in the comparisons between taxonomies, so it is not possible to create a single-trait framework for all cultures (Strelau, 2008).

Due to a number of reservations against lexical studies, primarily due to their having their theoretical roots solely in Catell and Goldberg's lexical hypothesis, as well as the disregard for the situational context in the list of words (adjectives, nouns, adverbs), a stream of psychometric research has emerged. At this stage, the five factors were measured with carefully selected sentences which included the situational context for the individual behaviour. The analysis of personality structure began to use newly created questionnaires or existing personality inventories.

At the end of the 1970s, American scholars Costa and McCrae created, on the basis of Catell's 16-factor Personality Questionnaire, a three-factor personality model which comprised neuroticism, extroversion, and openness to new experiences (NEO). Subsequently, these scholars expanded the model to include two additional elements—agreeableness and conscientiousness (McCrae & Costa Jr., 2005; Strelau, 2008; Siuta, 2009a). They prepared their NEO Personality Inventory (NEO-PI) to measure these five factors. After years of research employing this tool, Costa and McCrae modified it to create the Revised NEO Personality Inventory (NEO-PI-R). The revised questionnaire comprises five scales, with each subdivided into six sub-scales (McCrae & Costa Jr., 2005; Siuta, 2006). The figure below shows the structure of personality by Costa and McCrae.

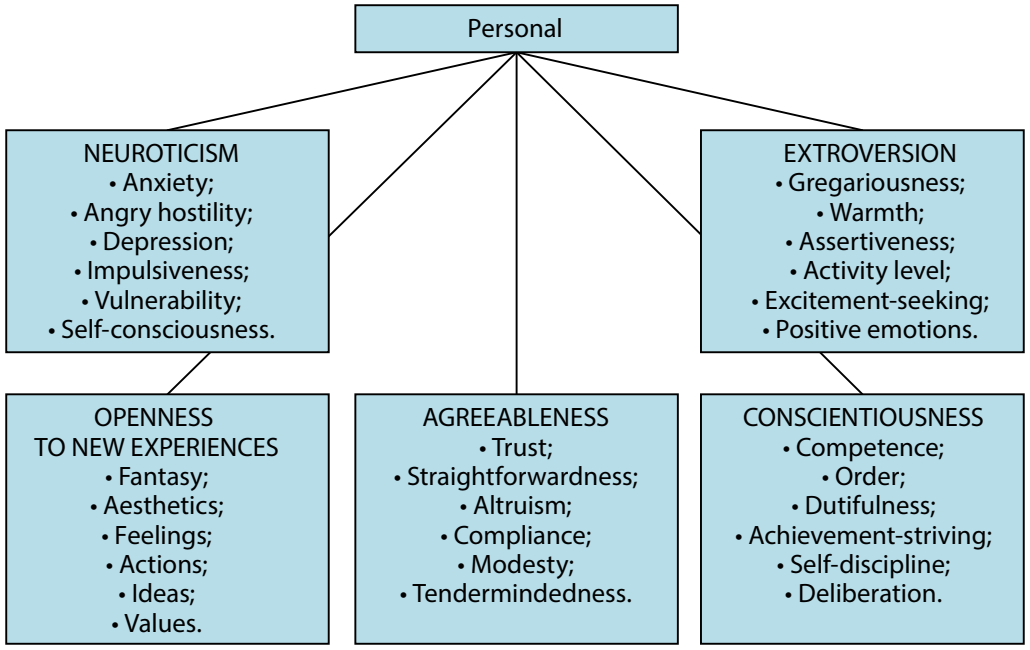


Figure 11. Personality structure by Costa and McCrae. Adapted from Strelau, 2008, p. 189).

Neuroticism (N) is defined as exhibiting emotional adjustment, the opposite being emotional instability (in terms of negative emotions). Emotionally adjusted people score low on

the neuroticism scale, they are happy with themselves and with their lives, handle stressful situations well, and they are calm and level-headed. On the other hand, individuals who score high in the *N* scale are maladjusted and unbalanced. They often experience negative emotions, handle stressful situations badly, they are short-tempered, prone to experiencing shame, a sense of guilt, anxiety, and sadness (Siuta, 2006; Polczyk, 2009). The neuroticism factor comprises the following **six sub-factors** (McCrae & Costa, 2005; Polczyk, 2009):

Anxiety and angry hostility, as the result of experiencing two emotional states, fear, and anger. People differ in terms of the intensity and frequency of such experiences. Those with high fear susceptibility have a tendency to experience concern, anxiety, and tenseness. On the other hand, individuals with high levels of angry hostility are prone to anger and bitterness.

Depression and self-consciousness – these elements have their roots in the feelings of sadness and shame. A depressive mood is manifested in the experience of guilt, hopelessness, loneliness, and low self-worth, while self-consciousness is a tendency to experience shame, embarrassment, or a sense of inferiority.

Impulsiveness and vulnerability are two elements which manifest themselves more in behaviour than in experienced emotions. Impulsive individuals often succumb to temptation, surrender to their desires, and are unable to control them. Vulnerability, in turn, is the inability to cope with stress, panicking in difficult situations, a tendency to break down and become dependent on the assistance of others.

People with high neuroticism usually score high on each of the elements presented above. Costa and McCrae (2005, p. 67) construct the following profile of such individuals:

> in social situations these people are anxious and embarrassed, and their frustration in interactions with others can trigger off hostility, complicating things even more trying to compensate for this, they start abusing alcohol or overeating, which leads to dire consequences over time.

Extroversion (E) is "the dimension which reflects the quality and volume of social interactions, and the level of activity, energy, and the ability to experience positive emotions" (Zawadzki, Strelau, Szczepaniak, & Śliwińska, 1998, pp. 14–15). It is believed that this trait shows a normal distribution in society, i.e. the majority of people are so-called ambiverts. People who score high on this scale are characterised by sociability, friendliness, a number of interpersonal contacts, although not necessarily deep in nature. They are talkative, spontaneous, and energetic. Introverted individuals, on the other hand, with weaker orientation towards the external world and social contacts, are withdrawn, reserved, inhibited, and have a low number of interpersonal relations (Siuta, 2006; Szpitalak & Polczyk, 2009).

As argued by Costa and McCrae (2005), the six facets of extroversion can be divided into three interpersonal traits—warmth, gregariousness, and assertiveness; and three temperamental traits—activity, excitement-seeking, and positive emotions.

High scores in **warmth, or attachment**, mean that the individual is friendly, honest, intimately involved in close and lasting relations with others, and actively participating in social life. Low scores, in turn, are characteristic of cold-hearted, reserved, and aloof individuals. (McCrae & Costa, 2005; Szpitalak & Polczyk, 2009).

Gregariousness is defined as pleasure in or the need for being around other people. The intensity of this trait can be determined by the number of established relationships and their scope. Warmth and gregariousness are related to the sociability of the individual, who usually seeks to have as many friends as possible and takes pleasure in the very number of social relations.

Assertiveness is the third facet included in the interpersonal-traits group. Its high intensity is characteristic of leaders and dominant individuals. Such people easily make decisions and express their emotions and desires, and are eager to communicate their opinions and views on a given subject.

Activity is a trait whose high levels are representative of individuals involved on many different fronts and full of energy. They like to be busy and take active part in multiple initiatives.

Excitement-seeking is another trait in the temperamental group. It is connected with looking for thrills and sensations, and a tendency to display risky behaviour. People characterised by high scores on this scale like an exciting life, noisy environments, intensive colours, and distinctive flavours.

Positive emotions form the last temperamental facet of extroversion. Individuals who exhibit this trait in abundance laugh often, show an optimistic attitude towards life, usually respond with positive emotions, and are in good mood and of cheerful disposition.

All the above-mentioned facets of the extroversion trait mutually reinforce themselves to create a consistent-personality syndrome, defined by the authors of this five-factor model as "Activity leads to excitement, and excitement to happiness; the happy person finds others easier to get along with, and congeniality easily turns to leadership" (McCrae & Costa, 2005, p. 68).

Openness to new experiences (O) is related to the internal experiences of the individual, while also having a considerable influence on their social functioning. This factor maintains substantial stability throughout life and is to a large extent hereditary. Individuals open to experience are receptive, curious about the world (McCrae, 2007). This factor comprises six different domains included in its measurement.

Fantasy – high scores in this facet reflect a rich inner world, a tendency to fantasise, imagination, the ability to weave very detailed dreams. It does not mean, however, that it is used as a way to escape the real world.

Aesthetics – this area accentuates openness to art and beauty. People with high scores take a keen interest in all types of art, but this does not mean that they have a gift for it. Nevertheless, due to their interest they have wide knowledge of the fine arts.

Feelings – people with high scores on this scale are very aware of their own emotionality, which is rich, complex and diversified; they experience their emotions strongly, while also

being open to the feelings of others, which they value as an important element of knowledge about people around them. They consider feelings and emotions as vital components of life.

Actions – when open to action people seek new, often extraordinary, experiences. It is the opposite of stiffness. People with this trait often have an unusual hobby, like to try new kinds of cuisine, to travel.

Ideas – people open in this domain value knowledge for the sake of knowing. They appreciate intellectual experiences, are open to new ideas and ingenious solutions. They prefer intellectual challenges and entertainment, and often take part in discussions.

Values – individuals characterised by prominence in this domain are liberal in their views on religious, social, and political values. They are not conservative, do not pay attention to authority or any accepted norms. They believe that what is appropriate in one situation might not be right under other circumstances.

Agreeableness (A) can be generally described as the acceptance or rejection of an outlook by the individual, depending on the attitude of other members of their community towards them. Agreeableness is to a large extent responsible for establishing and maintaining relations with others. It characterises one's attitude towards others (McCrae & Costa, 2005). Agreeable people can be described as straightforward, tactful, direct, reserved, accurate in the description of their own achievements, altruistic, trustworthy, understanding, trustful, helpful, kind, cooperative, cordial, caring, tender, dedicated, noble, and generous (Szarota, 1995; Ziółkowska, 2009). People characterised by poor agreeableness, on the other hand, will always have contrary opinions, which they express without caring about the feelings of others. They tend to be disagreeable, cynical, rude, selfish, unkind, distrustful, cold-hearted, and uncooperative (Szarota, 1995; Ziółkowska, 2009). They can be described as quarrelsome and socially maladjusted, and never admit to being wrong (Siuta, 2006; Ziółkowska, 2009). It needs to be noted that poor agreeableness is associated with increased creativity (Eysenck & Eysenck, 1985). This factor also includes six facets, described briefly below (Piedmont, 1998; McCrae & Costa, 2005; Siuta, 2006; Ziółkowska, 2009).

Trust – high scores here are characteristic of indulgent, affable, and trustful people, convinced that other people have good intentions. People with low scores in this area are suspicious, distrustful, and sceptical. As argued by Erikson (1950, as cited in McCrae & Costa, 2005), people who do not develop trust will exhibit problems in striving for industriousness, seeking their own identity, and when establishing close relations with others.

Straightforwardness – people with high scores in this aspect are characterised by openness, honesty, and guileless disposition. They are trustworthy and candid. Poor scores, in turn, correspond to cunning respondents, inclined to trickery, artful, and skilful at manipulating other people.

Altruism is another facet of agreeableness. People characterised with its high levels are caring, focussed on others and their affairs. They tend to be cordial, kind, big-hearted, tactful in their actions, and helpful. Low-performing individuals are self-centred, reluctant to get

involved in other people's problems and affairs, poor at cooperating and collaborating with others.

Compliance is an aspect whose high intensity is found in biddable, compliant people, in control of aggressive reactions, placid, good-natured, apt to forgive, and polite. Non-compliant individuals are characterised by stubbornness, competitiveness, and a tendency to show aggressive responses to interpersonal conflicts.

High scores in **modesty** are obtained by people who are unassuming, tactful, unpretentious, humble in assessing their own abilities and importance. Low-scoring individuals are narcissistic, convinced that they are special, extraordinary, and exceptional, often arrogant and coming across as conceited.

Tendermindedness – individuals who score high in this facet are full of compassion, considerate, sympathetic, friendly, and sentimental; they often take part in various charitable and social initiatives. Low intensity in this facet corresponds to calculating people, who consider themselves realistic; they tend to be unfriendly, come across as intolerant, and are less driven by compassion.

Conscientiousness (C) relates to the degree of being organised, assiduous, and motivated in one's actions to accomplish one's goals; it is one's will to achieve. This dimension is characterised by the individual's attitude towards work (Zawadzki et al., 1998). Similarly to the other four factors, conscientiousness comprises six facets, as described below (Costa & McCrae, 1995, 1998; Zawadzki et al., 1998; McCrae & Costa, 2005; Siuta, 2006; Hołda, 2009).

Competence – is about one's belief in their ability to cope in various life situations vs. a belief about the inability to accomplish a task. People who achieve high scores in this facet can be described as sensible, prudent, and effective.

Order – the tendency to maintain order is a facet which is characterised by on one end of the scale orderliness and tidiness and on the other lack of consequence and order in one's actions and life. Individuals with high scores in this domain can be described as well-organised, neat, reasonable, and orderly. They are considered good employees—conscientious, meticulous, effective, and consistent in their actions.

Dutifulness is about adherence to one's own rules and beliefs vs. unreliability and negligence. People with high scores on this factor are driven by their ethical and moral values and can be perceived as small-minded and scrupulous.

Achievement-striving is a facet with a high level of aspirations and desire for success on one end of the continuum, and lack of ambition and definite life goals on the other. Individuals with high scores on this facet are characterised by substantial involvement and persistence in their work, attention to detail in everything they do, ambition, diligence, and determination. Low-scoring individuals, on the other hand, tend to be lazy, unambitious, and negligent and have no specific goals in life.

Self-discipline is about the ability to motivate oneself to complete even mundane tasks as opposed to the tendency to quit them before they are finished. People with high scores on conscientiousness do not delay doing something, do not surrender to boredom, bring the commenced work to conclusion; even despite discouragement or various obstacles they are able to motivate themselves to achieve their objectives.

Deliberation is a facet which reflects the tendency to carry out a careful analysis before becoming involved in a given activity at one end of the spectrum, and impulsiveness in making decisions and the ability to react quickly if need be, at the other. Persons characterised by considerable deliberation are inclined to think through what they are about to do, plan in advance, and think twice before taking any action.

It needs to be noted that the above-mentioned OCEAN traits describe a normal personality and only extreme intensities can signify psychosomatic disorders or diseases. These traits are linear in nature and show normal distribution in a population, even though the commentaries provided both by the authors of the model themselves, and in various other textbooks and publications, usually focus on the extremes. They should also not be evaluated, although it is easy to assert that neuroticism is bad and other factors are good. In reality, to have a certain set of traits is useful in some situations, while in others it might be a hindrance to adaptation (Zawadzki et al., 1998; McCrae & Costa, 2005; McCrae & Terracciano, 2005).

Costa and McCrae deploy the following four arguments which, in their opinion, validate the factors they have distinguished as the primary dimensions of personality (Strelau, 2008, pp. 192–194).

1. The OCEAN factors are real, as has been confirmed across a number of studies, conducted both as self-evaluation and reaction-prediction. Longitudinal research also show their considerable constancy. These five factors have also been found to influence the individual's ability to adapt to life. For instance, openness to new experiences can be considered as an important predictor of professional interests, while conscientiousness gives the opportunity to predict academic performance and has an impact on the quality of one's work; and agreeableness, conscientiousness, extroversion, and neuroticism, correlate with life satisfaction.
2. The OCEAN factors are characterised by invariable substantiation, both in lexical and psychometric research. They show the greatest invariability when the NEO personality inventory is used together with other questionnaires to measure personality and temperament. In addition, these facets correlate strongly with those identified on the basis of adjectival lists.
3. The OCEAN factors are universal, which has been confirmed by research conducted on the basis of the NEO personality inventory which produced the same five-factor framework, regardless of gender, race, age, and culture.
4. The OCEAN factors are grounded in biology. They are characterised by a rather high level of inheritance (30–40%), although it applies mainly to neuroticism and extroversion.

According to their authors, these five traits constitute a universal raw material of personality which is genetically conditioned and present in all human beings—hence personality structure is universal.

4. The psychosocial characteristics of high-performing students

Previous research on gifted children and teenagers have focussed on their intellectual performance expressed in scholastic and academic achievements (Silvermann, 1993; Webb, 1993). Today, the literature on the subject contains a wealth of characteristics and descriptions of the psychosocial functioning of students across a diverse range of educational accomplishments. There are also a number of psychological and pedagogical analyses which provide interesting data to explore the specific functioning of this group of people. However, often enough the findings reported by different researchers paint markedly different pictures of the psychosocial functioning of talented students. Often, such diverging outcomes are due to the different operationalisation of the explored variables, such as personality or learning itself. Therefore, the following will be a profile of students with strong scholastic performance, including the psychological variables tested during the author's own research, and which have been described in theoretical terms in previous sub-chapters.

The idea that outstanding achievement in any area is the result of multiple factors operating concurrently can be traced as far back as to Stern (as cited in Stachowski, 2007). Nevertheless, for a long time, it was the intellect of the subjects that was at the centre of interest. It was not until the object of the investigation changed to now become a talented student with a number of mental, physical, social, and spiritual qualities and a specific milieu that the opportunity arose for a detailed exploration of this phenomenon (Ledzińska, 1996; Sękowski & Łubianka, 2009). It has been noted that not all individuals with high levels of intelligence perform well at school, or in their professional and social lives. Cattell (as cited in Kossowska &, Schouwenburg, 2000; cf. Kossowska, 2004) showed that students singled out on the basis of their intellect and personality traits performed better than those that had been admitted solely on the basis of intelligence tests. Webb, on the other hand (as cited in Kossowska & Schouwenburg, 2000; cf. Kossowska, 2004), showed empirically that the *W* factor, defined as character (persistence or willpower), exhibits a strong and positive correlation with exam results during tertiary education. Ćwiok (2000; cf. Sękowski, 1998; Tokarz, 2005) proposes the division of concepts to divide outstanding performance into educational, psychological, and mixed. The first focuses solely on the achievements of talented students, as measured via school grades and competition and contest performance. The second takes into account personality traits, intellect, and temperament, which offers the opportunity to diagnose the potential of a given student. And the third additionally attributes some aspects of cognitive and social functioning.

A number of empirical studies have shown an important correlation between the Big Five personality traits and educational performance. It varies depending on the level of success (primary vs. secondary vs. tertiary education) and the importance of the achievements themselves (mean grade vs. exam results vs. semester assignments) (Czerniawska & Zawadzki, 2010; Ledzińska & Czerniawska, 2011).

Formerly, it was believed that **extroversion,** understood as the quality and quantity of social interactions and the ability to experience positive emotions, should show a positive correlation with strong scholastic performance. However, the research findings are not decisive. Extroversion is a positive predictor of school achievements in children, while in adolescents it shows a negative correlation (Kossowska, 2004; Bratko, Chamorro-Premuzic, & Saks, 2006; Polczyk, 2009; Limont, Dreszer, Bedyńska, & Śliwińska, 2010; Szpitalak & Polczyk, 2009). The importance of extroversion in academic performance is not clear, due

to the specific nature of studying, which on the one hand requires considerable reflectiveness and independent thinking, which are facilitated by the introverted disposition, and on the other, on the originality and ingenuity, characteristic of extroverts. It has been demonstrated that it shows a positive correlation with grades for in-class effort (Rothstein et al., 1994, as cited in Czerniawska & Zawadzki, 2010). It can be noted that extroversion will be strongly and positively associated with the individual's social functioning (Szpitalak & Polczyk, 2009). This equivocal relationship between extroversion and scholastic performance has been explained by Eysenck with the fact that extroverts focus much more on relations with others, their establishment and maintenance, than on educational objectives they face at school (as cited in Kossowska & Schouwenburg, 2000; cf. Kossowska, 2004).

The strongest predictor of educational performance is **conscientiousness**, with the relation between this factor and school grades remaining constant regardless of the level of education or type of performance measurement (Schouwenburg & Lay, 1995; Wolfe & Johnson, 1995; Zawadzki et al., 1998; Kossowska & Schouwenburg, 2000; Bratko et al., 2006; Hołda, 2009; Czerniawska & Zawadzki, 2010; Limont et al., 2010; Ledzińska & Czerniawska, 2011). Conscientiousness is often considered as the "personality by-product" of ability development, the result of compensation if you would (Moutafi et al., 2004, 2006, as cited in Limont et al., 2010). American research conducted on a sample of 1,200 students, using four questionnaires based on the five-factor personality model, demonstrated that the level of conscientiousness shows a positive correlation with academic grades. This correlation was relevant and strong regardless of respondents' gender or grades obtained throughout their secondary-school education (Noftle & Robins, 2007). The assessment of many studies suggests that out of all the six facets of conscientiousness it is achievement-striving that is the best predictor of high school and university grades (Hołda, 2009).

As shown by research (Gray & Watson, 2002, as cited in Czerniawska & Zawadzki, 2010), **agreeableness** shows a positive relationship with the current assessment of academic performance. The work of Rothstein et al. (as cited in Czerniawska & Zawadzki, 2010), on the other hand, proves a negative correlation of this factor with class performance and general academic grades. Therefore, again research findings fail to provide a uniform description of the relations between this factor and achievements (Limont et al., 2010). However, it has been found that poor agreeableness has a relevant and negative impact on the performance of aggressive individuals (De Raad & Schouwenburg, 1996, as cited in Ledzińska & Czerniawska, 2011). Longitudinal research, in turn, conducted by Laursen, Adams, and Pulkkinen (2002, as cited in Ziółkowska, 2009) revealed that, in teachers' view, there are two types of behaviour that can be distinguished among students, which correspond to either high or low agreeableness in adulthood. Children, characterised by agreeable behaviour, tend to be more obedient, have less problems with concentration, obtain higher grades and cause less formative problems compared to their disagreeable peers.

Research findings regarding the relationship between **neuroticism** and scholastic performance show a more coherent image, namely they indicate a negative role of neuroticism which increases along with the level of education. The weakest correlation between the two variables was shown to exist on the primary level of education, while the strongest negative relation between neuroticism and achievement can be noted at the academic level (Czerniawska & Zawadzki, 2010; cf. Limont et al., 2010; Ledzińska & Czerniawska, 2011). Nevertheless, an assessment of 20 studies conducted by Noftle and Robins (2007) revealed that only four of them showed negative, statistically significant relationships between neu-

roticism and success in learning. On the other hand, the analyses carried out by Trapmann, Hell, Hirn, and Schuler (2007, as cited in Polczyk, 2009) identified a low intensity in this, while also arguing that it was a strong predictor of satisfaction in studying. Therefore, this can suggest that this factor determines not poorer achievements but lower satisfaction with them.

Openness to new experiences, on the other hand, shows a positive influence on educational performance in the majority of studies (Schouwenburg & Lay, 1995; Wolfe & Johnson, 1995). This influence, similarly to the negative correlation between neuroticism and performance, increases gradually, from the weakest during primary school to the strongest during academic education (Bratko et al., 2006; Czerniawska & Zawadzki, 2010; Limont et al., 2010; Ledzińska & Czerniawska, 2011). Openness is directly connected with the level of genetically conditioned fluid skills which subsequently have an impact on the development of crystalised skills (Chamorro-Premuzic et al., 2005, as cited in Limont et al., 2010).

Research conducted by Busato, Prins, Elshout, and Hamaker (1999, as cited in Kossowska, 2004, pp. 52–53; cf. Czerniawska & Zawadzki, 2010) demonstrated a relationship between all the Big Five personality factors and learning styles which influence performance. Extroversion correlates with the direct retrieval of content. Conscientiousness is positively correlated with the style involving the memorisation of specific facts and taking actions to understand the required material thoroughly; and negatively with the style oriented towards the independent discovery of facts and taking decisions to achieve educational goals. Openness to new experiences is positively correlated with the style focussing on the independent collection of data, while agreeableness is connected with the style oriented towards implementing external cues (learning only the contents that might help pass the exam). What is interesting is the positive correlation between neuroticism and the style of learning many things, motivated by the fear that some important elements might be omitted in the course of education. Research in Poland, carried out by Kossowska (2000), shows a relationship between the motivational and personality-related aspect of learning and the strategy of deep processing, and conscientiousness, openness to new experiences and neuroticism.

Studies by Schouwenburg and Lay (1995), reveal a correlation between conscientiousness and such behaviour as making notes, devoting enough time to learning, doing the required reading, and revision, collectively referred to by the researchers as current learning behaviour. Conscientiousness also showed a positive correlation with actions such as the analysis of the read material, asking and answering questions on the currently-being-studied issues, looking for causal connections, and abstracting, all of which have been described by Schouwenburg and Lay as cognitive learning habits. In addition, this research area correlated negatively with neuroticism. Another range of behaviour, as identified by Schouwenburg and Lay, is meta-cognitive habits, which include the ability to plan actions and create the appropriate conditions related to learning, frequent revision of material, learning-progress monitoring, and overcoming barriers in the pursuit of knowledge. All the efforts mentioned above also showed a positive relationship with the conscientiousness factor, while those involving resolving difficulties in learning correlated negatively with neuroticism. The last education-related area identified by Schouwenburg and Lay is referred to as motivational obstacles to learning. It includes such factors as procrastination, fear of failure, lack of discipline at work, lack of interest and disappointment over the subject of study. This mix shows a negative correlation with conscientiousness and positive with neuroticism.

However, according to Czerniawska and Zawadzki (2010, p. 18; cf. Ledzińska & Czerniawska, 2011), there is no direct relationship between personality traits and achievements, and the connection is rather indirect and manifested, i.a. through the student's strategic activities (used and preferred ways of internalising knowledge, methods of controlling the course of learning) and motivation. This hypothesis was tested empirically by Czerniawska and Zawadzki on a group of secondary-school students. The findings showed that only conscientiousness and openness to new experiences were indicators of school grades. Out of the identified learning styles, the relevant grade predictors were deep-processing and hesitant styles. The path analysis, with personality traits as independent variables, learning styles as intervening variables, and grades as dependent variables, showed that the deep-processing style is conditioned by high openness and conscientiousness, while the hesitant style by neuroticism, low conscientiousness and low openness. The former is conducive to achieving higher grades at school, while the latter to achieving lower grades. Consequently, it can be concluded that personality traits directly influence grades through the adopted learning styles.

What has also been thoroughly studied is the relationship between extroversion and emotions. The authors of the five-factor personality model themselves have explored this interrelation, arguing that extroversion predisposes people to experience positive affects (Costa & McCrae, 1980). Studies conducted by Fleeson, Malanos, and Achille (2002, as cited in Szpitalak & Polczyk, 2009) revealed that when treated as a state, it is also connected with an increase in positive emotions. McAdams (2000, as cited in Szpitalak & Polczyk, 2009) argues that extroverts are people with high interpersonal competences, which also helps them receive more social support, thus experiencing positive emotional states.

The aspect of identifying one's own and other people's feelings, the ability to use them to aid and facilitate intellectual processes, understanding them and their significance in a given situation and across a sequence of human behaviour, and the ability to modify one's own and other people's emotional states, are all important constituents of emotional intelligence, as a relatively new concept which has prompted reservations and scepticism from many scholars. However, recent research has proven the great importance of this construct for the process of learning (Śmieja & Orzechowski, 2007; Sękowski, 2010). Emotional intelligence has a direct impact on the social existence of individuals, while also allowing them to use their emotional resources in their cognitive actions. Goleman (1997) ascribes it as much as 80% of variance in life success, including also in terms of educational achievement. It is estimated that approximately two out of three competences directly connected with professional achievement are related to emotional and social skills, communication skills, empathy, influencing and the ability to work within a group (Wołpiuk-Ochocińska, 2010, p. 94). At the same time, a number of authors emphasise the importance of these competences to scholastic performance. The relationship between the domain of intellect and emotions holds major, yet not completely explored, significance for achievement. Assessments by Piekarska (2008) show a moderate correlation between emotional and liquid intelligences, and social and abstract-logical capabilities. Some psychologists argue that these are inner predispositions of talented students that are responsible for creating problems in their social and emotional lives. For many years, this phenomenon has been observed in people with a high IQ (Limont, 2005). Piechowski (1997, as cited in Limont, 2005; cf. Sękowski, 2000), adapting Dąbrowski's concept of positive disintegration to his research on exceptionally talented individuals, shows that such people are characterised by high psychomotor, emo-

tional, intellectual, and imaginative vulnerability. Vulnerability in one or all areas might be related to the personalities of these people, not with any disorders in terms of feelings. Moreover, talented students often exhibit irregular growth. Usually, it is accelerated in cognitive terms and can lead to problems in the functioning of the other domains, especially social and emotional (Limont, 2005; Tokarz, 2005). Seligman (1993), in turn, believes that the image of children whose achievements are below their intellectual capacities shows a number of personality traits which disrupt their functioning at school. For instance, such students show disorders in emotional and motivational domains, and are characterised by low self-esteem and poor confidence in their own capabilities. In a study by Boryszewska (2008) on the sources of success at school, a group of students in Mathematics classes represented the highest level of cognitive intelligence, while students from the Humanities the highest level of emotional intelligence. According to her, it is a perfect distribution of abilities, appropriate for their respective class profiles, which is conducive to achieving success at school by both groups. Przybylska (2007) also is an advocate of the theory that scholastic success, in addition to intelligence, is determined by emotional and social traits. In his research Karwowski (2004) showed that people who perform better at learning are also characterised by higher levels of emotional skills, as measured by the INTE emotional intelligence questionnaire, but there are no differences between individuals with low and average learning performance. The author also demonstrated that both academic and emotional intelligence, and creative abilities explain a small proportion of variance in scholastic performance (these variables account for 4%, 1%, and 2%, respectively). A study carried out by Jaworowska and Matczak (2001) in secondary schools using the INTE indicated an equivocal correlation between emotional intelligence and scholastic performance. The group of boys showed relevant correlations between the two variables, while in the group of girls the level of emotional intelligence did not affect their grades, and in respect of Mathematics the correlation was negative. In her research, Przybylska (2007, pp. 68, 70) demonstrated only an insignificant correlation between these two variables. The author assumes that either emotional intelligence does not play any special role in scholastic performance or the relationship is not that strong, since the correlation between the variables is not direct. To sum up, she concludes that neither emotional intelligence not any of its abilities can be considered as predictors of scholastic performance in the examined students. Only the ability to employ emotions in one's actions and thinking plays a minor role in achieving good grades. Schutte et al. (1998) demonstrated that emotional intelligence shows a positive correlation with the mean grades obtained by academic students. However, there are also studies which did not show any relevant correlations (Woitaszewski & Aalsma, 2004, as cited in Stolarski, 2010).

The findings available in the literature on the subject do not provide any clear-cut and accurate picture of this correlation between emotional intelligence and the level of achievement. Therefore, this calls for further investigation.

It has long been noted that not all people with high intelligence-quotient scores perform well at school. According to many scholars, using social competence and skills are a way to facilitate the use of one's intellectual dispositions in interactions with other people, thus performing as well as possible. It is estimated that approximately two thirds of competences directly connected with professional careers are emotional and social skills (Wołpiuk-Ochocińska, 2008). The social development of exceptionally talented individuals plays a decisive role in their subsequent professional success, and also in their personal and family

lives. Good interpersonal relations guarantee security and self-confidence, thus allowing individuals to use their capabilities in full (Przybylska, 2007; cf. Goleman, 2007). The failure of talented students to perform at a level corresponding to their intellectual capacity is often the result of deficits in social functioning, which might be due to this area of their lives having been neglected during their upbringing and education at school. Despite the aforementioned facts, the volume of research on the way talented individuals operate in their milieu is rather small, with unfair stereotypes prevailing (Sękowski, 2000, 2004). Overall, scholars' approaches can be put into two camps. Some argue that talented individuals are more vulnerable to experiencing emotional and social problems due to their imbalanced development, with their intellectual growth being accelerated, and the formative processes in the family and at school being more focussed on reinforcing the cognitive abilities of the children, while neglecting their emotional and social needs. Others, in turn, propound the standpoint that high achievers do not differ much from their peers in terms of social and emotional functioning. Classical studies by Terman (1925, as cited in Sękowski, 2000) demonstrated that highly talented students did not have more problems of a social or emotional nature than their averagely talented peers. Only individuals scoring 145 or more in IQ tests were found to have more problems in the area of emotions and interactions with other people than those with lower IQs. Creative children, who think in a divergent fashion, were also more prone to difficulties in this respect (Sękowski, 2000). Nevertheless, it needs to be noted that talented children and teenagers are at risk of developing psychological and social problems due to their exhibiting certain cognitive and personality-related traits, such as perfectionism, non-conformism, specific, and often wide-ranging, interests, curiosity, a passion for knowledge, integrity, and excessive self-criticism. These characteristics might cause problems in the field of emotions and difficulties in establishing successful relations with others (Webb, 2006). Webb (1993) proposed using the well-established psychological division into endogenous and exogenous categories of social and emotional difficulties faced by talented children. Exogenous problems come from their interactions with their milieu, while endogenous stem from the specific characteristics of the gifted individual. It may seem paradoxical that some traits that are considered as virtues, or even determinants of talent (intellectual curiosity, high memorisation potential and rapid information processing, considerable attention span and multitasking ability, abstract and synthetic thinking, eloquence and rich vocabulary, preference for intellectual activity, ability to see causal relations, longing for truth and honesty, idealism, distinctive sense of humour, non-conformism, empathy, desire for being accepted, etc.), can constitute the source of emotional and social problems for gifted students. Peer relations to a large extent determine how talented students function in this domain. Very often these interactions are distorted due to the specific internal characteristics of talented people, such as the inability to cooperate, the lack of tolerance for their less-talented peers and being radical in their assessment (Sękowski, 2000, 2009; Czelakowska, 2007; Sękowski & Siekańska, 2008; Sękowski & Jurko, 2010). The establishment of successful relations with the environment is also hindered by the traits of students discovered in a study by Ćwiok (1996) on the self-perception of exceptionally and averagely talented secondary-school students. It demonstrated that the talented individuals were more cynical, impulsive, arrogant, rebellious, and volatile than their less-able peers. Volatile individuals exhibit strong, mutually exclusive tendencies to react, causing mental stress and adaptation problems (Siek, 1982). In addition to the above-mentioned characteristics, the students proved markedly different from their fellow students in the

following areas—self-trust, self-control, desire for achievement, domination, persistence, empathy, variability, and the ability to understand oneself and other people. As emphasised by Radochoński (1993, p. 7), talented teenagers are characterised, in addition to their extensive knowledge and cognitive complexity, by wide interests, great emotional vulnerability, and irritability. Moreover, their success at school is dependent on their level of self-acceptance, their system of values, expectations towards themselves and others, and the degree of emotional maturity. Higham and Buescher (1989, p. 96, as cited in Ćwiok, 1996, p. 146) described outstanding individuals as "different."

Even though it is true that all young people care about their peers' acceptance, gifted teenagers are particularly vulnerable to the stress resulting from treating them as "different." Exceptional talent often inspires appreciation and ensures higher status than that of less-talented peers, but many factors, such as higher expectations, envy, resentment of others, and anti-intellectual attitudes, can lead to peer-alienation. Stress typical for adolescents can be reinforced and complicated because of the difficulties experienced by young people as a result of the manifestation of their outstanding abilities.

The traits of talented individuals, as demonstrated in the studies cited above, can trigger off rather negative social attitudes towards them, and even the rejection of such individuals by society, which perceives them as aloof, conceited, and "different" (Sękowski, 1998; Włodarczyk, 2009; Sękowski & Jurko, 2010). Włodarczyk (2009, p. 8) identifies five possible social positions that gifted students can take within a class, namely acceptance—experienced by individuals who are attractive in different interactions in class; average—such students are generally liked, although they do not hold any important functions within the social structures; polarisation—such individuals walk a fine line between the part of the class that accepts them, and that which rejects them; isolation—secluded students are treated with indifference and live outside the group; and rejection—such individuals experience hostility and dislike on the part of the group, which breeds exclusively negative social experiences.

Scientific investigations show a negative relationship between the sense of social acceptance and self-esteem, and success in learning and at work. It can be assumed that emotional intelligence fosters the acquisition of social skills. Polish research has confirmed a significant positive correlation between these elements (Jaworowska & Matczak, 2001). Przybylska has demonstrated that the level of emotional intelligence in creatively talented students influences the quality of feelings they have for their peers. The author argues that in the majority of cases, young people reciprocate the feelings they experience from others (Przybylska, 2007, p. 82).

Gifted individuals, especially in their adolescence, can experience solitude or even alienation. This can be due to the lack of peer acceptance. These experiences can be further amplified by excessive self-criticism, a trait common in talented people, that can take the form of disapproval and general negation of other people's opinions, or even values (Sękowski, 2000). Other elements that can aggravate the sense of alienation are independence, preference for individual work, and exclusive self-reliance. Talented students often reject the opinions of adults—parents, teachers and peers—to become non-conformist and unconventional. In extreme cases, individualism can lead to alienation, which is the source of difficulties in interpersonal relations (Sękowski, 2000). As emphasised by the young people themselves, loneliness often arises out of the sense of being different, when one's way of thinking differs from the generally accepted norm (Dołęga, 2003). It can definitely be con-

cluded that the loneliness experienced by talented people can be due to their inability to satisfy the need for emotional bonds of special significance, which at this age comes down to interpersonal relations with peers. Izdebska (2004) notes that some individual traits, such as the avoidance of company or the distrust of other people, can be conducive to experiencing solitude. Young people might feel lonely in a peer group due to not being accepted as a result of their distinctness. It needs to be noted that sense of solitude is inherent in the adolescence period, since at this stage of human development the feeling of isolation and the desire for freedom intensify, with the pursuit of identity as the primary concern (Rembowski, 1992). A study by Janukowicz showed that 51.8% of first-grade students in general-education schools experience loneliness from time to time, 21.8% reported feeling lonely *to a certain degree,* in 8.1% this was a frequent experience, and in 3.6% very frequent. The subjective sources of the sense of solitude, as reported by the respondents, included shyness, difficult character, a tendency towards swinging moods, and difficulties in establishing rapport with other people (Izdebska, 2004). Rembowski has shown that students' positions in the sociometric structure of the class play an important role in the process of learning and formation, while also influencing the development of the feeling of solitude. Popularity within the class determines the level of loneliness, mood, attitudes among peers, and interactions within wider social contexts (Rembowski, 1992). In the light of the above, loneliness will be the most severely experienced by the talented students who take the polarisation, isolation, and rejection positions within the class. The sense of solitude in adolescence tends to be exacerbated by the strong feelings of discrepancy and gap between "the real me" and "the ideal me" in outstanding individuals (Sękowski, 2009). Studies indicate a relationship between the sense of solitude and shyness, neuroticism, introversion, and social withdrawal (Ernst & Capioppo, 1999). It also correlates with poor social skills, lack of closer relations with peers and being rejected by them, and weaker adjustment to the environment (Ernst & Capioppo, 1999; DiTommaso & Spinner, 1997). Furthermore, the sense of solitude in teenagers seems to be affected by personality traits. It has been discovered that extroversion negatively impacts on them in social terms, while also having a direct effect on the emotional and social aspects of loneliness, where self-confidence acts as a mediator (Cheng & Furnham, 2002).

The literature on the subject argues that talented individuals are characterised by specific cognitive behaviour, high IQ and/or channelled skills, creative aptitude, and appropriate personality traits. With the appropriate balance, structure, and combination of these characteristics, the outcome will be the development of exceptional talent (Sękowski, 2000; Limont et al., 2010). Still, the reliable profile of personality traits for outstanding individuals is yet to be established, and those already proposed by different authors tend to be divergent or even contradictory. The findings on the psychosocial functioning of talented individuals are also inconsistent. Mittering (2000, as cited in Tokarz, 2005) for instance, in his research on behavioural disorders in exceptionally talented children, contained the essence of psychological problems experienced by this group in three words *incomprehension*, *isolation*, *loneliness*. Limont, on the other hand, demonstrates an array of problems in the social and emotional development of such people (2005). Other Polish studies, in turn, as summarised by Sękowski (1998), did not reveal any significant adaptation difficulties, or emotional-motivational or personality-related characteristics, that would co-exist with exceptional talent and cause any problems. Ledzińska, too, is of the opinion that the separation of the way the minds of talented students operate and other areas of their psyche, as well as the widespread belief in the inability to deal with life, alienation, and problems faced by this group of peo-

ple, are all myths (Ledzińska, 2010). According to Tokarz (2005), research findings indicate the high predictive potential of previous achievements for future performance, which can also be readily predicted on the basis of test-based measurements of intelligence and other cognitive characteristics. Broadly defined personality variables, on the other hand, suggest the existence of very complex and insufficiently explored correlations. An opposite view is represented, for example, by Goleman (1997, 1999). He argues that people with a high IQ and those who have a track record of substantial achievements throughout education, very often have problems in their professional lives and fail to achieve the successes foreshadowed by their earlier accomplishments and intelligence.

The above description of well-performing students does not provide a complete picture of their psychosocial functioning. Such a detailed account could make up a separate monograph. This delineation was intended only to describe the areas in which talented individuals operate that might be relevant in view of the subject of this thesis. These correlations are complex and the consequences of being talented often have negative implications for one's social and emotional life. In the light of the above data, it only seems reasonable to agree with the popular opinion that excellence requires courage (Webb, 1993; Sękowski, 2000,; 2009). Nevertheless, the way outstanding individuals operate should be approached from a dialectical perspective to account both for the opportunities and risks resulting from the specific nature of their development. This can protect them from the stereotypical, often unfair, view of such people (Sękowski & Knopik, 2008).

ISBN 978-83-940389-1-5

Chapter 3
The Methodology of the Author's Own Research

This chapter presents the programme of the author's own research. It comprises four parts, which discuss the following in turn: the problem at hand and the proposed hypotheses; the description of the analysed groups of students in Poland and Ukraine; the research procedures; and the methods employed to address the questions raised and to examine the hypotheses.

1. The research problem and hypotheses

The primary objective of these considerations is to determine the psychological traits coexisting with strong scholastic performance, i.e. correlates. The research problem of this work can be presented in the form of a question: *What is the specific nature of the psychological correlates of strong scholastic performance?* Since the author assumes that the relationships between some psychological variables and scholastic performance have a curvilinear character, the author uses a differential strategy to look for the traits (correlates) characteristic of students with strong scholastic performance. Correlates are a way of operationalising the psychological functioning of students.

On the basis of the literature on the subject, the author has formulated research questions and constructed directional hypotheses.

Research question

What differences, if any, are there in the psychological functioning of students with different scholastic performance levels?

Supplementary question

What differences, if any, are there between the psychological functioning of students with poor, average and strong scholastic performance in Poland and Ukraine?

General hypothesis

There are significant differences in the psychological functioning of students with different levels of scholastic performance.

H1: People with strong scholastic performance exhibit lower levels of emotional intelligence as compared to people with average scholastic performance.

H2: People with strong scholastic performance experience higher levels of the sense of solitude as compared to people with average scholastic performance.

These hypotheses are supported in the literature on the subject. As noted by Sękowski (2000), exceptionally talented individuals are prone to experience emotional and social problems due to their extraordinary sensitivity and intellectual activity. Clark and Webb argue that the traits that are considered as virtues in individuals with strong scholastic performance can be the cause of their problems with social and emotional functioning (as cited in Sękowski, 2000). Gifted students are often reserved and remote, perfectionist and excessively critical towards themselves and their own activities, while also having difficulties with social adjustment. Talented children are particularly sensitive, or even oversensitive, and they have significantly less contact with their peers compared to other students. Researchers and practitioners dealing with the development of particularly talented individuals suggest that external circumstances characteristic of this group are responsible for serious problems in their social and emotional functioning (Limont, 2005). A number of psychologists and practising educators argue that these students often experience problems with finding their place within a group, become self-centred, emotionally unbalanced, and either shy or hyperactive (Boryszewska, 2008). Their excessive criticism—of themselves and others—can make them exhibit behaviour characteristic of emotional instability. This criticism can take the form of disapproval and a general negation of the opinions or even values of other people. Such an attitude is characteristic of exceptionally talented children during adolescence. The above-mentioned behaviour is often accompanied by a sense of solitude and menace (Sękowski, 2000, p. 58).

H3: There is a relationship between the level of scholastic achievement and personality traits identified in students by Costa and McCrae, i.e. students with strong scholastic performance are more neurotic, introverted, open to new experiences, agreeable, and conscientious than those performing at an average level at school.

Costa and McCrae collected a volume of data which suggest that conscientiousness and openness to new experiences in particular are predictors of scholastic performance at different levels of education (Costa and McCrae, 1992). Data provided by Blickle (1996, as cited in Kossowska & Shouwenburg, 2000) demonstrate that openness to new experiences correlates with the efficient functioning at school or during studies, while Digman and Takemoto-Chock (1981, as cited in Kossowska & Shouwenburg, 2000) and Wolfe and Johnson (1995) suggest a positive relationship between conscientiousness and scholastic performance (as cited in Kossowska & Schouwenburg, 2000).

For some time it has been believed that extroversion should be positively linked with learning performance. Empirical findings, however, proved inconclusive (Astington, 1960; Bendig, 1960; Savage, 1962; Child, 1964; Eysenck, 1992, as cited in Kossowska, 2004, p. 51). The lack of any explicit link between extroversion and the level of scholastic performance is explained by Eysenck (1992, as cited in Kossowska, 2004) by arguing that extroverts are

oriented towards establishing and maintaining social interactions, which is not conducive to focussing on scholastic objectives.

In their studies, Busato et al. (1999) showed relationships between all Big Five personality traits with learning styles, which, in turn, influence performance. The scholars revealed a positive correlation between neuroticism and the style of learning many things. It is motivated by the fear that some details, important for the final outcome, might be omitted.

2. Research-group description

The study covered teenagers learning in secondary schools in Poland and Ukraine. In Poland it was carried out in year 2 of secondary schools, and in Ukraine in years 9–11 of secondary schools. From the two countries in total, it covered 402 students, with 366 students qualified for analysis. Secondary-school students from Poland comprised 58% of respondents, and those from Ukraine 42%. In Poland, the final analysis covered questionnaires from 211 respondents from two secondary schools based in Lublin—160 students attending Mikołaj Kopernik Secondary School No. 9 and 51 from Ignacy J. Paderewski Private Secondary School. In Ukraine, 155 sets of questionnaires qualified for analysis, as completed by students attending three Polish secondary schools—75 from the Secondary School of General Education No. 10 in Lvov, 32 from Maria Konopnicka Secondary School of General Education No. 24 in Lvov, and 48 from the Secondary School of General Education No. 3 in Mostyska, Lvov Oblast. The above-mentioned data are summarised in Table 5 below.

Table 5. The Number of Respondents Broken Down by Country and School

School	*N*	*%*	*N*	*%*
Mikołaj Kopernik Secondary School No. 9 in Lublin	160	76		
Ignacy J. Paderewski Private Secondary School	51	24		
Secondary School of General Education No. 10 in Lvov			75	48
Maria Konopnicka Secondary School of General Education No. 24 in Lvov			32	21
Secondary School of General Education No. 10 in Mostyska			48	31
Total	211	100	155	100

Overall, there were 228 female and 138 male students, which accounts for 62% and 38% of all respondents, respectively. In terms of gender, the distribution of respondents by country was as follows—the study in Poland included 130 female (62%) and 81 male (38%) students, while in Ukraine it was 98 female (61%) and 57 male (39%) students.

The average age of all respondents was 17, which was representative of the Polish group, while in Ukraine the average age was 16. This difference is due to the discrepancy in the number of years at individual stages of education in the educational systems of Poland and Ukraine, and the requirement to send six-year-olds to school in Ukraine. Table 7 below shows the above-mentioned demographics of the participant groups.

Table 6. The Gender and Age of Respondents by Country

	Gender				*Total*					
	Female		*Male*		*Female*		*Male*		*Average*	
Country	*N*	*%*	*N*	*%*	*N*	*%*	*N*	*%*	*age*	*Total*
Poland	130	62	81	38	228	62	138	38	17	17
Ukraine	98	61	57	39					16	

The group of students with strong scholastic performance included the 20% of respondents with the highest mean grades. The group of students with poor performance was established correspondingly at the 20% of students with the lowest mean grades. Those falling between these two extremes were considered as having average grades. The maximum grade in Poland is 5, in Ukraine 10. In view of the above, in Poland 30 students (14%), with mean grades above 4.51, were deemed as showing strong performance; the average-grade group comprised 122 subjects (58%) with mean grades between 4.5 and 3.3; and the group of poor performers included 58 respondents (28%) with mean grades below 3.4. In Ukraine, the group with high grades and mean grades above 9.84 included 30 people (24%); those who reported average scores with their mean grades between 9.83 and 6.3 amounted to 67 (53%); and the group characterised by poor scholastic performance, i.e. mean grades below 6.4, comprised 29 people (23%). The above-mentioned data are accounted for in Table 7 below.

Table 7. The Distribution of Students with Strong, Average, and Poor Scholastic Performance in Poland and Ukraine Based on Mean Grades

Country	*Strong scholastic performance (≥ 4.51)*		*Average scholastic performance (4.5-3.3)*		*Poor scholastic performance (≤ 3.4)*	
Poland	N	%	N	%	N	%
	30	14	122	58	58	28
Ukraine	Strong scholastic performance (≥ 9.84)		Average scholastic performance (9.83-6.3)		Poor scholastic performance (≤ 6.4)	
	N	%	N	%	N	%
	30	24	67	53	29	23

3. Research procedure

The research was international in scope, involving secondary-school participants from Poland and Ukraine. Due to some research methods (as identified during the conceptual work on this dissertation) not having been translated and standardised, the study selected students attending three Polish schools located in the Lvov Oblast. This solution eliminated the language barrier, since all students speak Polish fluently. The research procedure was conducted in all the educational establishments in a parallel fashion. The studies were car-

ried out during lessons determined by the management of each school. Each class needed two lessons, i.e. 90 minutes, to complete all questionnaires. At the beginning, the author of this dissertation explained the purpose of this research, asked the students to provide reliable answers, and assured them about their anonymity to reinforce their motivation to take part in this undertaking. Then, each participant was provided with a set of surveys in a folder with a label on which they were to write their pseudonym, gender, school name, class/year of study, age, and mean grade obtained in the previous semester (cf. Ćwiok, 2002). The mean grades provided by the students were discussed with the teacher present during the lesson, who verified their accuracy in the school register. Each folder included the following research methods:

1. the Two-Dimensional Emotional Intelligence Inventory (DINEMO) by Matczak, Jaworowska, Ciechanowicz, Stańczak, and Zalewska;
2. the Revised NEO Personality Inventory (NEO-PI-R) by Costa Jr. and McCrae; and
3. the UCLA Loneliness Scale by Russell.

The author was present during the questionnaire-completion process, answered questions related to the subjects, and provided encouragement when they lost their motivation.

4. Method description

4.1. The Two-Dimensional Emotional Intelligence Inventory (DINEMO) by Matczak, Jaworowska, Ciechanowicz, Stańczak, and Zalewska

The presented tool has its theoretical basis in the theory developed by Salovey and Mayer, which perceives emotional intelligence as the set of abilities for the processing of emotional information. The DINEMO questionnaire is designed to assess the access individuals have to their own and other people's emotions, while also respecting them and understanding the functions they serve. The assessment is made on the basis of answers provided by the respondents, which show how they interpret emotion-generating situations and how they respond to them. The questionnaire comprises 33 items with brief descriptions of social interactions. Four possible answers are given as different responses to these interactions (in the form of thoughts or behaviour). Respondents were asked to choose the one that seemed closest to their reactions. Diagnostic answers indicate that the respondent recognised the emotional nature of the situation, acknowledged the emotions included in the description, accepted them, seemed to take the information they carry into account, correctly identified their sources, and predicted their possible consequences. According to the key, each diagnostic answer received one point, so the minimum number of points to be obtained in the questionnaire was 0, and the maximum—33. Factor analysis revealed two scales, namely interpersonal (OTHERS) and intrapersonal (ME). The results correspond to the number of points received for answers to questionnaire items in the given scale:

Scale	*Minimum score in points*	*Maximum score in points*
OTHERS	0	21
ME	0	14

Since two questionnaire items are included in both scales, the overall result is not the sum of points awarded in each of them (Matczak & Jaworowska, 2006). High scores in the OTHERS category indicate that the individual can correctly recognise the emotions of other people, understands the reasons for their emotional states, is able to predict the consequences his/her emotions can cause, and can successfully influence the emotions of other people. High scores in the ME scale, indicate that the respondent is aware of his/her emotional states, understands their causes, can assess their informational value and takes them into account when making decisions, while also being able to express his/her feelings according to the situation.

The psychometric value of this method

The reliability of the Two-Dimensional Emotional Intelligence Inventory was estimated using the internal-consistency-assessment method. Cronbach's α coefficient was calculated for the overall result and both scales individually. The following internal-consistency scores were obtained for secondary-school students:

Table 8. Cronbach's α Internal-Consistency Values for Male and Female Secondary-School Students

		The OTHERS scale	*The ME scale*	*Overall score*
Sample		*Cronbach's α*		
Secondary-school students	Female	.72	.58	.70
	Male	.64	.66	.67

Note. Adapted from Matczak and Jaworowska, 2006, p. 14.

The correctness of the factors was verified separately in three standardisation groups. The Principal Component Analysis (PCA) with varimax rotation identified two factors. The revealed factor structure is different from the four primary components in Salovey and Mayer's model. Nevertheless, other studies which carried out separate measurements for inter- and intrapersonal emotional intelligence have proven the validity of this distinction (Matczak & Jaworowska, 2006). In order to verify the correctness of DINEMO, it was correlated with other measures for this intelligence model, i.e. the INTEA Emotional Intelligence Questionnaire by Jaworowska and Matczak and the Popular Emotional Intelligence Questionnaire (PKIE) by Jaworowska and Matczak. Pearson's *r* correlation coefficients between the DINEMO and INTE, as well as between the DINEMO and PKIE results for secondary-school students, are presented below.

Table 9. Pearson's 'r' Correlation Coefficients Between the DINEMO and INTE Results for Secondary-School Students

	Secondary-school students	
DINEMO results	*Female students N = 176*	*Male students N = 100*
OTHERS	.38*	.29*
ME	.20*	.19*
Overall result	.39*	.33*

*$p<0.05$

Note. Adapted from Matczak & Jaworowska, 2006, p. 23.

Table 10. Pearson's 'r' Correlation Coefficients Between the DINEMO and PKIE Results for Secondary-School Students

	Students					
	Female N = 68			*Male N = 28*		
PKIE	*OTHERS*	*ME*	*Overall result*	*OTHERS*	*ME*	*Overall result*
ACC	.40*	.38*	.49*	.30	.06	.29
EMP	.29*	-.03	.20	-.09	-.06	-.10
CON	.21	.31*	.32*	-.05	.11	.001
UND	.23	.26*	.30*	.14	.24	.26
Overall result	.45*	.35*	.51*	.18	.12	.22

*$p<0.05$

Note. ACC—accepting, expressing, and using one's emotions in one's actions; EMP—empathy, or understanding the emotions of other people; CON—control, also cognitive, over one's own emotions; UND—understanding and realising one's own emotions. Adapted from Matczak & Jaworowska, 2006, p. 24.

The statistically significant correlation between the data from DINEMO and other tools used to measure emotional intelligence confirms that the Two-Dimensional Emotional Intelligence Inventory is an accurate method.

4.2. The Revised NEO Personality Inventory (NEO-PI-R) by Costa Jr. and McCrae

The NEO-PI-R, as published in 1992, is based on the Five-Factor Personality theory. This inventory comprises 240 statements to measure five factors, i.e. neuroticism, extroversion, openness to new experiences, agreeableness, and conscientiousness, as well as six facets, or elements, included in each of the aforementioned elements:

Factors	*Factor description*	*Elements*
Neuroticism	calm vs. anxious	N1. Anxiety
	level-headed vs. capricious	N2. Angry Hostility
	happy with yourself vs. unsatisfied with your life	N3. Depression
	relaxed vs. tense	N4. Self-Consciousness
	dispassionate vs. emotional	N5. Impulsiveness
	resistant vs. susceptible to being hurt	N6. Vulnerability
Extroversion	secretive vs. open	E1. Warmth
	unsociable vs. sociable	E2. Gregariousness
	taciturn vs. talkative	E3. Assertiveness
	passive vs. active	E4. Activity
	sober vs. playful	E5. Excitement Seeking
	unfeeling vs. passionate	E6. Positive Emotions
Openness to new experiences	down-to-earth vs. imaginative	O1. Fantasy
	non-creative vs. creative	O2. Aesthetics
	conventional vs. original	O3. Feelings
	preferring order vs. preferring diversity	O4. Actions
	curious vs. uninterested	O5. Ideas
	conservative vs. progressive	O6. Values
Agreeableness	ruthless vs. lenient	A1. Trust
	suspicious vs. trustful	A2. Straightforwardness
	stingy vs. generous	A3. Altruism
	hostile vs. submissive	A4. Compliance
	critical vs. understanding	A5. Modesty
	irritable vs. kind-hearted	A6. Tendermindedness
Conscientiousness	careless vs. conscientious	C1. Competence
	lazy vs. hard-working	C2. Order
	disorganised vs. well-organised	C3. Dutifulness
	unpunctual vs. punctual	C4. Achievement-Striving
	without purpose in life vs. ambitious	C5. Self-Discipline
	resigning vs. persistent	C6. Deliberation

Adapted from McCrae & Costa Jr., 2005, p. 16; Siuta, 2006, 2009; Hołda, 2009; Polczyk, 2009; Szpitalak & Polczyk, 2009; Ziółkowska, 2009.

The subjects could choose from five answers to each of the 240 questionnaire statements (*I completely disagree, I disagree, I don't know, I agree, I completely agree*). When calculating the results, missing answers had to be taken into account. When there were more than 41 answers missing, no calculations were made for any factor or facet. If 40 or less answers were missing, the *I don't know* answer was assumed. It also needed to be verified how the respondent reacted to the additional questions regarding the honesty of the provided answers, their completeness and correctness—if the respondent answered by ticking either *I completely disagree* or *I disagree*, such a sheet was not processed. The calculating procedure started with summarising the points assigned to each answer respectively for the statement in a given element. The results for the six facets of each factor were added up to obtain a raw result for a given factor (e.g. for N it was the number of points scored in facets N1 to N6). Finally, the raw results were converted into sten scores using the Personality Profile sheet, which also categorised the results of the respondent to the group of low, average or high

results, and developed six personality profiles. These have been interpreted according to the following principle:

Sten scores	*Results*
1 and 2	very low
3 and 4	low
5 and 6	average
7 and 8	high
9 and 10	very high

Adapted from Siuta, 2006, p. 96.

The Your Score in the NEO-PI-R Inventory questionnaire, as attached to the survey, allowed the resulting calculations to be provided to the subjects, by ticking one of the three main characteristics corresponding to high, average, and low results for each of the five factors.

The psychometric value of this method

Factor accuracy. Factor analysis, as conducted on the results of the Polish standardisation group using the PCA with the varimax rotation, also confirmed the Five-Factor solution. The statistical analysis of the correlation coefficients between NEO-PI-R scales revealed a moderately strong relationship between extroversion and openness to new experiences ($r = 0.49$).

Table 11. Correlations Between NEO-PI-R Scales

	E	*O*	*A*	*C*
N	-.20**	.02	-.01	-.39**
E		.49**	-.16**	.12**
O			-.09*	.05
A				.32**

* $p<0.05$ (two-tailed test)
** $p<0.01$ (two-tailed test)
Note. Adapted from Siuta, 2006, p. 54.

The values of all coefficients of correlations between the sub-scales across individual factors are between .14 and .63, with the median at .35 and the level of relevance at least at $p = .01$, which confirms the obtained structure of the inventory (Siuta, 2006).

The reliability of scales and sub-scales. Data obtained in Polish standardisation studies only allowed the identification of the internal consistency (of Cronbach's α coefficients) across individual scales and sub-scales of the NEO-PI-R (see Table 12). The majority of sub-scales show Cronbach's α coefficients at between .60 and .70. Eight sub-scales scored low-

er (from .51 to .57). The reliability of the sub-scales tendermindedness (A6) and achievement-striving (C4) proved insufficient—.17 and .46, respectively (Siuta, 2006).

Table 12. Cronbach's α Values for NEO-PI-R Scales and Sub-Scales

Scale/sub-scale	*Cronbach's α*	*Sub-scale*	*Cronbach's α*
Neuroticism	.86	O1	.67
extroversion	.85	O2	.64
Openness to new experiences	.86	O3	.66
Agreeableness	.81	O4	.54
Conscientiousness	.85	O5	.67
N1	.68	O6	.51
N2	.60	A1	.57
N3	.65	A2	.61
N4	.56	A3	.60
N5	.51	A4	.61
N6	.70	A5	.64
E1	.64	A6	.17
E2	.66	C1	.53
E3	.57	C2	.57
E4	.61	C3	.61
E5	.72	C4	.46
E6	.63	C5	.60
		C6	.64

4.3. The UCLA Loneliness Scale by Russell

The first edition of the UCLA Loneliness Scale, as developed by Russell, Peplau, and Ferguson, appeared in print in 1978 (Allen & Oshagan, 1995). In its original version the UCLA scale comprises 20 questionnaire items and is designed to measure the sense of loneliness defined as the inappropriate structure of interpersonal relations. The scale can be used to estimate the satisfaction of the subjects with their social relations (Cramer & Barry, 1999; Allen & Oshagan, 1995). In principle, the UCLA scale was intended to describe the sense of loneliness as a one-dimensional construct. However, many studies have shown that the scale has a multi-dimensional character (cf. McWhirter, 1990; Niewiadomska, 1996; Lasgaard, 2007). Russell and his associates concluded that the Weiss' concept (a distinction between social and emotional loneliness) can be accepted, provided that a psychometrically proven technique, such as the UCLA scale, is used (Rembowski, 1992, p. 31). Although both aspects of loneliness are not mutually dependent, they show a significant correlation with the UCLA scale for assessing loneliness (Ernst & Capioppo, 1999). It is an effective tool for demonstrating deficiencies in social interactions within a group (Rembowski, 1992, p.

65). The UCLA scale has been developed into several abridged versions, including seven, eight or ten statements (Allen & Oshagan, 1995). For the purposes of this dissertation, the 20-item version of this method was used, where the respondent could choose from four answers to each of the statements (*never, rarely, sometimes, always*), corresponding to numbers from 1 to 4. The UCLA scale is a common technique for reflecting unpleasant mental states such as loneliness (Rembowski, 1992).

The psychometric value of this method

In the study carried out on 239 students using the first version of the method, Cronbach's α reliability coefficient equalled .96, which indicates the high reliability of the test (Russell, Peplau, & Ferguson, 1978, p. 292). In its revised version, the coefficient was also high, and equalled α = .94. The study based on the third version of the method showed equally good psychometric results, with the reliability coefficient at α = .89–.94 and the consistency ratio, measured after a year, at $r = 0.73$ (Russell et al., 1978; Hartshorne, 1993; Russell, 1996; Cramer & Barry, 1999).

The accuracy of the scale was also confirmed in the study, which showed significant correlations between the results obtained by the UCLA scale and the declared levels of loneliness and depression. It was also revealed that patients who had undergone clinical treatment due to the sense of loneliness they experienced, scored much higher on the UCLA scale.

ISBN 978-83-940389-1-5

Chapter 4
The Presentation and Analysis of the Author's Own Research Results

This chapter presents the results obtained in the author's own research, as conducted among teenagers from Polish and Ukrainian secondary schools. For clarity and ease of interpretation, these will be described according to a consistent structure, i.e. broken down on the basis of the three general hypotheses in this research project—H1, H2, and H3 as specified in the opening of Chapter 3. First, the chapter will present the scores obtained by Polish secondary-school students, broken down into three groups, as established on the basis of their school grades; then, according to the same principle, the chapter will discuss the scores of secondary-school students from Ukraine; and finally it will compare both groups of data on the students from both countries, exhibiting different levels of school performance. All statistically significant differences revealed during the assessment will be visualised in charts.

Before the individual research hypotheses were tested, the author carried out a general analysis of the relationships between the investigated variables and scholastic performance of students in Poland and Ukraine. A correlational analysis showed that the Polish group exhibited a positive and statistically significant correlation between the scores on conscientiousness and those in learning. The group of students from Ukraine demonstrated the existence of a statistically significant positive correlation between learning performance and openness to new experiences; the overall result in the Two-Dimensional Emotional Intelligence Inventory (DINEMO-OS) and the scores obtained on the interpersonal (DINEMO-Others) and intrapersonal (DINEMO-Me) scales. These correlations are presented in Table 13.

A significance test for the differences between correlations showed the scores obtained in both countries diverged. The differences pertain to the results obtained in the overall score for the DINEMO-WO and its intrapersonal scale (DINEMO-Me), as well as in the openness-to-new-experiences factor. It also revealed the existence of two statistical patterns, one in the score obtained on the UCLA scale (the sense of solitude) and the other in the extroversion factor. These data are presented in the table below.

Table 13. The Relationship Between the Personal Maladjustment, Sense of Solitude, Emotional Intelligence, Social Skills, Personality Traits and Scholastic Performance of Ukrainian and Polish Students

	Country						*Significance test for the differences between correlates*	
	Poland			*Ukraine*				
	r	*p*	*N*	*r*	*p*	*N*	*z*	*p*
Sense of solitude	.11	.108	207	-.08	.342	152	1.769	.077
DINEMO-Others	.02	.774	210	.17	.041	152	1.373	.170
DINEMO-Me	-.07	.349	210	.22	.007	152	2.658	.008
DINEMO-OS	-.01	.860	210	.24	.004	152	2.341	.019
Neuroticism	.03	.621	209	.02	.790	146	0.110	.912
Extroversion	-.09	.197	209	.10	.246	146	1.723	.085
Openness to new experiences	.03	.681	209	.35	.000	146	3.039	.002
Agreeableness	.07	.285	209	.12	.139	146	0.455	.649
Conscientiousness	.26	.000	209	.13	.110	146	1.166	.243

Note. DINEMO-Others – the interpersonal scale in the Two-Dimensional Emotional Intelligence Inventory; DINEMO-Me – the intrapersonal scale in the Two-Dimensional Emotional Intelligence Inventory; DINEMO-WO – the overall score in the Two-Dimensional Emotional Intelligence Inventory.

Below you will find the results of the statistical analyses conducted to verify the five research hypotheses formulated earlier.

1. Results on the emotional intelligence variable

The first hypothesis—*people with strong scholastic performance exhibit lower levels of emotional intelligence as compared to people with average scholastic performance*—was examined using the Multivariate Analysis of Variance (MANOVA). It was employed to confirm whether there are any differences between the groups of students with different scholastic performance (groups with high, average, and low mean grades) in terms of emotional intelligence measured by the Two-Dimensional Emotional Intelligence Inventory (DINEMO) by Matczak, Jaworowska, Ciechanowicz, Stańczak, and Zalewska.

1.1. Emotional intelligence in the group of students from Poland

The table below presents statistics on the emotional intelligence in the group of students from Poland.

Table 14. A Comparison of the Results Generated on the Two-Dimensional Emotional Intelligence Inventory (DINEMO) by Students from Poland with Different Levels of Scholastic Performance—a Multivariate Analysis of Variance

	Scholastic performance										
	Poor (n = 58)		*Average (n = 122)*		*Strong (n = 30)*				*Eta-squared*	*Contrast results*	
	M	*SD*	*M*	*SD*	*M*	*SD*	*F*	*p*		*P-S*	*A-S*
DINEMO--Others	9.74	4.05	11.19	4.25	8.37	6.24	5.484	.005	.05	.179	.003
DINEMO-Me	7.38	2.69	7.66	2.93	6.13	4.33	2.900	.057	.03	.076	.017

Note. MANOVA: Wilks' lambda = 0.942; p = .015; eta-squared = .03. DINEMO-Others – the interpersonal scale of the DINEMO questionnaire; DINEMO-Me – the intrapersonal scale of the DINEMO questionnaire.

Statistically significant differences were observed in terms of emotional intelligence between the Polish groups with different scholastic performance (p = .015). The analysis of individual dimensions revealed an important difference in the DINEMO-Others scale (p = .005) and a pattern in DINEMO-Me (p = .057).

A contrast analysis performed for the DINEMO-Others scale showed a statistically significant difference between the scores by the group with high mean grades, and those by the group with average scholastic performance (p = .003). The contrast analysis of the DINEMO-Me scale also showed a similar discrepancy (between the scores of the students in the groups with strong and average performance; p = -.017). These correlations are presented in the chart below.

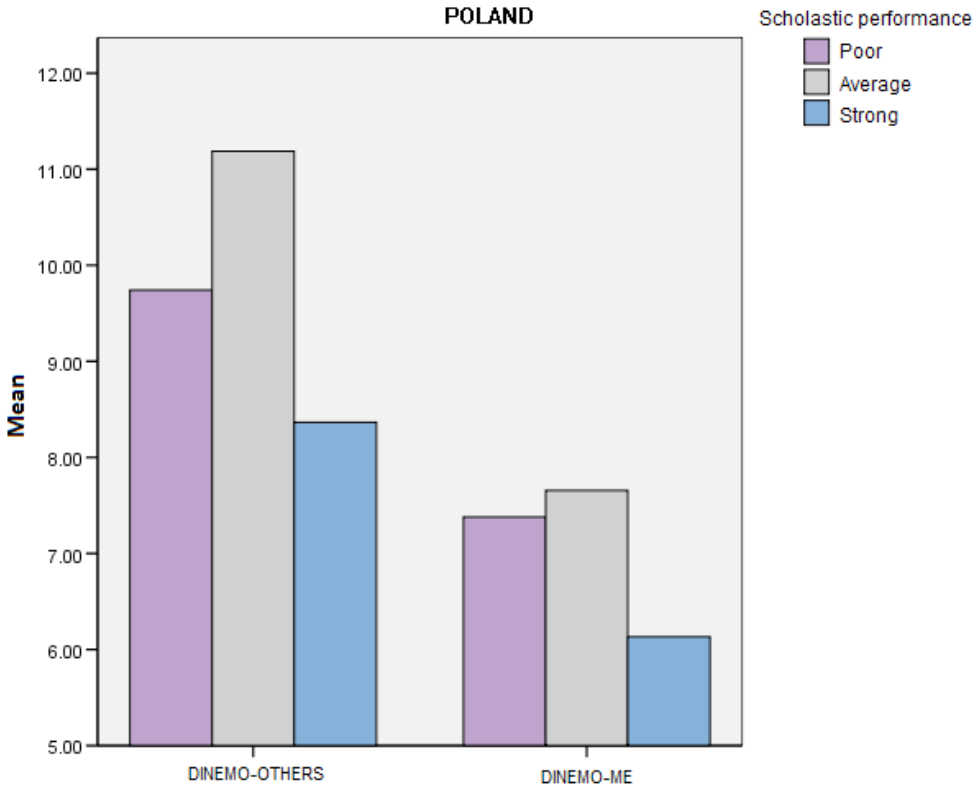


Figure 12. Mean scores obtained in the interpersonal (OTHERS) and intrapersonal (ME) scales of the Two-Dimensional Emotional Intelligence Inventory by Polish students with different scholastic performance.

The data presented in the chart shows that both on the DINEMO-Me and the DINEMO-Others scales, a group of students with average scholastic performance achieved higher grades compared to those with high and low mean grades.

An analysis of variance, as carried out for the overall result in DINEMO, confirms these conclusions. It was noted that students with different scholastic performance also differed in terms of emotional intelligence, $F(2, 207) = 4.884$, $p = .008$, $\eta^2 = .045$. Relevant differences were observed between students with high and average grades ($p = .003$), as illustrated in the chart below.

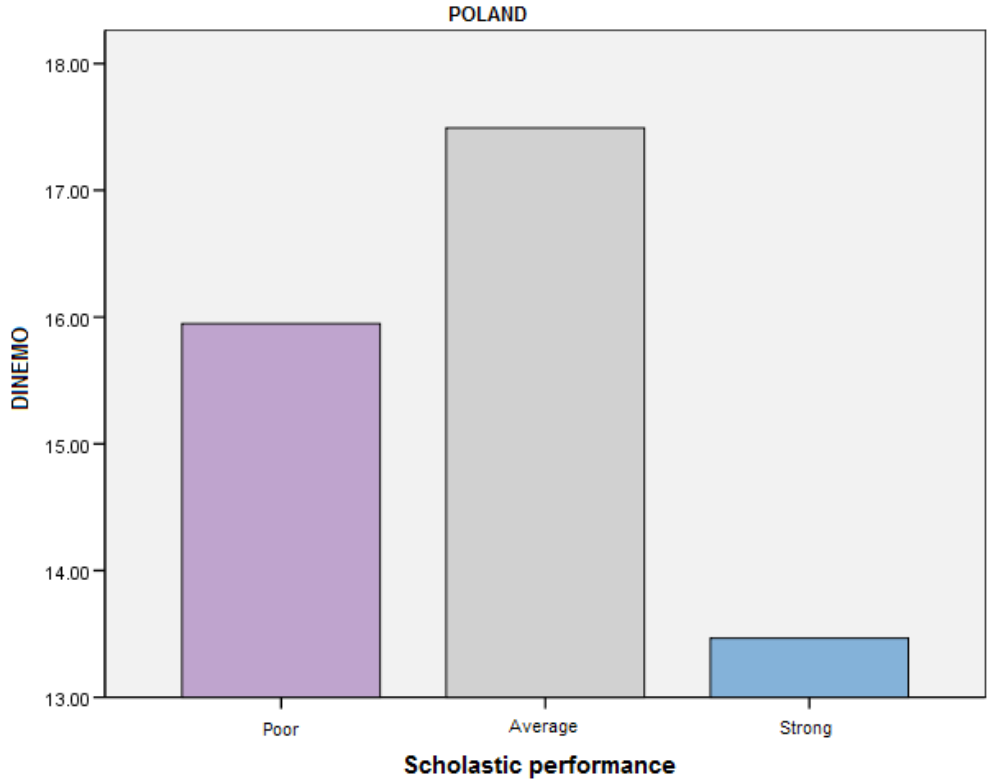


Figure 13. Mean scores obtained in the Two-Dimensional Emotional Intelligence Inventory by Polish students with different scholastic performance.

1.2. Emotional intelligence in the group of students from Ukraine

Table 15 presents the scores obtained in the Two-Dimensional Emotional Intelligence Inventory by Ukrainian students with different scholastic performance.

Table 15. A Comparison of the Scores Generated on the Two-Dimensional Emotional Intelligence Inventory (DINEMO) by Students from Ukraine with Different Levels of Scholastic Performance—a Multivariate Analysis of Variance

	Scholastic performance										
	Poor (n = 38)		*Average (n = 83)*		*Strong (n = 31)*					*Contrast results*	
	M	*SD*	*M*	*SD*	*M*	*SD*	*F*	*P*	*Eta-squared*	*P-S*	*A-S*
DINEMO--Others	9.03	4.41	10.64	3.61	11.03	3.83	3.070	.049	.040	.030	.621
DINEMO--Me	5.42	2.38	6.40	2.03	6.81	2.04	4.157	.018	.053	.008	.362

Note. MANOVA: Wilks' lambda = .929; p = .027; eta-squared = .036. DINEMO-Others – the interpersonal scale; DINEMO-Me – the intrapersonal scale.

As shown in the table above, there are differences in emotional intelligence between students with different scholastic performance (p = .027). They were found both on the DINEMO-Me (p = .049) and in the DINEMO-Others (p = .018) scales. Both cases were subject to a contrast analysis. It revealed that the observed differences appeared between the groups of students with strong and poor scholastic performance on both scales of the Two-Dimensional Emotional Intelligence Inventory. These relations are illustrated in the chart below.

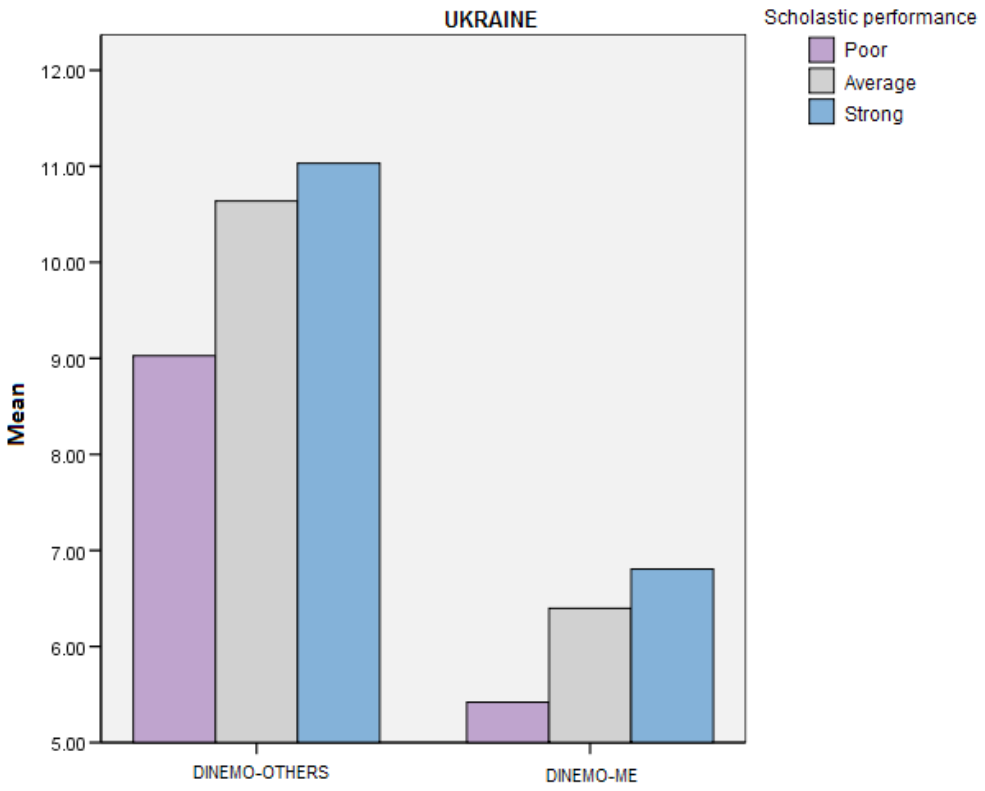


Figure 14. Mean scores obtained on the interpersonal (OTHERS) and intrapersonal (ME) scales of the Two-Dimensional Emotional Intelligence Inventory by Ukrainian students with different scholastic performance.

Ukrainian students with high mean grades obtained statistically significant higher grades in both scales of the Two-Dimensional Emotional Intelligence Inventory than their peers characterised by poor scholastic performance.

The analysis of variance found differences between students with different scholastic performance in terms of the overall scores obtained in DINEMO, $F(2, 149) = 5.312$, p = .006, η^2 = .067. The observed difference, similarly to the DINEMO-Me and DINEMO-Others scales, applies to the groups of people with high and low mean grades (p = .004).

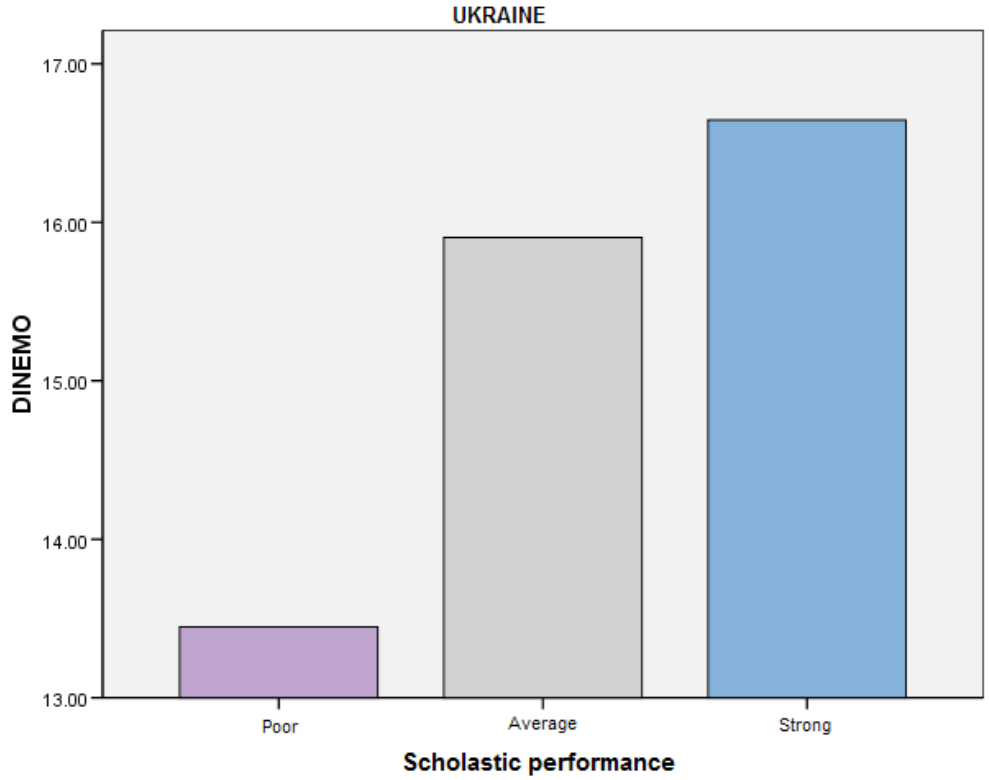


Figure 15. Mean scores obtained in the Two-Dimensional Emotional Intelligence Inventory by Ukrainian students with different scholastic performance.

Students from Ukraine, characterised by high mean school grades, obtained statistically significant higher overall scores on the Two-Dimensional Emotional Intelligence Inventory than those with poor scholastic performance.

1.3. A comparison of emotional intelligence between the groups of students from Poland and Ukraine

In order to confirm whether there were any significant differences in terms of the overall score in emotional intelligence between Ukrainian and Polish students with different scholastic performance levels, the study employed a two-factor variance analysis. Independent variables included the country, the scholastic-performance level, and the correlation between scholastic performance and the country. The statistical analysis revealed that there were no differences between the countries in terms of emotional intelligence, $F(1, 356) = 0.194$, $p = .66$, $\eta^2 = .001$.

There was, however, a significant correlation between the country and the performance level, $F(2, 356) = 5.069$, $p = .007$, $\eta^2 = .028$). Simple effects tests showed that there are statistically significant differences between students from Poland and Ukraine for poor, $F(1, 94) = 4.862$, $p = .030$, $\eta^2 = 0.049$, and average performance levels, $F(1, 203) = 4.303$, $p = .039$, $\eta^2 = .021$, with high performance exhibiting only a pattern, $F(1, 59) = 2.922$, $p = .093$, $\eta^2 = .047$).

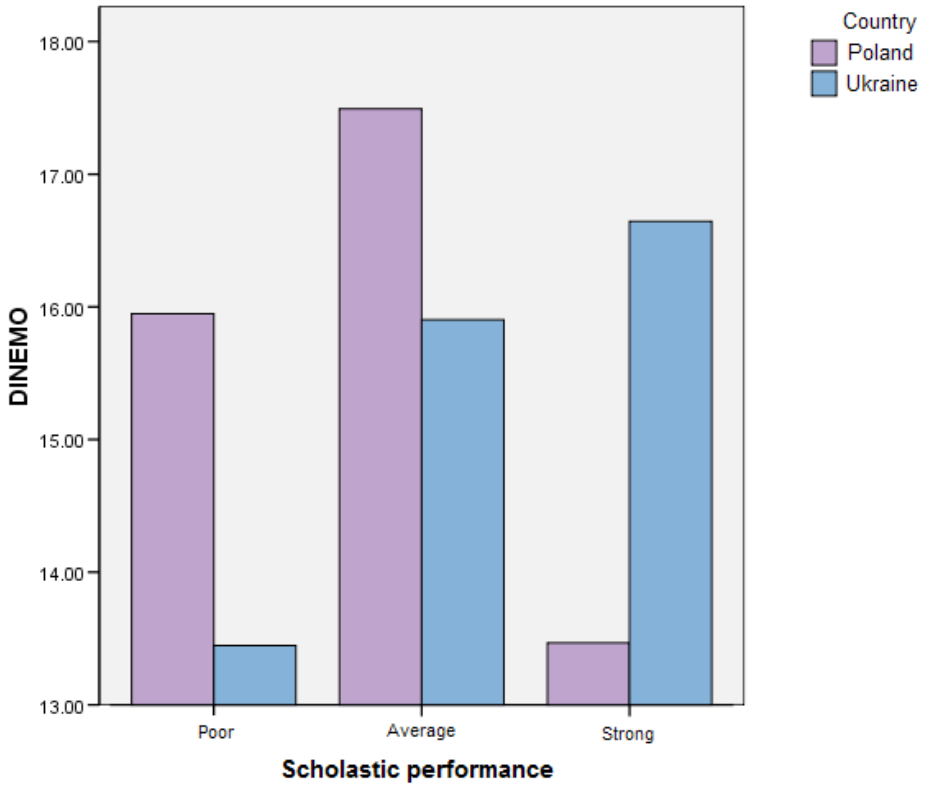


Figure 16. Mean scores obtained in the Two-Dimensional Emotional Intelligence Inventory by Polish and Ukrainian students with different scholastic performance.

As shown in the chart above, in the groups of students with poor and average scholastic performance, higher overall scores on DINEMO were obtained by students from Poland, while in those with high school grades, higher overall scores were obtained by teenagers from Ukraine.

In order to test if there were any differences between groups with different scholastic performance from Poland and Ukraine, the respective DINEMO scales employed the two-factor multivariate analysis of variance. This revealed the effect of a correlation between the country and the group (Wilks' lambda = .970, p = .027, eta-squared = .015). Statistically significant differences were found on the DINEMO-Others, $F(2, 356) = 3.766$, p = .024, η^2 = .021, and DINEMO-Me, $F(2, 356) = 4.414$, p = .013, η^2 = .024, scales. In order to interpret these interactions, the study carried out simple effects tests to compare the differences between Poland and Ukraine in groups with strong, average and poor scholastic performance. In the group of students with low school grades, the only difference was found in the DINEMO-Me scores, $F(1; 94) = 13.328$, p ‹.001, η^2 = .124). The group of students with average educational performance also showed a difference between Poland and Ukraine on the DINEMO-Me scale, $F(1; 203) = 11.540$, p = .001; η^2 = .054). The group with strong scholastic performance demonstrated a difference between both countries on the DINEMO-Others scale, $F(1; 59) = 4.354$, p = .041; η^2 = .069). The aforementioned relations are illustrated in the charts below.

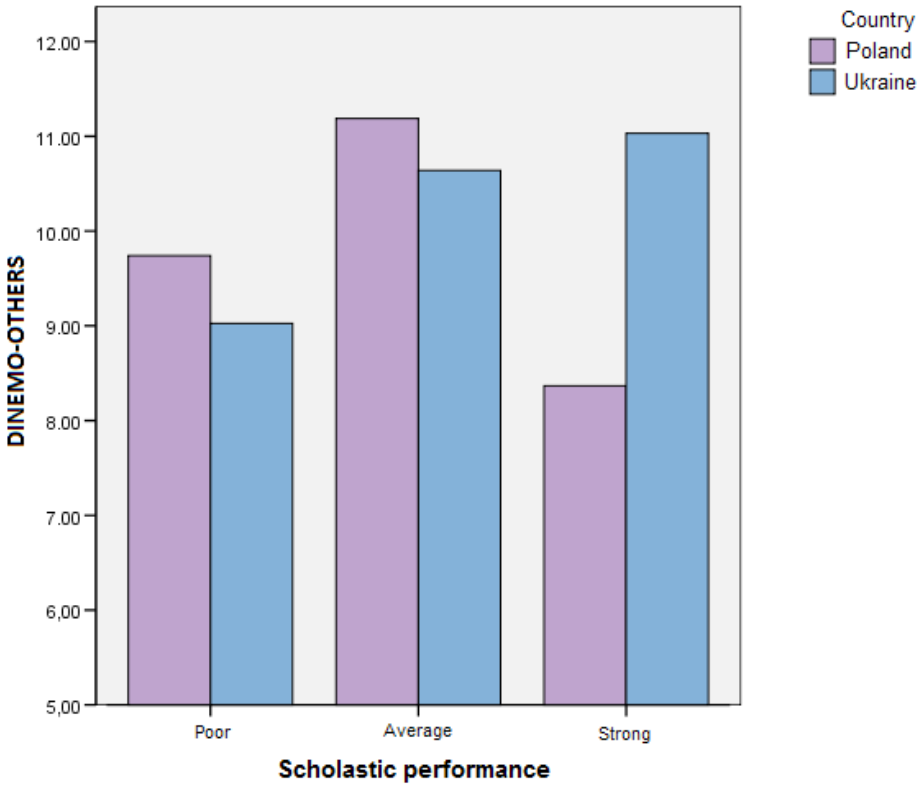


Figure 17. Mean scores obtained on the interpersonal (OTHERS) scale of the Two-Dimensional Emotional Intelligence Inventory by Polish and Ukrainian students with different scholastic performance.

Ukrainian students with high grades obtained higher results, which were statistically significant in the DINEMO-Others, than their peers from Polish secondary schools characterised by strong scholastic performance. These correlations are illustrated in the chart above.

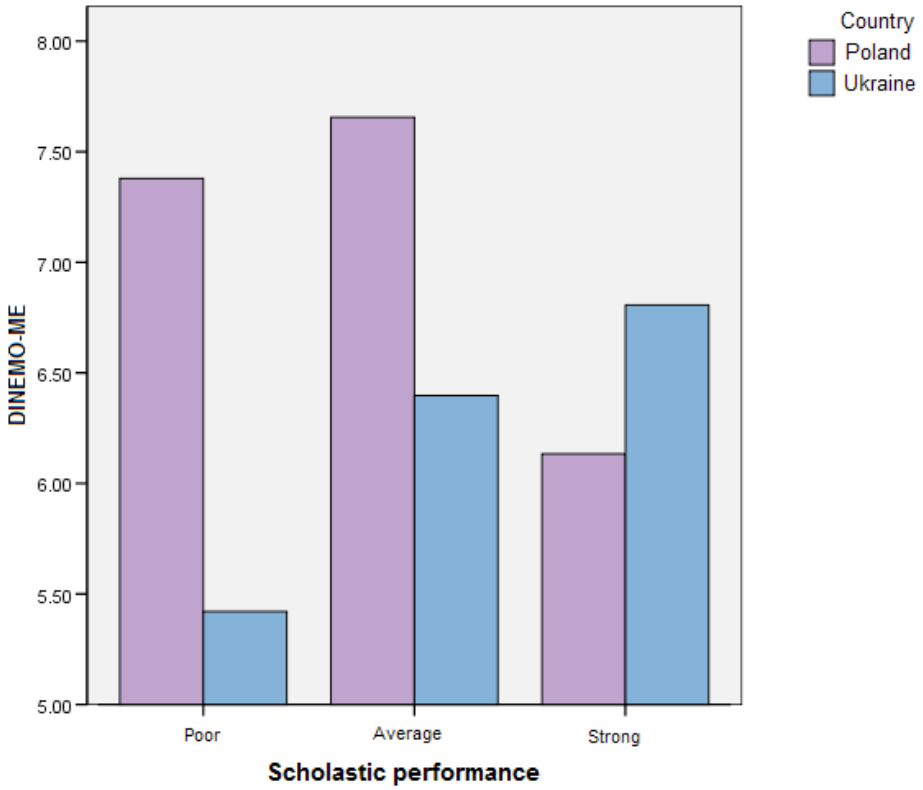


Figure 18. Mean scores obtained on the intrapersonal (ME) scale of the Two-Dimensional Emotional Intelligence Inventory by Polish and Ukrainian students with different scholastic performance.

The data presented in Figure 18 demonstrates that the group of Polish secondary-school students characterised by poor scholastic performance obtained much higher scores on the DINEMO-Me scale than students from Ukraine with low grades. In addition, Polish students with average grades obtained statistically significant higher scores on the DINEMO-Me scale than their Ukrainian peers.

2. The results on the sense-of-solitude variable

In order to examine hypothesis two – *people with strong scholastic performance experience higher levels of the sense of solitude as compared to people with average scholastic performance* – the study used the analysis of variance (ANOVA). The scores obtained by respondents from both countries in Russell's UCLA were subject to statistical analysis to determine whether there were any differences between students with different scholastic performance in terms of their sense of solitude.

2.1. The sense of solitude in the group of students from PolandThe scores obtained by 207 Polish secondary-school students on the UCLA scale are presented in Table 16.

Table 16. A Comparison of the Scores Generated on the Loneliness Scale (UCLA) by Students from Poland with Different Levels of Scholastic Performance—the Analysis of Variance

Scholastic performance									*Contrast results*	
Poor (n = 56)		*Average (n = 121)*		*Strong (n = 30)*						
M	*SD*	*M*	*SD*	*M*	*SD*	*F*	*p*	*Eta-squared*	*P-S*	*A-S*
37.48	8.43	38.22	9.55	42.3	11.84	2.684	.071	.026	.028	.039

The contrast analysis showed significant differences between the groups of students with strong and poor scholastic performance in terms of the sense of solitude (p = .028). This method also revealed a statistically significant difference between people with average and high school grades in respect of the experienced sense of solitude (p = .039).

As illustrated on the chart below, the students from Poland characterised by high mean grades obtained significantly higher scores on the UCLA scale than their peers with poor or average scholastic performance.

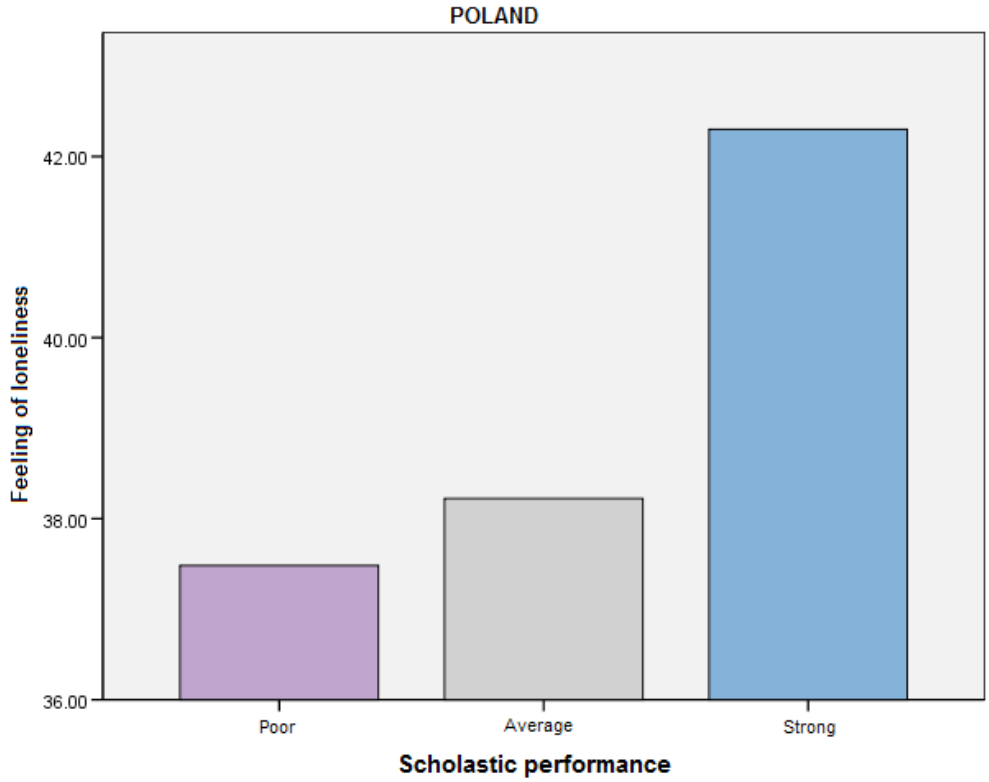


Figure 19. Mean scores obtained on the Loneliness Scale by Polish students with different scholastic performance.

2.2. The sense of solitude in the group of students from Ukraine

As shown by data presented in Table 17, no significant differences in terms of the experienced sense of solitude (p = .766) were observed between the three groups of Ukrainian students, as identified on the basis of their scholastic performance.

Table 17. A Comparison of the Scores Generated on the Loneliness Scale (UCLA) by Students from Ukraine with Different Levels of Scholastic Performance—the Analysis of Variance

Scholastic performance								
Poor (n = 38)		*Average (n = 83)*		*Strong (n = 31)*				
M	*SD*	*M*	*SD*	*M*	*SD*	*F*	*p*	*Eta-squared*
40.16	8.65	39.28	9.24	40.59	10.26	0.267	.766	.004

2.3. A comparison of the sense of solitude between the groups of students from Poland and Ukraine

In order to determine whether there are any differences in terms of the sense of solitude experienced by Polish and Ukrainian students with poor, average and strong scholastic performance, the two-factor analysis of variance (MANOVA) was employed. The calculations done for this study revealed a lack of correlation between the country and the group, $F(2, 353) = .978$, $p = .377$, $\eta^2 = .006$. This allows the conclusion that there are no statistically significant differences between the groups of students in these two countries with different levels of scholastic performance.

3. The results on the personality variable

Below you will find the results of the multivariate analysis of variance, as employed to verify hypothesis three, i.e. *there is a relationship between the level of scholastic achievement and the personality traits identified in students by Costa and McCrae, i.e. students with strong scholastic performance are more neurotic, introverted, open to new experiences, agreeable and conscientious than those performing at an average level at school.* Statistical analysis was conducted for the scores obtained by students from Poland and Ukraine in the NEO-PI-R by Costa Jr. and McCrae.

3.1. The personality of students from Poland

Table 18 presents the NEO-PI-R scores as obtained by teenagers with different scholastic performance studying in Polish secondary schools. The presented data were obtained on the basis of the multivariate factor analysis.

Table 18. A Comparison of the Results Generated in the NEO-PI-R by Students from Poland with Different Levels of Scholastic Performance—a Multivariate Analysis of Variance

	Scholastic performance										
	Poor (n = 58)		*Average (n = 121)*		*Strong (n = 30)*					*Contrast results*	
	M	*SD*	*M*	*SD*	*M*	*SD*	*F*	*p*	*Eta--squared*	*P-S*	*A-S*
N	99.15	20.32	102.75	24.33	104.67	20.93	0.721	.487	.007	.284	.681
E	116.07	21.39	113.64	22.19	111.00	23.01	0.546	.580	.005	.309	.559
O	114.59	19.29	113.19	18.33	117.23	15.91	0.609	.545	.006	.521	.280
A	103.21	19.78	109.45	16.29	106.33	19.04	2.487	.086	.024	.434	.389
C	100.67	18.09	111.96	21.46	114.93	19.79	7.396	.001	.067	.002	.474

Note. MANOVA: Wilks' lambda = .900; p = .018; eta-squared = .051. N – neuroticism; E – extroversion; O – openness to new experiences; A – agreeableness; C – conscientiousness.

As shown in the table above, there are some statistically significant differences between students with different levels of scholastic performance (p = .018) in terms of their personality traits, as measured in the NEO-PI-R. An in-depth analysis of the data revealed that the identified groups were differentiated by their scores on the scale measuring their level of conscientiousness (*C*, p = .001). The contrast analysis carried out on the pairs of groups of students with strong and poor, and average and strong scholastic performance, revealed that there was a statistically significant difference between those with high and low mean grades (p = .002). As shown in the chart below, significantly higher scores on the conscientiousness factor were obtained by individuals characterised by high mean grades.

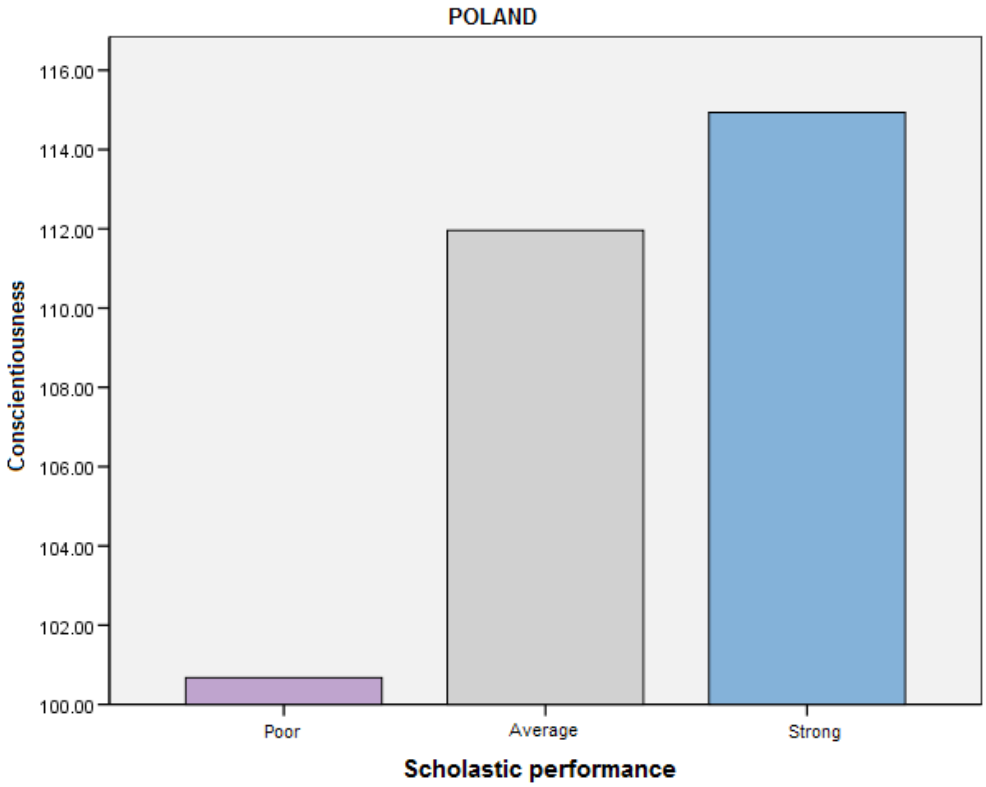


Figure 20. Mean scores obtained in the NEO-PI-R by Polish students with different scholastic performance.

For a more detailed exploration of the issue of personality traits exhibited by students with different grades, the study juxtaposed their scores for the six facets of each of the five factors within the model.

The facets of neuroticism

The table below presents the scores obtained for the six facets of the neuroticism factor. These data were obtained on the basis of a multivariate analysis of variance.

Table 19. A Comparison of the Scores Obtained for the Elements of the Neuroticism Factor in the NEO-PI-R by Students from Poland with Different Levels of Scholastic Performance—a Multivariate Analysis of Variance

	Scholastic performance										
	Poor (n = 58)		*Average (n = 121)*		*Strong (n = 30)*				*Eta-squared*	*Contrast results*	
	M	*SD*	*M*	*SD*	*M*	*SD*	*F*	*p*		*P-S*	*A-S*
N1 Anxiety	16.60	4.87	18.20	5.71	18.97	6.14	2.311	.102	.022	.060	.503
N2 Angry Hostility	16.67	4.06	15.93	4.86	15.73	3.44	0.659	.519	.006	.352	.826
N3 Depression	16.64	4.99	17.85	6.20	18.10	6.19	0.983	.376	.009	.271	.836
N4 Self-Consciousness	16.31	4.87	18.00	5.29	19.47	4.74	4.153	.017	.039	.006	.160
N5 Impulsiveness	17.72	4.31	17.21	4.18	15.50	3.80	2.909	.057	.027	.019	.045
N6 Vulnerability	15.20	4.65	15.54	5.63	16.90	5.33	1.046	.353	.010	.160	.215

Note. MANOVA: Wilks' lambda = .893; p = .027; eta-squared = .055.

Polish secondary-school students with different levels of scholastic performance differ in terms of neuroticism facets (p = .027). A significant difference was observed in the Self-Conscientiousness element (p = .017) and there was pattern in the Impulsiveness facet (p = .057). A contrast analysis revealed that the above-mentioned differences appeared between the groups of students with poor and strong scholastic performance (for both facets) and between the groups of people with average and strong performance (for Impulsiveness). These relations are illustrated in the chart below.

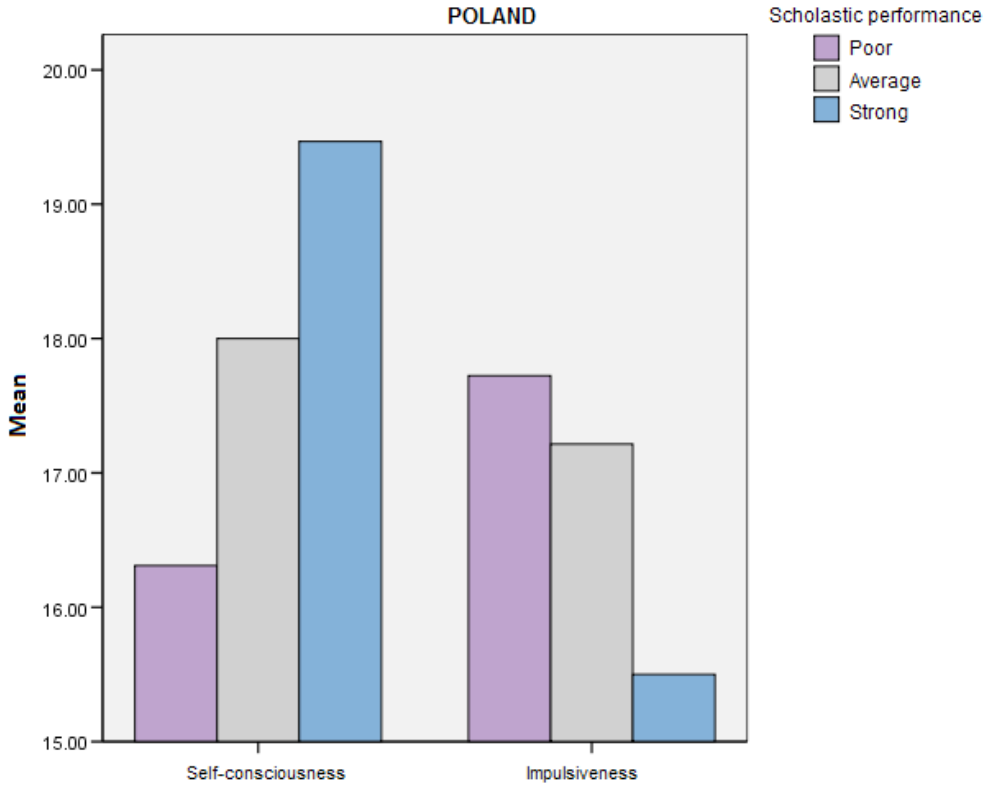


Figure 21. Mean scores obtained for neuroticism facets Self-Conscientiousness and Impulsiveness in the NEO-PI-R, by Polish students with different scholastic performance.

Students characterised by high mean school grades obtained statistically significant higher scores for Self-Conscientiousness compared to the group of students with low grades. At the same time, talented secondary-school students exhibited significantly higher levels of Impulsiveness than their peers with average and poor scholastic performance.

The facets of extroversion

Table 20. A Comparison of the Scores Obtained for the Elements of the Extroversion Factor in the NEO-PI-R by Students from Poland with Different Levels of Scholastic Performance—a Multivariate Analysis of Variance

	Scholastic performance										
	Poor (n = 58)		*Average (n = 121)*		*Strong (n = 30)*					*Contrast results*	
	M	*SD*	*M*	*SD*	*M*	*SD*	*F*	*p*	*Eta-squared*	*P-S*	*A-S*
E1 Warmth	21.22	4.76	21.86	4.21	20.47	4.33	1.350	.261	.013	.444	.121
E2 Gregariousness	18.38	5.64	18.32	6.18	18.07	6.10	0.028	.972	.000	.818	.835
E3 Assertiveness	15.09	5.12	15.35	5.60	16.67	5.90	0.873	.419	.008	.204	.245

	Scholastic performance										
	Poor (n = 58)		*Average (n = 121)*		*Strong (n = 30)*					*Contrast results*	
	M	*SD*	*M*	*SD*	*M*	*SD*	*F*	*p*	*Eta-squared*	*P-S*	*A-S*
E4 Activity	20.14	4.35	19.67	4.64	19.47	4.20	0.292	.747	.003	.508	.825
E5 Excitement-Seeking	19.91	5.83	17.59	4.95	16.83	6.02	4.702	.010	.044	.011	.492
E6 Positive Emotions	21.33	4.03	20.84	4.98	19.50	4.20	1.564	.212	.015	.081	.156

Note. MANOVA: Wilks' lambda = .898; p = .040; eta-squared = .052.

The study also observed differences between the scores for extroversion facets, as obtained by three groups of students from Poland (p = .040). A more-detailed analysis showed that these differences were found only in the Excitement-Seeking facet (p = .010). As evidenced by the contrast analysis, this score differentiates between the groups of people with poor and strong scholastic performance (p = .011). The above-mentioned data are presented in the table above and in Figure 22.

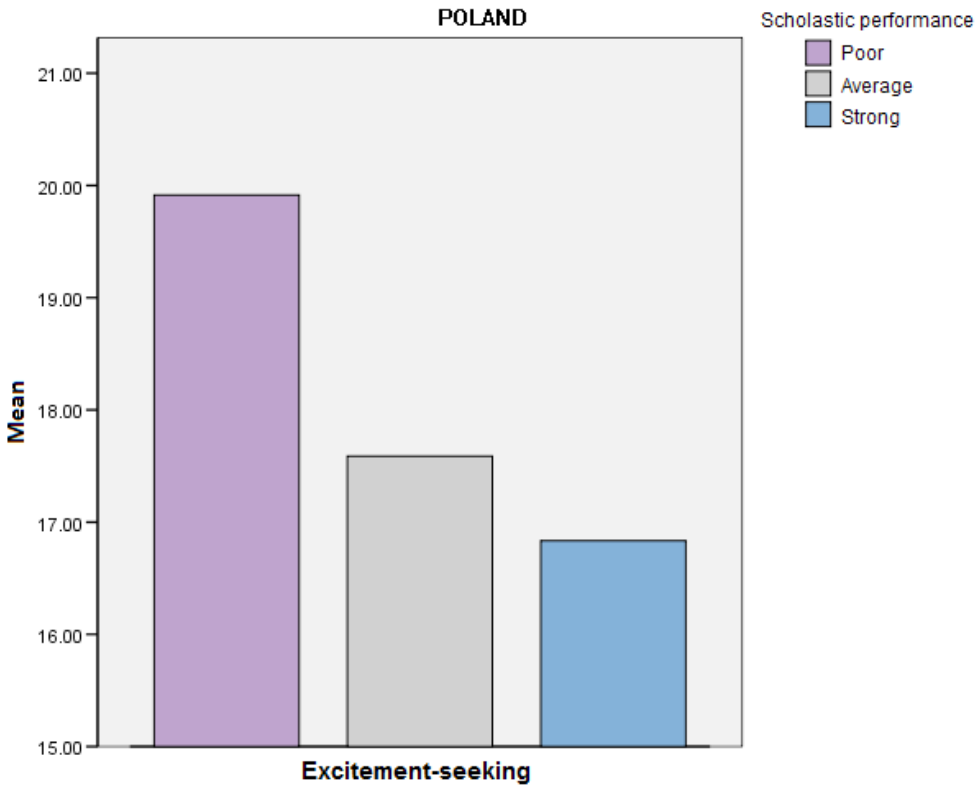


Figure 22. Mean scores obtained for the extroversion factor in the NEO-PI-R by Polish students with different scholastic performance.

As shown in the chart above, students from the group with high average school grades obtained markedly lower scores for Excitement-Seeking than their peers with poor scholastic performance.

The facets of openness to new experiences

The data in Table 21 show that the scores obtained for the facets of openness to new experiences by Polish secondary-school students with different scholastic performance do not differentiate between the three groups.

Table 21. A Comparison of the Scores Obtained for the Elements of the Openness to New Experiences Factor in the NEO-PI-R by Students from Poland with Different Levels of Scholastic Performance—a Multivariate Analysis of Variance

	Scholastic performance								
	Poor (n = 58)		*Average (n = 121)*		*Strong (n = 30)*				
	M	*SD*	*M*	*SD*	*M*	*SD*	*F*	*p*	*Eta-squared*
O1 Fantasy	20.22	5.57	19.53	5.03	19.60	5.60	0.352	.703	.003
O2 Aesthetics	17.88	4.63	18.35	6.09	17.03	5.20	0.701	.497	.007
O3 Feelings	20.74	5.08	20.59	4.79	20.97	4.28	0.077	.926	.001
O4 Actions	17.03	4.26	16.60	4.46	17.93	4.81	1.099	.335	.011
O5 Ideas	19.00	5.41	18.99	5.09	21.13	4.76	2.225	.111	.021
O6 Values	19.71	4.31	19.11	3.92	20.57	4.29	1.631	.198	.016

Note. MANOVA: Wilks' lambda = .933; p = .295; eta-squared = .034.

The facets of agreeableness

Table 22 presents the scores for agreeableness facets in groups of students with poor, average and strong scholastic performance.

Table 22. A Comparison of the Scores Obtained for the Elements of the Agreeableness Factor in the NEO-PI-R by Students from Poland with Different Levels of Scholastic Performance—a Multivariate Analysis of Variance

	Scholastic performance								
	Poor (n = 58)		*Average (n = 121)*		*Strong (n = 30)*				
	M	*SD*	*M*	*SD*	*M*	*SD*	*F*	*p*	*Eta-squared*
A1 Trust	17.14	5.19	17.56	4.25	16.77	4.39	0.439	.645	.004
A2 Straightforwardness	16.62	4.79	18.54	5.09	17.50	5.95	2.833	.061	.027
A3 Altruism	20.09	4.67	20.59	4.32	19.33	4.66	1.027	.360	.010
A4 Compliance	14.02	5.24	15.32	5.13	15.87	4.54	1.756	.175	.017
A5 Modesty	17.19	5.05	18.43	5.42	18.47	6.02	1.113	.330	.011
A6 Tendermindedness	18.15	3.73	19.00	2.97	18.40	3.06	1.489	.228	.014

Note. MANOVA: Wilks' lambda = .942; p = .439; eta-squared = .029.

The data provided above demonstrate that there are no differences between the three groups of students from Poland in respect of the six facets of the agreeableness factor.

The facets of conscientiousness

Table 23 presents the results of scores obtained by three groups of Polish students in the NEO-PI-R for the six facets of the conscientiousness factor, which, as shown above, differentiates the investigated groups of secondary-school students.

Table 23. A Comparison of the Scores Obtained for the Elements of the Conscientiousness Factor in the NEO-PI-R by Students from Poland with Different Levels of Scholastic Performance—a Multivariate Analysis of Variance

	Scholastic performance										
	Poor (n = 58)		*Average (n = 121)*		*Strong (n = 30)*					*Contrast results*	
	M	*SD*	*M*	*SD*	*M*	*SD*	*F*	*p*	*Eta-squared*	*P-S*	*A-S*
C1 Competence	18.14	3.79	19.83	3.81	19.50	3.74	3.923	.021	.037	.112	.674
C2 Order	15.81	5.23	18.66	5.23	17.47	5.18	5.869	.003	.054	.160	.264
C3 Dutifulness	18.86	4.35	20.86	4.79	22.10	4.76	5.694	.004	.052	.002	.194
C4 Achievement-Striving	17.91	3.95	19.34	4.75	20.70	4.82	3.978	.020	.037	.007	.144
C5 Self-Discipline	16.14	4.32	17.96	5.32	17.93	5.61	2.645	.073	.025	.120	.981
C6 Deliberation	13.81	5.02	15.31	5.56	17.23	4.84	4.199	.016	.039	.005	.078

Note. MANOVA: Wilks' lambda = .868; p = .004; eta-squared = .068.

Statistical calculations revealed that significant differences between the examined groups were found in five out of six facets of the conscientiousness factor. The differences were observed in Competence (p = .021), Order (p = .003), Dutifulness (p = .004), Achievement-Striving (p = .020), and Deliberation (p = .016). The contrast analysis concluded that the scores for Dutifulness, Achievement-Striving, and Deliberation differentiated between the students with poor and strong scholastic performance (p = .002; p = .007; p = .005, respectively). Variation in Competence and Order, on the other hand, differentiated between the groups not covered by the contrast analysis (those with low and average grades).

These differences are presented in Figure 23. It shows that students characterised by high mean school grades obtained significantly higher scores on Dutifulness, Achievement-Striving, and Deliberation than those with low grades.

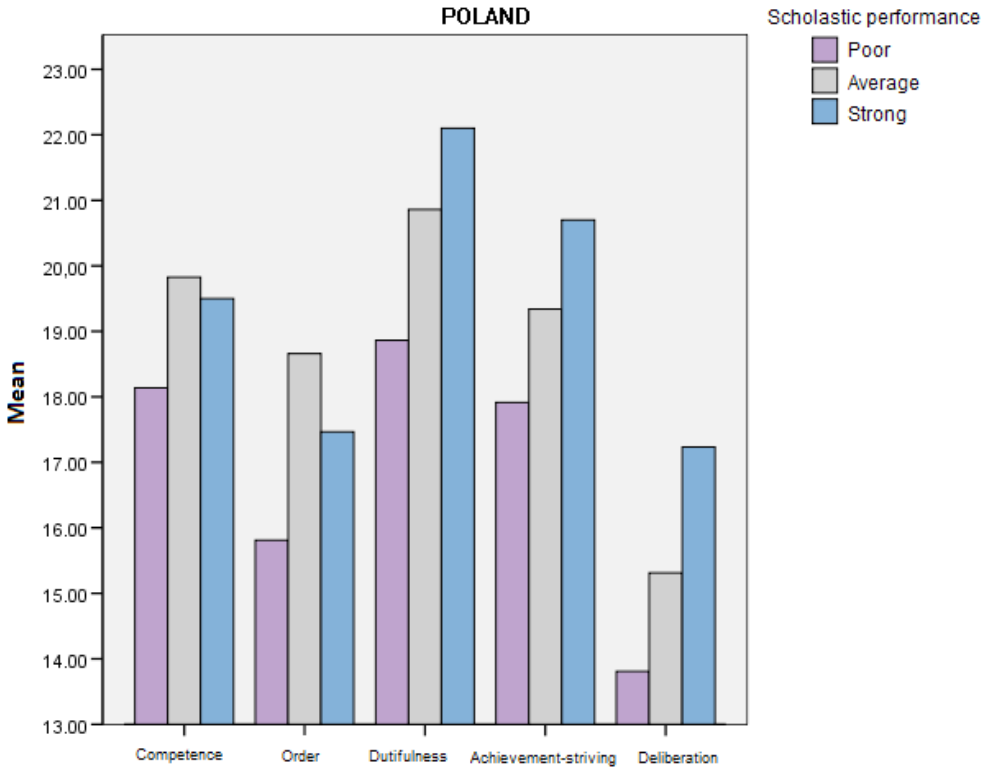


Figure 23. Mean scores obtained for the conscientiousness facets Competence, Order, Dutifulness, Achievement-Striving, and Deliberation in the NEO-PI-R by Polish students with different scholastic performance.

3.2. The personality of students from Ukraine

Below you will find a presentation of scores obtained in the NEO-PI-R by the groups of students from Ukraine with different scholastic performance. First, the study will present the data for the five factors, then these will be supplemented with an analysis of scores for the individual facets of each factor.

Table 24. A Comparison of the Scores Obtained in the NEO-PI-R by Students from Ukraine with Different Levels of Scholastic Performance – a Multivariate Analysis of Variance

	Scholastic performance										
	Poor (n = 38)		*Average (n = 82)*		*Strong (n = 26)*				*Eta-squared*	*Contrast results*	
	M	*SD*	*M*	*SD*	*M*	*SD*	*F*	*p*		*P-S*	*A-S*
N	94.34	14.82	93.27	19.42	96.07	23.55	0.218	.804	.003	.723	.516
E	112.50	13.69	114.40	20.21	113.92	23.99	0.124	.884	.002	.775	.913
O	103.39	13.64	107.01	16.59	118.27	16.97	7.127	.001	.091	.000	.002
A	105.16	13.90	104.56	18.86	109.38	19.48	0.737	.481	.010	.353	.231
C	106.97	18.53	111.30	21.08	113.42	21.44	0.888	.414	.012	.219	.647

Note. MANOVA: Wilks' lambda = .873; p = .039; eta-squared = .066. N – neuroticism; E – extroversion; O – openness to new experiences; A – agreeableness; C – conscientiousness.

The multivariate analysis of variance confirmed the existence of statistically significant differences between personality factors in students with different scholastic performance educated in Ukraine (p = .039). The analysis of individual factors revealed differences in the openness to new experiences (p = .001). This factor differentiates between both the groups of students with low and high mean grades, and those with average and strong scholastic performance (p‹.001 and p = .002, respectively).

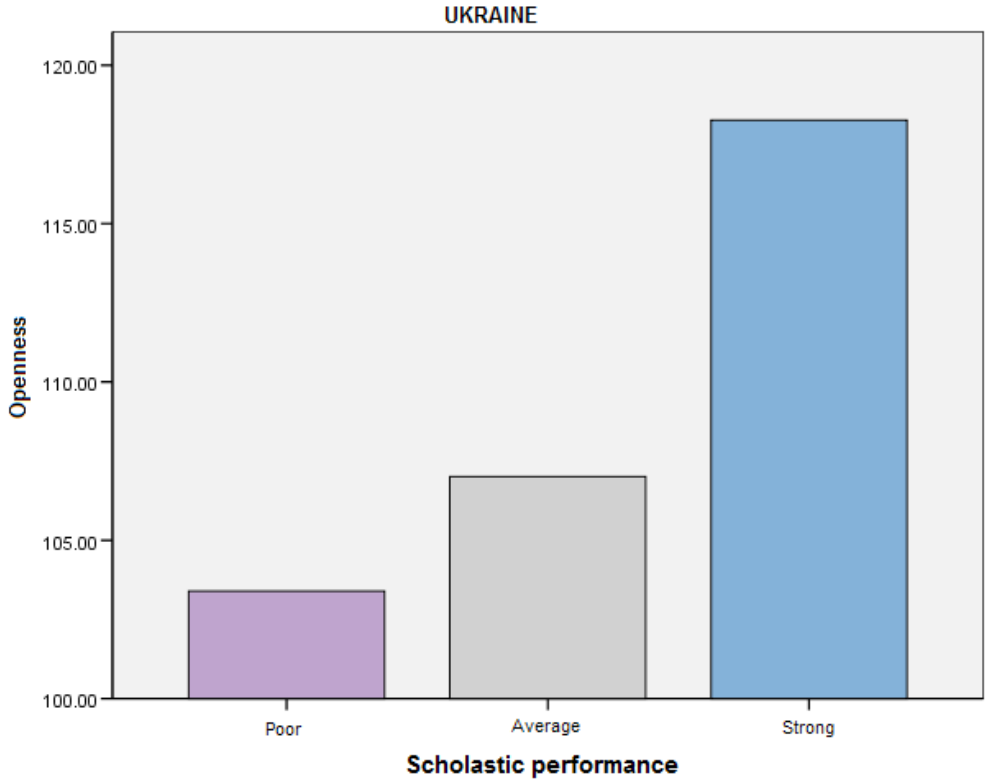


Figure 24. Mean scores obtained for openness to new experiences in the NEO-PI-R by Ukrainian students with different scholastic performance.

As shown by the data presented in Figure 24, students with high mean school grades obtained markedly higher scores for openness to new experiences than their peers from the groups with poor and average performance.

The facets of neuroticism

Table 25. A Comparison of the Scores Obtained for the Elements of the Neuroticism Factor in the NEO-PI-R by Students from Ukraine with Different Levels of Scholastic Performance—a Multivariate Analysis of Variance

	Scholastic performance								
	Poor (n = 38)		*Average (n = 82)*		*Strong (n = 26)*				
	M	*SD*	*M*	*SD*	*M*	*SD*	*F*	*p*	*Eta-squared*
N1 Anxiety	16.16	3.76	16.30	4.45	17.35	5.73	0.627	.536	.009
N2 Angry Hostility	15.95	4.04	15.18	4.76	14.85	4.53	0.541	.583	.008
N3 Depression	16.39	4.18	15.85	4.95	16.35	6.22	0.195	.823	.003
N4 Self-Consciousness	16.58	2.97	16.66	4.35	17.73	4.98	0.747	.476	.010
N5 Impulsiveness	15.39	3.79	15.58	4.09	15.08	3.52	0.170	.844	.002
N6 Vulnerability	13.87	4.29	13.68	4.58	14.73	5.01	0.518	.597	.007

Note. MANOVA: Wilks' lambda = .960; p = .926; eta-squared = .020.

As shown in the table above, students with strong, average, and poor scholastic performance do not differ in terms of any of the six facets of neuroticism.

The facets of extroversion

Table 26 presents the scores obtained for extroversion by the group of Ukrainian students in respect of their levels of scholastic performance.

Table 26. A Comparison of the Scores Obtained for the Elements of the Extraversion Factor in the NEO-PI-R by Students from Ukraine with Different Levels of Scholastic Performance—a Multivariate Analysis of Variance

	Scholastic performance										
	Poor (n = 38)		*Average (n = 82)*		*Strong (n = 26)*					*Contrast results*	
	M	*SD*	*M*	*SD*	*M*	*SD*	*F*	*p*	*Eta-squared*	*P-S*	*A-S*
E1 Warmth	22.00	4.60	21.94	4.59	21.69	5.56	0.035	.965	.000	.801	.819
E2 Gregariousness	19.00	4.55	19.34	5.57	17.65	7.35	0.869	.421	.012	.354	.190

	Scholastic performance										
	Poor (n = 38)		*Average (n = 82)*		*Strong (n = 26)*					*Contrast results*	
	M	*SD*	*M*	*SD*	*M*	*SD*	*F*	*p*	*Eta-squared*	*P-S*	*A-S*
E3 Assertiveness	15.10	3.56	15.05	4.54	16.35	5.11	0.898	.410	.012	.272	.194
E4 Activity	17.53	3.40	18.94	3.86	20.11	4.68	3.546	.031	.047	.010	.183
E5 Excite-ment-Seeking	19.05	4.75	18.58	5.19	16.85	5.40	1.560	.214	.021	.093	.133
E6 Positive Emotions	19.81	3.73	20.55	4.22	21.27	5.15	0.909	.405	.013	.185	.456

Note. MANOVA: Wilks' lambda = .868; p = .070; eta-squared = .068.

A multivariate analysis of variance revealed only differences at the level of a statistical pattern (p = .070). An overview of individual facets helped discover one, statistically significant difference in Activity (p = .031). The analysis of contrasts shows that the scores obtained in this facet differentiate the groups of students with poor and strong scholastic performance (p = .010). As illustrated in the chart below, individuals with high grades also recorded markedly higher scores compared to the group with low mean grades.

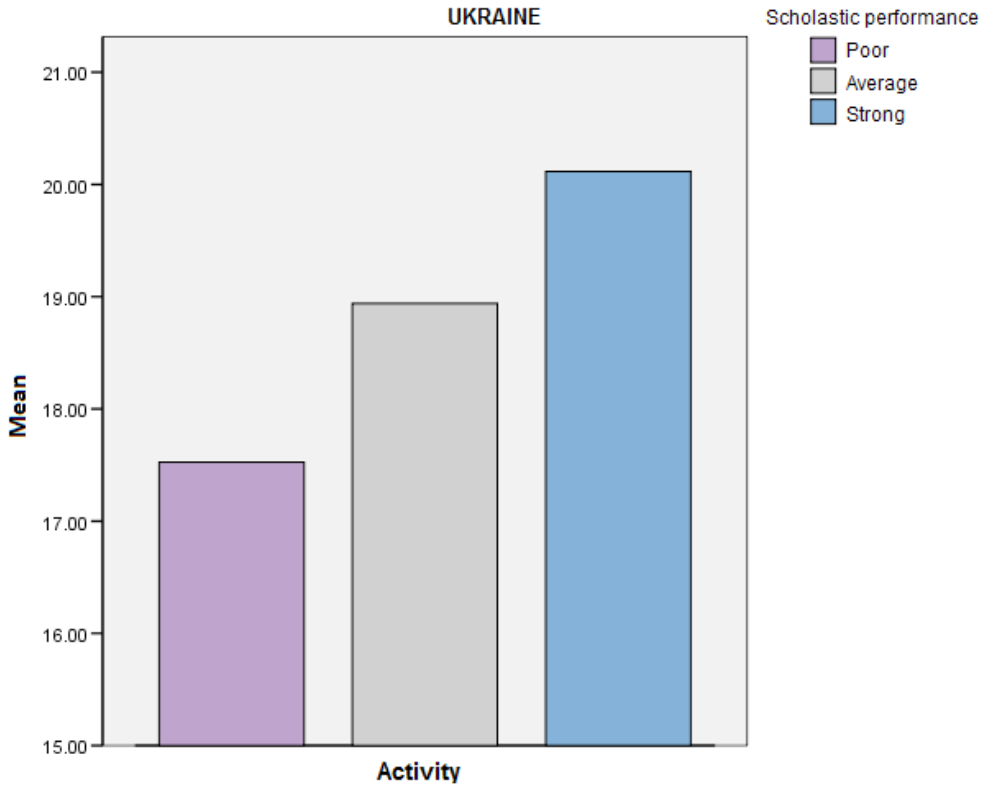


Figure 25. Mean scores obtained for the activity factor in the NEO-PI-R by Ukrainian students with different scholastic performance.

The facets of openness to new experiences

Table 27. A Comparison of the Scores Obtained for the Elements of the Openness to New Experiences Factor in the NEO-PI-R by Students from Ukraine with Different Levels of Scholastic Performance—a Multivariate Analysis of Variance

	Scholastic performance										
	Poor (n = 38)		*Average (n = 82)*		*Strong (n = 26)*				*Eta-squared*	*Contrast results*	
	M	*SD*	*M*	*SD*	*M*	*SD*	*F*	*p*		*P-S*	*A-S*
O1 Fantasy	17.24	3.89	17.90	4.83	19.81	4.99	2.495	.086	.034	.031	.070
O2 Aesthetics	18.55	4.61	19.23	4.32	21.19	6.37	2.442	.091	.033	.033	.072
O3 Feelings	18.18	3.64	19.23	5.01	20.54	4.15	2.076	.129	.028	.044	.204
O4 Actions	15.21	3.68	15.60	3.98	15.73	3.32	0.183	.833	.003	.591	.876
O5 Ideas	17.26	4.40	18.54	5.45	12.85	5.17	6.343	.002	.081	.001	.005
O6 Values	16.95	2.76	16.51	3.38	19.15	3.78	6.334	.002	.081	.010	.001

Note. MANOVA: Wilks' lambda = .846; p = .024; eta-squared = .080.

As shown in the data in Table 27, there are statistically significant differences between the facets of openness to new experiences across the groups of students with strong, average, and poor scholastic performance (p = .024). These differences are found in Ideas and Values (p = .002 for both). The contrast analysis shows that these differences occur between the groups with poor and strong scholastic performance, and students who obtain average and high grades. In addition, the contrast analysis revealed differences in openness to new experiences between the groups with low and high mean grades. These differences were found in Fantasy, Aesthetics, and Feelings (p = .031, p = .033, p = .044, respectively).

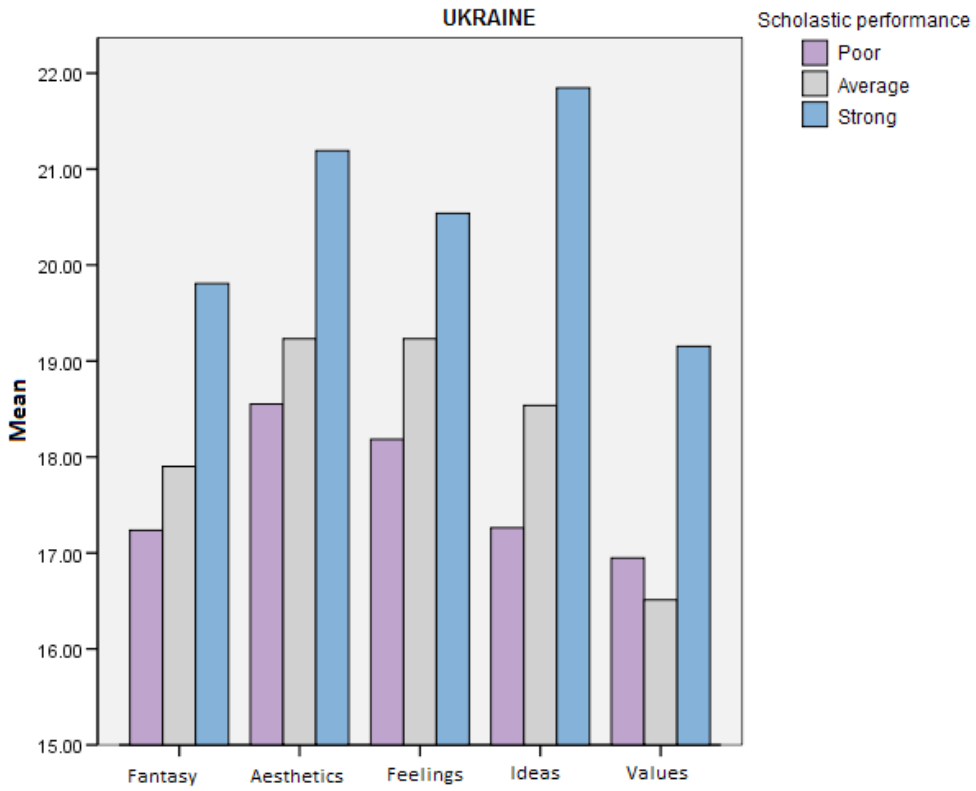


Figure 26. Mean scores obtained for the extroversion facets Fantasy, Aesthetics, Feelings, Ideas, and Values in the NEO-PI-R by Ukrainian students with different scholastic performance.

As shown in the chart above, students characterised by high mean grades obtain markedly higher scores on Ideas and Values than those from the groups with average and low grades. In addition, talented individuals obtained significantly higher scores on Fantasy, Aesthetics, and Feelings than those with average performance.

The facets of agreeableness

As shown in the data below, there are no statistically significant differences between the facets of the agreeableness factor across the groups of the three study groups identified according to the levels of scholastic performance they represent.

Table 28. A Comparison of the Scores Obtained for the Elements of the Agreeableness Factor in the NEO-PI-R by Students from Ukraine with Different Levels of Scholastic Performance—a Multivariate Analysis of Variance

	Scholastic performance								
	Poor (n = 38)		*Average (n = 82)*		*Strong (n = 26)*				
	M	*SD*	*M*	*SD*	*M*	*SD*	*F*	*p*	*Eta-squared*
A1 Trust	17.45	3.80	17.56	4.68	17.92	4.56	0.094	.910	.001
A2 Straightforwardness	17.45	3.67	16.78	4.70	17.04	5.34	0.276	.759	.004
A3 Altruism	20.47	3.85	20.74	4.56	20.69	4.81	0.049	.952	.001
A4 Compliance	15.03	5.08	15.30	4.66	17.15	4.13	1.869	.158	.025
A5 Modesty	15.13	4.03	14.84	4.67	16.35	5.27	1.046	.354	.014
A6 Tendermindedness	19.63	2.93	19.33	3.58	20.23	4.05	0.656	.520	.009

Note. MANOVA: Wilks' lambda = .936; p = .673; eta-squared = .033.

The facets of conscientiousness

Table 29 presents the scores obtained in a multivariate analysis of variance for the six facets of the conscientiousness factor by students from Ukraine.

Table 29. A Comparison of the Scores Obtained for the Elements of the Conscientiousness Factor in the NEO-PI-R by Students from Ukraine with Different Levels of Scholastic Performance—a Multivariate Analysis of Variance

	Scholastic performance										
	Poor (n = 38)		*Average (n = 82)*		*Strong (n = 26)*					*Contrast results*	
	M	*SD*	*M*	*SD*	*M*	*SD*	*F*	*p*	*Eta-squared*	*P-S*	*A-S*
C1 Competence	18.74	2.97	19.62	3.82	19.23	3.96	0.774	.463	.011	.596	.635
C2 Order	17.84	4.05	18.01	4.94	17.96	4.83	0.017	.983	.000	.921	.962
C3 Dutifulness	18.60	4.71	20.02	4.94	21.69	5.43	2.996	.053	.040	.016	.138
C4 Achievement-Striving	17.79	3.95	19.22	4.07	20.61	4.13	3.844	.024	.051	.007	.128
C5 Self-Discipline	17.74	3.80	17.79	5.03	18.58	5.48	0.296	.744	.004	.496	.472
C6 Deliberation	16.26	4.20	16.63	4.74	15.35	5.46	0.729	.484	.010	.449	.230

Note. MANOVA: Wilks' lambda = .868; p = .071; eta-squared = .068.

The statistical analyses employed in this study revealed differences corresponding to a pattern (p = .071). A statistically significant difference was observed in the Achievement-Striving element (p = .024) and there was a pattern in the Dutifulness facet (p = .053). A contrast analysis revealed that the differences between these two facets of conscientiousness were found between the groups with poor and strong scholastic performance.

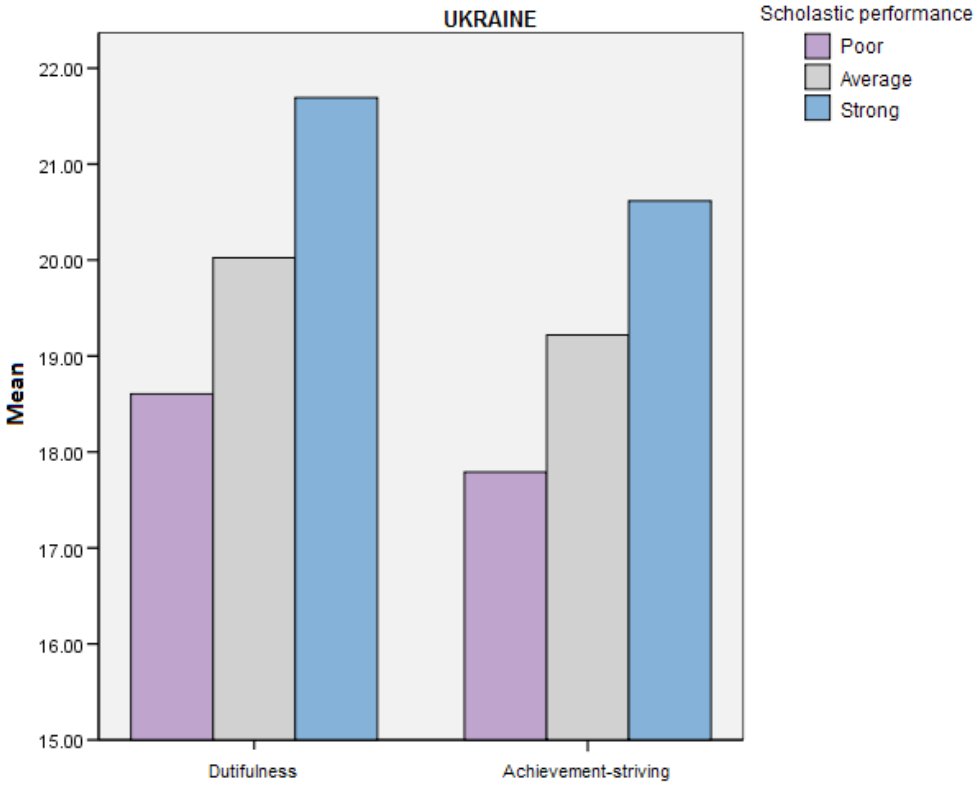


Figure 27. Mean scores obtained for the conscientiousness facets Dutifulness and Achievement-Striving in the NEO-PI-R by Ukrainian students with different scholastic performance.

As shown in the chart above, compared to students characterised by poor scholastic performance, those with high mean grades also obtained markedly higher scores on Dutifulness and Achievement-Striving.

3.3. A comparison of the personalities of students from Poland and Ukraine

The two-factor analysis of variance with the country and scholastic performance, and the correlation between the two as independent variables, showed no differences between the countries in terms of their structures of personality (Wilks' lambda = .965; p = 0.261; eta-squared = .018). No correlation was found between the country and the group in the following five factors: neuroticism $F(2, 349) = 0.377$; p = .686; η^2 = .002, extroversion $F(2, 349) = 0.495$; p = .610; η^2 = .003, openness to new experiences F(,; 349) = 2.153; p = .118; η^2

= .012, agreeableness $F(2, 349) = 1.772$; $p = .171$; $\eta^2 = .010$, and conscientiousness $F(2, 349) = 1.039$; $p = .355$; $\eta^2 = .006$.

For a more in-depth analysis, the study also aimed to verify whether there were any differences between the groups of people with different scholastic performance for the individual facets of each factor within the five factor model of personality.

The facets of neuroticism

The two-factor analysis of variance revealed no effect of correlation between the country and the group (Wilks' lambda = .982; $p = .896$; eta-squared = .009). Nor was it found in any of the neuroticism facets, including Anxiety $F(2,; 349) = 0.628$; $p = .534$; $\eta^2 = .004$, Angry Hostility $F(2, 349) = 0.006$; $p = .994$; $\eta^2 = .000$, Depression $F(2, 349) = 0.799$; $p = .450$; $\eta^2 = .005$, Self-Conscientiousness $F(2, 349) = 1.115$; $p = .329$; $\eta^2 = .006$, Impulsiveness $F(2, 349) = 0.953$; $p = .387$; $\eta^2 = .005$, and Vulnerability $F(2, 349) = 0.136$; $p = .873$; $\eta^2 = 0.001$.

The facets of extroversion

MANOVA did not reveal any evidence of a correlation between the country and the group (Wilks' lambda = .949; $p = .109$; eta-squared = .026). It was also not found in any of the following five facets of extroversion – Warmth $F(2, 349) = 0.423$; $p = .655$; $\eta^2 = .002$, Gregariousness $F(2, 349) = 0.322$; $p = .725$; $\eta^2 = .002$, Assertiveness $F(2, 349) = 0.035$; $p = .966$; $\eta^2 = .000$, Excitement-Seeking $F(2, 349) = 1.006$; $p = .367$; $\eta^2 = .006$, and Positive Emotions $F(2, 349) = 2.315$; $p = .1$; $\eta^2 = .013$. In Activity there was a certain pattern $F(2, 349) = 2.775$; $p = .064$; $\eta^2 = .016$.

The facets of openness to new experiences

The two-factor analysis of variance did not reveal any correlation between the country and the group (Wilks' lambda = .969; $p = .546$; eta-squared = .015). None of the six facets of openness to new experiences exhibited such a correlation – Fantasy $F(2, 349) = 2.348$; $p = .172$; $\eta 2^2 = .010$, Aesthetics $F(2, 349) = 2.348$; $p = .097$; $\eta^2 = .013$, Feelings $F(2; 349) = 0.962$; $p = .383$; $\eta^2 = .005$, Actions $F(2, 349) = .586$; $p = .557$; $\eta^2 = .003$, Ideas $F(2, 349) = 1.033$; $p = .357$; $\eta^2 = .006$, and Values $F(2, 349) = 0.639$; $p = .528$; $\eta^2 = .004$.

The facets of agreeableness

No evidence of correlation was found between the country and the group (Wilks' lambda = .978; $p = .811$; eta-squared = .011). It was also not found in any of the six facets of agreeableness, including Trust $F(2, 349) = 0.358$; $p = .379$; $\eta^2 = .002$, Straightforwardness $F(2, 349) = 2.222$; $p = .110$; $\eta^2 = .013$, Altruism $F(2, 349) = 0.400$; $p = .671$; $\eta^2 = .002$, Compliance $F(2, 349) = 0.568$; $p = .567$; $\eta^2 = .003$, Modesty $F(2, 349) = 0.916$; $p = .401$; $\eta^2 = .005$, and Tendermindedness $F(2, 349) = 1.594$; $p = .205$; $\eta^2 = .009$.

The facets of conscientiousness

The two-factor analysis of variance revealed no effect of correlation between the country and the group (MANOVA; Wilks' lambda = .959; p = .275; eta-squared = .021). Nor was it found in five out of six facets of conscientiousness, including Competence $F(2, 349)$ = 0.404; p = .668; η^2 = .002, Order $F(2, 349)$ = 2.247; p = .107; η^2 = .013, Dutifulness $F(2, 349)$ = 0.129; p = .879; η^2 = .001, Achievement-Striving $F(2, 349)$ = 0.000; p = 1.000; $\eta 2^2$ = .000, and Self-Discipline $F(2, 349)$ = 0.988; p = .373 η^2 = .006. Deliberation, in turn, showed statistically significant differences $F(2, 349)$ = 3.254; p = .040; η^2 = .018. In order to interpret this correlation a contrast analysis was performed which showed that there was a difference between a pair of the group of students not covered by the analysis (secondary-school students with average and poor scholastic performance).

ISBN 978-83-940389-1-5

Chapter 5
The Verification of the Hypotheses and an Attempt at Interpreting the Findings

This final chapter is an attempt at a psychological interpretation of the findings obtained by the author on the basis of her own research, as presented and examined in the previous chapter. It endeavours to explain the resulting empirical data against the literature on the subject and studies cited in the theoretical part of this paper. In addition to putting the findings in the context of well-established facts regarding the way people with strong scholastic performance operate psychologically, this chapter will explore the possible applications of these study outcomes.

The first research question raised in this work asked if there were any differences in the psychological functioning of students with varying scholastic performance. The findings prove the answer to be positive. In order to specify which of the tested variables, and how, differentiate the way students with poor, average, and strong scholastic performance operate in psychological terms, the dissertation will below present the results of examining the proposed hypotheses for both countries.

The first hypothesis, i.e. *people with strong scholastic performance exhibit lower levels of emotional intelligence as compared to people with average scholastic performance*, was supported in relation to the overall score and the DINEMO-Others scale for the group from Poland. The study concluded that students with strong educational performance obtained statistically lower scores than those characterised by average grades. A similar correlation at the level of a statistical trend was also established in the DINEMO-Me scale. On the other hand, scores obtained by the Ukrainian group failed to confirm this hypothesis, since no statistically significant differences were found between students with average and high grades either in the overall score or across the individual scales of the DINEMO questionnaire. What was discovered, however, were significant differences between secondary-school students with strong and poor performance, both in terms of the general level of emotional intelligence, and across individual scales. Individuals without successes in learning proved to have considerably lower levels of emotional intelligence than their talented peers. It also needs to be noted that Ukrainian students with strong scholastic performance represent the highest level of this intelligence compared to the other groups. The data presented above confirms that Polish secondary-school students with high grades handle the identification, understanding, and respecting of emotions in other people worse than their fellow students with average abilities. As opposed to the students with average scholastic performance, they can also show poorer skills in recognising, understanding, respecting, and expressing their own feelings. This might be due to the imbalanced development of ex-

ceptional individuals, as advocated by a number of scholars. Possibly, accelerated cognitive growth is the reason for the inferior emotional performance of talented students (Sękowski & Urban, 1993; Sękowski, 2000; Limont, 2005; Tokarz, 2005, as cited in Sękowski, 2000; Kiedewicz-Nappi, 2005). This can also be aggravated by an educational system which rewards primarily students exhibiting high levels of skill and extensive knowledge. The stimulation of intellect only can lead to developmental disorders in emotional and social areas. As argued by Limont (2005), talented children are characterised by increased emotional sensitivity and a noticeable lack of balance in their emotional and social development. It may well be that students who show average scholastic performance, due to the lack of environmental pressure for high grades, are also provided with the opportunity to develop their emotional skills. And, it goes without saying that practice is an important element in developing emotional competence on the basis of the skills which make up emotional intelligence, as defined by Salovey and Mayer (Matczak & Jaworowska, 2006). As established before, gifted children often fail to achieve the expected success in adult life that would correspond to their intellectual level. Indeed, many scholars consider the cause of this to lie in their impaired development in emotional intelligence (Goleman, 1997, 1999). The precondition for talented individuals to perform at their optimum is to harmoniously develop their cognitive and emotional-social skills, motivated internally with the support and involvement of adults—teachers, educators, and parents (Kiedewicz-Nappi, 2005). In order to satisfy the needs of students, not only the talented, the process of teaching must be personalised (Ledzińska, 2010). The presented findings show the need to reinforce the emotional abilities of Polish high-performing secondary-school students, e.g. through sessions with guidance counsellors, engaging such teenagers in teamwork more frequently, and providing interpersonal training and innovative coaching methods (Soszyńska, 2010; Englert-Bator & Wołpiuk-Ochocińska, 2012).

As outlined in the theoretical part of this paper, data on the relations between achievement and emotional intelligence are inconclusive and often contradictory. Some authors argue that talented students will frequently exhibit emotional problems (Mittering, 2000, as cited in Seligman, 1993; Goleman, 1997, 1999; Limont, 2005; Tokarz, 2005), while studies conducted by others show no such relationship, or even prove to the contrary (Karwowski, 2004; Przybylska, 2007). The findings arrived at in this study also do not confirm the views of any of the aforementioned groups. Data obtained on the basis of Ukrainian respondents show that although there are no differences in emotional intelligence between students with strong and average learning performance, the comparison of individuals with strong and poor performance reveals that the former are characterised by considerably higher levels of emotional skills. The group from Poland, on the other hand, partially confirmed the hypothesised superiority in emotional intelligence in students with moderate learning performance over those with better results. No discrepancies were found in the emotional abilities of secondary-school students with high and low mean grades. This leads to the assumption that the relationship between scholastic performance and emotional intelligence is influenced by a cultural factor, or one related to the specific nature of educational interactions in the two countries.

The second hypothesis was *people with strong scholastic performance experience higher levels of the sense of solitude as compared to people with average scholastic performance.* This hypothesis was supported by the Polish group, with high-performing students experiencing the sense of solitude much more than their peers with average grades. This correlation

was also found in relation to people with low grades. Hypothesis 2 was not confirmed by the group of respondents from Ukraine, with students with average and high grades experiencing a sense of solitude at similar levels. This warrants the conclusion that Polish secondary-school students with strong scholastic performance consider their social relations as unsatisfactory in terms of quality or quantity, which causes unpleasant perceptions that contribute to their sense of solitude more than in their less-talented peers. This might be connected with talented students not feeling part of the class, which is one of the determinants of social solitude (Makara-Studzińska & Zaborska, 2006). It goes without saying that teenagers, especially during their adolescence, care very much about their peer acceptance and experience a strong need to be part of a peer community. Students' popularity within the class determines their levels of loneliness, moods, attitudes among their peers, and interactions within wider social contexts (Rembowski, 1992). Talented secondary-school students are often considered by the rest of the class as "different" which does not make them popular, on the contrary—it can cause indifference, isolation, or even rejection (Higham & Buescher, 1989, as cited in Ćwiok, 1996; Sękowski, 1998; Dołęga, 2003; Sękowski & Włodarczyk, 2009; Jurko, 2010). This can be further reinforced by specific characteristics of talented students such as excessive criticism, independence, preference for individual work, self-reliance, and disregard for the opinions of others (Sękowski, 2000; Izdebska, 2004). The psychological uniqueness of exceptional individuals is more likely to constitute the explanation for their lack of satisfactory social relationships than their poor abilities in this field, or inferior adjustment, which, according to the literature on the subject, can also contribute to aggravating their sense of solitude (DiTommaso & Spinner, 1997; Ernst & Capioppo, 1999). This view can be corroborated by the findings of this study and the observed lack of differences in social competences and adjustment between students from Poland with different scholastic performance. The sense of solitude experienced by talented secondary-school students should not be disregarded, since it can lead to a number of negative consequences, such as depression, a sense of alienation and anomie, social anxiety, lack of trust or even suicide attempts (Moor, Schultz, 1983; Hołyst, 1983, 1991; Rembowski, 1992; Dudek & Zięba, 2002; Stefańska-Klar, 2002; Rosa, 2007; Śliwak & Zarzycka, 2011). Consequently, the school environment should provide frequent opportunities to integrate talented children with the rest of the class, e.g. by assigning collaborative tasks to students, organising workshops in socialising and empathy development, and meetings with psychologists. It is important not to focus solely on the individual who is lonely, but also on the rest of the class, if only by making them sensitive to the feelings of others.

The hypothesised correlations between the sense of solitude and scholastic performance were not borne out in the Ukrainian study. There are two possible explanations worthy of particular note. These are connected with the specific nature of education in this country. That education system provides children and teenagers with schooling in one establishment from the beginning to the end of their education. Therefore, students who meet in the first grade remain in virtually the same group throughout the next 11 years of learning (Act No. 651-XIV, as amended on 4 June 2008). The second important aspect is the small number of people in the classes which took part in the study. Due to the lack of translations and the methods used on the Polish group not having been adapted to Ukrainian conditions, the study was conducted in Polish schools operating in Ukraine. Generally, these are attended by national minorities, hence the average number of students in classes is a dozen or so. These two factors, i.e. the small number of people in class and the long period of schooling

in the same group of classmates, can account for the lack of differences in the sense of solitude between students with different levels of scholastic performance. The fact of sharing the same classmates for many years, from late childhood to adolescence, can contribute to the establishment of very positive and close relations and intra-group bonds, or friendships, which, in turn, can prevent the experience of the sense of solitude among students in class.

Hypothesis 3 was *there is a relationship between the level of scholastic achievement and the personality traits identified in students by Costa and McCrae, i.e. students with strong scholastic performance are more neurotic, introverted, open to new experiences, agreeable, and conscientious than those performing at an average level at school.* In Poland, this hypothesis was not confirmed in respect of any of the five factors. Nevertheless, a significant difference was observed in conscientiousness between talented students and those with poor scholastic performance, with the former proving to be much more conscientious than the latter. For a more in-depth analysis, the study undertook an attempt to explore the potential differences between students with strong and average scholastic performance across the individual facets of each of the five factors. It was established that these groups are differentiated by only one of the neuroticism facets, namely impulsiveness. On the other hand, more strongly differentiating scores on the individual facets of the five factors were revealed between the group of talented students and their peers with low scholastic performance. Exceptional secondary-school students proved to be more self-conscientious (N), dutiful (C), deliberate (C), and achievement-striving (C), while also being less impulsive (N) and excitement-seeking (E), compared to their less-talented classmates.

The study within the Ukrainian group corroborated this hypothesis only in openness to new experiences, with the students with high mean grades being more open than their average-performing peers. A similar difference in this respect was found between talented and poor-performing students. In order to investigate this further, the study sought differences across the individual facets of the Big Five factors between the groups of students referred to in Hypothesis 3. Secondary-school students with high mean grades proved to be more active (E), open to ideas and values (O), dutiful (C), and achievement-striving (C), and scored higher on fantasy (O), aesthetics (O), and feelings (O) than their classmates with low average school grades.

The lack of correlations between the level of scholastic performance and personality factors in the Polish group confirms the assumption that this relationship is indirect in nature, and is manifested through other variables (De Raad & Schouwenburg, 1996; Czerniawska & Zawadzki, 2010, as cited in Ledzińska & Czerniawska, 2011). Although the literature on the subject provides a wealth of data on the correlations between grades and personality traits, as defined in the Big Five model, study findings often imply diverging, or even contradictory, conclusions (Kossowska, 2004; Bratko et al., Saks, 2006; Szpitalak & Polczyk, 2009; Limont et al., 2010). The findings of these analyses suggest considering an attempt at exploring what intelligence and personality have in common (cf. Ledzińska, 2004; Kossowska, 2004). The differences found in conscientiousness between students with high and low mean grades seem to corroborate data from the literature which rather unequivocally suggest a correlation between this factor and achievement (Schouwenburg & Lay, 1995; Wolf & Johnson, 1995; Zawadzki et al., 1998; Kossowska & Schouwenburg, 2000; Bratko et al., 2006; Hołda, 2009; Czerniawska & Zawadzki, 2010; Limont et al., 2010; Ledzińska & Czerniawska, 2011). The fact that this factor did not exhibit differences between students with strong and average performance, as assumed in Hypothesis 3, can be explained with

the existence of other relevant variables that determine success but were not included in this study, such as styles of learning, drive for accomplishment, and environmental variables. It might well be that increased impulsiveness in people with average scholastic performance can contribute to superior educational outcomes, even though their level of conscientiousness is similar to that found in talented students. Higher scores in impulsiveness indicate that students with average performance tend to more readily succumb to temptation, yield to desires, and are unable to control them, which is reflected in their behaviour. This means that in an educational context such students might give preference to a pleasant and tempting activity over doing their homework.

The findings differentiating between the groups of students with strong and average performance attending Ukrainian schools seem consistent with the data in the literature on the subject. In the majority of studies, openness to new experiences shows positive influence on educational success (Schouwenburg & Lay, 1995; Wolfe & Johnson, 1995). It increases gradually to reach its strongest impact during academic education (Bratko et al., 2006; Czerniawska & Zawadzki, 2010; Limont et al.2010; Ledzińska & Czerniawska, 2011). The findings across the individual elements of the five factors, which differentiated students with strong and poor scholastic performance, also seem convergent with the profile of a talented student, as shown in the literature on the subject. This means that secondary-school students with high mean grades are active, involved in many diverse activities, and persistent, like to be busy, appreciate knowledge for its own sake, value intellectual experiences, are interested in new ideas and ingenious solutions, prefer intellectual exercises and entertainment, often take part in discussions, are liberal in their views, do not heed authority and any accepted norms, are driven by their ethical and moral values, are scrupulous, ambitious, diligent, have a rich inner world, show a tendency to fantasise and develop imagination skills, are open to art and beauty, aware of their own vast and complex emotionality, and open to the emotions of others. As confirmed by the author's own study, the aforementioned traits are considerably less developed in students with poor scholastic performance.

This paper also asked the supplementary research question on *what differences, if any, there were in the psychological functioning of students with poor, average and strong scholastic performance in Poland and Ukraine*. No hypotheses were formulated in this case, since the literature on the subject did not show any information on any previous exploration of this field. Therefore, this study seems to be innovative in this respect.

No differences were found in emotional intelligence between students from Poland and Ukraine. Considering the division of students on the basis of their performance, the study revealed that Polish secondary-school students with low and average grades showed higher emotional intelligence than their peers from the corresponding Ukrainian groups. The comparison of scores across the individual scales demonstrates that talented students from Ukraine achieve higher levels of this intelligence in interpersonal relations than their corresponding fellow students from Poland. The level of this intelligence, as exhibited in relation to oneself (the intrapersonal dimension of EI) among Polish secondary-school students with poor and average scholastic performance proved considerably higher than in their fellow students from Ukraine.

Comparisons between Polish and Ukrainian students in general, regarding their sense of solitude, showed no differences. The parallels between the groups from both countries distinguished in terms of their scholastic performance, replicated the lack of discrepancies discovered at the general level.

The studied students from Poland and Ukraine do not differ in personality across the five factors. In order to particularise this conclusion, the study explored potential differences in their individual facets. Still, no statistically significant differences were found.

With one significant difference discovered between the groups of students from both countries with different levels of scholastic performance, the data presented earlier provide a positive answer to the supplementary question raised above. This can suggest that the relationship between the individual's grades and psychological functioning is also governed to some extent by cultural factors, and in particular the aspect connected with the specific nature of the educational systems in both countries.

ISBN 978-83-940389-1-5

Conclusions

The contemporary world needs smart, well-educated, and successful people, driven to achieve their objectives across all areas of life, whether personal, social, or professional. It is important, however, that such individuals feel happy in what they do, so that they can pursue their interests and passions, unlock their inner potential, and experience satisfactory interactions with other people, and a sense of intimacy and community with others. Until only recently having high intelligence seemed sufficient to be a top student and achieve professional success in adult life. However, multiple examples of young people who seemed promising at school, but performed at an average level in their adult lives and often failed to achieve spectacular success and work their way up rapidly, have called this earlier view into question. It turned out that so-called academic intelligence is important, but constitutes merely a capacity, which, without other important factors, cannot guarantee that the development of an individual will match his/her cognitive capabilities. This marked the dawn of the search for other, non-intellectual, factors which determine success. It was also reflected in the development of science, especially in such fields as psychology, pedagogy, and sociology. In an attempt to explain the essence of extraordinary abilities, psychologists developed new models, such as the three-ring model of giftedness by Renzulli, the multidimensional model of giftedness by Mönks, the model of giftedness by Tannenbaum, the Munich model of giftedness and talent by Heller et al. and the Theory of Successful Intelligence by Sternberg. In addition, this led to the emergence of terms such as emotional and social intelligence, and spurred an increased interest in them. A number of studies confirmed the existence of relationships between human achievement and personality traits, as well as emotional, social, and spiritual functioning and environmental factors. However, the exploration of multiple study results does not provide a clear and consistent explanation of how high-performing individuals operate. The findings put forward by scholars often suggest completely different interrelations, with some explicitly confirming the existence of correlations between the described factors and the performance variable, while others showing such correlations to be poor or non-existent. This leads to a very specific conclusion—human achievement is a complex and multi-faceted phenomenon. It does not mean, however, that scientific endeavours aimed at exploring and investigating it further should be abandoned. Indeed, this work is such an attempt to examine the relations between the psychological factors of human functioning and human achievement, and in particular it aims to find the correlates of strong student performance. It set out to find the answer to the question *what differences, if any, are there in the psychological functioning of students with different scholastic performance levels?* Taking into account modern trends in the description of exceptional abilities, which suggest the purposefulness of intercultural studies (Brislinem, 1983; Sękowski, 2000; Koc, 2007), the study raised a supplementary research

question, i.e. *What differences, if any, are there in the psychological functioning of students with poor, average, and strong scholastic performance in Poland and Ukraine?* The author was interested in exploring such psychological variables as emotional intelligence, as defined by Salovey and Mayer, the sense of solitude, understood as an inappropriate structure of interpersonal relations, and the personality factors identified by Costa and McCrae in their Big Five model. The analysis of the author's own research provided positive answers to both the above questions as considered in this thesis—a number of significant differences were found in the psychological functioning of students with different scholastic performance in both countries, while also revealing differences in the levels of the individual psychological variables among secondary-school students from Poland and Ukraine, characterised by poor, average, and strong educational performance. Scientific investigation should continue in this direction, while not being restricted only to the educational systems of Poland and Ukraine, but expanding the analysis to include the schooling systems in other countries. Reliable, empirical data can be used to create a model of education which will support the development of abilities among students, by choosing from the schooling systems of different countries the elements which prove to constitute significant factors contributing to success at school. Such a model will be based on good, and scientifically validated, practices, taken from international experiences.

These findings can find practical applications in both countries among people dealing with the formation and teaching of talented children. What needs to be noted in Poland is the higher, as compared to less-gifted, teenagers, sense of solitude; and lower than in less-talented people, emotional intelligence. The data collected in this study can also serve to support students with average scholastic performance, since, on the basis of knowledge of the psychological correlates of talented individuals, the appropriate professionals can make efforts to cultivate these in less-talented schoolchildren.

ISBN 978-83-940389-1-5

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ISBN 978-83-940389-1-5

Tables

Table 1. Mayer and Salovey's Concept of Emotional Intelligence and its Relation to Intelligence and Personality 73

Table 2. A Summary of Emotional Intelligence Models. 77

Table 3. Two Types of the Sense of Loneliness 85

Table 4. Pioneers in the Research on the Five-Factor Personality Model and the Factors They Have Identified 88

Table 5. The Number of Respondents Broken Down by Country and School 106

Table 6. The Gender and Age of Respondents by Country 107

Table 7. The Distribution of Students with Strong, Average, and Poor Scholastic Performance in Poland and Ukraine Based on Mean Grades 107

Table 8. Cronbach's α Internal-Consistency Values for Male and Female Secondary-School Students 109

Table 9. Pearson's 'r' Correlation Coefficients Between the DINEMO and INTE Results for Secondary-School Students 110

Table 10. Pearson's 'r' Correlation Coefficients Between the DINEMO and PKIE Results for Secondary-School Students 110

Table 11. Correlations Between NEO-PI-R Scales 112

Table 12. Cronbach's α Values for NEO-PI-R Scales and Sub-Scales 113

Table 13. The Relationship Between the Personal Maladjustment, Sense of Solitude, Emotional Intelligence, Social Skills, Personality Traits and Scholastic Performance of Ukrainian and Polish Students 116

Table 14. A Comparison of the Results Generated on the Two-Dimensional Emotional Intelligence Inventory (DINEMO) by Students from Poland with Different Levels of Scholastic Performance—a Multivariate Analysis of Variance 117

Table 15. A Comparison of the Scores Generated on the Two-Dimensional Emotional Intelligence Inventory (DINEMO) by Students from Ukraine with Different Levels of Scholastic Performance—a Multivariate Analysis of Variance 119

Table 16. A Comparison of the Scores Generated on the Loneliness Scale (UCLA) by Students from Poland with Different Levels of Scholastic Performance—the Analysis of Variance 125

Table 17. A Comparison of the Scores Generated on the Loneliness Scale (UCLA) by Students from Ukraine with Different Levels of Scholastic Performance—the Analysis of Variance 126

Table 18. A Comparison of the Results Generated in the NEO-PI-R by Students from Poland with Different Levels of Scholastic Performance—a Multivariate Analysis of Variance 127

Table 19. A Comparison of the Scores Obtained for the Elements of the Neuroticism Factor in the NEO-PI-R by Students from Poland with Different Levels of Scholastic Performance —a Multivariate Analysis of Variance 129

Table 20. A Comparison of the Scores Obtained for the Elements of the Extroversion Factor in the NEO-PI-R by Students from Poland with Different Levels of Scholastic Performance— a Multivariate Analysis of Variance 130

Table 21. A Comparison of the Scores Obtained for the Elements of the Openness to New Experiences Factor in the NEO-PI-R by Students from Poland with Different Levels of Scholastic Performance— a Multivariate Analysis of Variance 132

Table 22. A Comparison of the Scores Obtained for the Elements of the Agreeableness Factor in the NEO-PI-R by Students from Poland with Different Levels of Scholastic Performance— a Multivariate Analysis of Variance 133

Table 23. A Comparison of the Scores Obtained for the Elements of the Conscientiousness Factor in the NEO-PI-R by Students from Poland with Different Levels of Scholastic Performance— a Multivariate Analysis of Variance 133

Table 24. A Comparison of the Scores Obtained in the NEO-PI-R by Students from Ukraine with Different Levels of Scholastic Performance – a Multivariate Analysis of Variance 135

Table 25. A Comparison of the Scores Obtained for the Elements of the Neuroticism Factor in the NEO-PI-R by Students from Ukraine with Different Levels of Scholastic Performance— a Multivariate Analysis of Variance 136

Table 26. A Comparison of the Scores Obtained for the Elements of the Extraversion Factor in the NEO-PI-R by Students from Ukraine with Different Levels of Scholastic Performance— a Multivariate Analysis of Variance 136

Table 27. A Comparison of the Scores Obtained for the Elements of the Openness to New Experiences Factor in the NEO-PI-R by Students from Ukraine with Different Levels of Scholastic Performance— a Multivariate Analysis of Variance 138

Table 28. A Comparison of the Scores Obtained for the Elements of the Agreeableness Factor in the NEO-PI-R by Students from Ukraine with Different Levels of Scholastic Performance— a Multivariate Analysis of Variance 140

Table 29. A Comparison of the Scores Obtained for the Elements of the Conscientiousness Factor in the NEO-PI-R by Students from Ukraine with Different Levels of Scholastic Performance— a Multivariate Analysis of Variance 140

ISBN 978-83-940389-1-5

Figures

Figure 1. The three-ring model of giftedness by Renzulli. 52

Figure 2. The multidimensional model of giftedness by Mönks. 53

Figure 3. A. Tannenbaum's sea star model of giftedness. 54

Figure 4. The Munich model of giftedness and talent by Heller. 55

Figure 5. The structure of the triarchic theory of intelligence. Adapted from Strelau, 1985, p. 320. 57

Figure 6. Support-oriented assessment. 63

Figure 7. Assessment and evaluation coordination. Adapted from Organisation
for Economic Cooperation and Development, 2006, p. 28. 66

Figure 8. The Development of the Concept of Emotional Intelligence 71

Figure 9. Four ability groups making up emotional intelligence in terms of the developmental aspect. 75

Figure 10. Loneliness – the interpretation of its meaning (Dubas, 2006, p. 337). 82

Figure 11. Personality structure by Costa and McCrae. Adapted from Strelau, 2008, p. 189. 89

Figure 12. Mean scores obtained in the interpersonal (OTHERS) and intrapersonal (ME) scales
of the Two-Dimensional Emotional Intelligence Inventory by Polish students with different scholastic
performance. 118

Figure 13. Mean scores obtained in the Two-Dimensional Emotional Intelligence Inventory
by Polish students with different scholastic performance. 119

Figure 14. Mean scores obtained on the interpersonal (OTHERS) and intrapersonal (ME) scales
of the Two-Dimensional Emotional Intelligence Inventory by Ukrainian students with different
scholastic performance. 120

Figure 15. Mean scores obtained in the Two-Dimensional Emotional Intelligence Inventory
by Ukrainian students with different scholastic performance. 121

Figure 16. Mean scores obtained in the Two-Dimensional Emotional Intelligence Inventory
by Polish and Ukrainian students with different scholastic performance. 122

Figure 17. Mean scores obtained on the interpersonal (OTHERS) scale of the Two-Dimensional
Emotional Intelligence Inventory by Polish and Ukrainian students with different
scholastic performance. 123

Figure 18. Mean scores obtained on the intrapersonal (ME) scale of the Two-Dimensional Emotional
Intelligence Inventory by Polish and Ukrainian students with different scholastic performance. 124

Figure 19. Mean scores obtained on the Loneliness Scale by Polish students with different scholastic
performance. 125

Figure 20. Mean scores obtained in the NEO-PI-R by Polish students with different scholastic
performance. 128

Figure 21. Mean scores obtained for neuroticism facets Self-Conscientiousness
and Impulsiveness in the NEO-PI-R, by Polish students with different scholastic performance. 130

Figure 22. Mean scores obtained for the extroversion factor in the NEO-PI-R by Polish students with different scholastic performance. 131

Figure 23. Mean scores obtained for the conscientiousness facets Competence, Order, Dutifulness, Achievement-Striving, and Deliberation in the NEO-PI-R by Polish students with different scholastic performance. 134

Figure 24. Mean scores obtained for openness to new experiences in the NEO-PI-R by Ukrainian students with different scholastic performance. 135

Figure 25. Mean scores obtained for the activity factor in the NEO-PI-R by Ukrainian students with different scholastic performance. 137

Figure 26. Mean scores obtained for the extroversion facets Fantasy, Aesthetics, Feelings, Ideas, and Values in the NEO-PI-R by Ukrainian students with different scholastic performance. 139

Figure 27. Mean scores obtained for the conscientiousness facets Dutifulness and Achievement-Striving in the NEO-PI-R by Ukrainian students with different scholastic performance. 141