

KATARZYNA MARTOWSKA<sup>1</sup>  
ANNA MATCZAK

Wydział Filozofii Chrześcijańskiej

Instytut Psychologii

Uniwersytet Kardynała Stefana Wyszyńskiego w Warszawie

|   |
|---|
| Studia Psychologica<br>UKSW<br>16(2) 2016 s. 5–21 |
|---|

## IN SEARCH OF THE CORRELATES OF OVEREXCITABILITY

### ABSTRACT

This article presents the results of research into the relationship between overexcitability and temperamental qualities, intelligence, emotional and social competencies, as well as well-being. The results showed that the relationships vary for different types of overexcitability, which proves that the construct is not uniform.

Keywords: overexcitability, intelligence, temperamental qualities, emotional competencies, social competencies, well-being

### W POSZUKIWANIU KORELATÓW WZMOŻONEJ POBUDLIWOŚCI PSYCHICZNEJ

#### STRESZCZENIE

W artykule przedstawiono wyniki badań nad związkiem wzmożonej pobudliwości psychicznej z cechami temperamentu, inteligencją, kompetencjami emocjonalnymi i społecznymi oraz samopoczuciem. Wyniki pokazały, że związki te kształtują się odmiennie dla różnych typów wzmożonej pobudliwości psychicznej, co przemawia za niejednorodnością tego konstruktu.

Słowa kluczowe: wzmożona pobudliwość psychiczna, inteligencja, cechy temperamentu, kompetencje emocjonalne, kompetencje społeczne, samopoczucie

### INTRODUCTION

The concept of overexcitability was first mentioned in literature by Kazimierz Dąbrowski, the author of the *Theory of Positive Disintegration*. The theory stresses the importance of the disintegration process, i.e. the loosening and breaking down of the previous personality structure, in order to achieve ever greater maturity (Dąbrowski, 1979; cf. Ackerman, 2009; Tillier, 2009). The process is connected with emotional disharmony, internal and external conflicts of the individual and difficulties with adaptation that the author calls positive maladjustment (Dąbrowski, 1979). This process has no value in itself. It is only positive

---

<sup>1</sup> Correspondence address: k.martowska@uksw.edu.pl.

if it leads to the development of self-awareness, self-control, psychological adaptability, self-psychotherapy abilities, and the ability to develop a critical and reflective attitude to life.

In the author's opinion, the positive disintegration of the psychological structure is based on the individual's developmental potential, including three factors. The first factor is biologically determined and involves intelligence, specific abilities, and overexcitability (cf. Limont, Dreszer-Drogorób, Bedyńska, Śliwińska, Jastrzębska, 2014). The second factor is the influence of the environment. The third factor is the person's individual experience that forms their internal environment and enables them to consciously choose certain values and develop them autonomously. This factor makes the person partly independent from the first two developmental factors; thanks to personal experience, the individual modifies, processes, controls and chooses anything that is conducive to development, and suppresses or discards all other elements (Dąbrowski, 1979, p. 43). At the behavioral and cognitive level, the intense formation of the individual's internal environment is manifested by a critical assessment of oneself and others, which demands a lot both from oneself and from others, and a confrontation of one's beliefs with the objective state of affairs. As the person matures, their internal environment becomes more harmonious. However, this is not true in the case of overexcitable people, who still have not achieved full emotional balance (Dąbrowski, 1979). Dąbrowski's research shows that the lack of balance mostly occurs in young, creative people, who are more overexcitable than people with average abilities. Sometimes the author directly identifies overexcitability with creative sensitivity (Dąbrowski, 1979, p. 83).

Overexcitability can be identified whenever (1) the person's reactions are disproportionate to the stimuli (much stronger than in other people), (2) the person's reactions are persistent at cognitive, behavioral and affective level, (3) the person's reactions are specific for the type of excitability (cf. Dąbrowski, 1979). Dąbrowski identified five types of overexcitability (OE): (1) psychomotor, (2) sensual, (3) imaginal, (4) emotional, and (5) intellectual. Psychomotor OE manifests itself in greater motor activity. Sensual OE is evident from greater sensory and aesthetic sensitivity. In imaginal OE, the sphere of dreams, imagination and fantasies dominates the sphere of reality. Emotional OE is expressed in strong empathy, sensitivity to other people's suffering, and the need for deep and lasting love and friendship relationships. Moreover, it is associated with a strong affective memory about emotionally-charged events. The last type, intellectual OE, involves intensive activity of the mind, insight, and the inclination towards analysis and synthesis. Apparently, the author assumes that psychomotor OE and sensual OE occur earlier in development than the other three types – imaginal, emotional and intellectual (cf. Dąbrowski, 1979, p. 74). He also is of the opinion that, in particular, the coexistence of imaginal, emotional and intellectual OE provide the perfect conditions for

multidimensional, comprehensive development (Dąbrowski, 1979). Assuming that overexcitability is a disposition typical of gifted and creative people, previous studies have been mostly carried out in those groups.

Dąbrowski himself diagnosed overexcitability by analysing the biographies of outstanding people and studying his patients, using interviews combined with neurological, psychiatric and psychological tests (among others, intelligence and personality tests). A questionnaire to measure types of overexcitability has been created in the USA (Falk, Lind, Miller, Piechowski, Silverman, 1999). The Polish version was prepared in 2001 by Franciszek Leśniak, who translated the questionnaire from English into Polish. In 2006, Wiesława Limont and Michael Piechowski prepared the basic adaptation of the instrument.

OEQ-II has been applied in many studies, mostly concerning differences in overexcitability between (intellectually or artistically) gifted people and those with average abilities. In most of these studies, higher levels of intellectual, imaginal and emotional OE were found in gifted people (Harrison, Van Haneghan, 2011; Limont et al., 2014; Mendaglio, Tillier, 2006; Piechowski, Silverman & Falk, 1985). These types of OE are sometimes referred to as the Big Three (cf. Mendaglio, Tillier, 2006). In some studies, differences were found in terms of intellectual and imaginal OE (Yakmaci-Guzel, Akarsu, 2006), intellectual and emotional OE (Bouchet, Falk, 2001; Miller, Silverman & Falk, 1994), and sometimes just intellectual OE (Van den Broeck, Hofmans, Cooremans & Staels, 2013; Wirthwein, Rost, 2011). Ackerman and Paulus (1997), however, found differences between people with high and average abilities in all the types of OE. The ambiguous results may partly be the effect of different criteria being applied to identify gifted people: these were the scores in IQ tests, school achievements, teachers' opinions, and others.

Many studies have also focused on differences between the sexes. Most show that women achieve higher scores than men in emotional and sensual OE, and lower in psychomotor and intellectual OE (Botella et al., 2015; Bouchet, Falk, 2001; Van den Broeck et al., 2013; Limont et al., 2014; Moon, Montgomery, 2005). It is worth adding that Miller, Falk and Huang (2009) found that OE was more closely connected with gender than with sex; the results of their research showed that emotional and sensual OE were higher, while intellectual and psychomotor OE were lower, in feminine or androgynous individuals compared to masculine or neutral ones.

Few studies exist about the relationship between OE and personality traits. In one of them, the researchers tried to find a relationship between OE profiles and self-concept, and found that a lowering of psychomotor OE in the profile coexists with a lower self-concept in terms of relationships with peers, appearance, and emotional stability (Rinn, Mendaglio, Moritz Rudasill & McQueen, 2010). Another study also shows that psychomotor OE correlates positively with self-concept (Gross, Rinn & Jamieson, 2007).

The relationship between OE and the Big Five was also examined. A factor analysis conducted by Limont, Dreszer and Bedyńska (2010), based on OEQ-2 and NEO-FFI results, revealed two factors: factor 1 was loaded by imaginal OE, sensual OE, emotional OE, as well as an openness to experience and neuroticism, while factor 2 was loaded by psychomotor OE and extraversion, conscientiousness and agreeableness. A study by Limont, Dreszer-Drogorób, Bedyńska, Śliwińska and Jastrzębska (2014) demonstrated that the relations between OE types and the Big Five differ slightly between gifted people and the control group, although in both groups psychomotor OE proved to be positively correlated with extraversion, sensual and imaginal OE correlated positively with openness to experience, intellectual OE correlated positively with openness to experience and conscientiousness, and emotional OE correlated positively with neuroticism. Positive relationships between sensual, intellectual and emotional OE and extraversion, and between imaginal OE and neuroticism, as well as negative relationships between psychomotor OE and agreeableness, were only found in the control group. On the other hand, positive relationships between sensual OE and agreeableness and between emotional OE and openness were only found in the group of gifted people.

The same correlates were found in the study by Botella et al. (2015). The study also showed a number of other weaker relationships: positive relationships between sensual, imaginal and intellectual OE with neuroticism, a negative relationship between sensual OE and extraversion, a positive relationship between emotional OE and openness, positive relationships between psychomotor, sensual and intellectual OE and conscientiousness, a negative relationship between imaginal OE and conscientiousness, positive relationships between sensual and emotional OE and agreeableness, as well as a negative relationship between intellectual OE and agreeableness. The results concerning psychomotor OE are interesting. It is the only type that has a positive correlation with extraversion and does not correlate with openness, while all the other OE types correlate to it.

Furthermore, there have been few studies so far about the relationship between overexcitability and depressive symptoms or well-being. In literature, we come across both the view that overexcitability may promote well-being (Tillier, 2009) and data suggesting its negative effect on well-being (Piechowski, 1992). A study by Harrison and Van Haneghan (2011) shows that all OE types correlate positively with insomnia and a fear of the unknown, and also with death anxiety (with the exception of intellectual WPP). The correlations are strongest for imaginal and emotional OE. In a study concerning people with artistic and sporting abilities (Thomson, Jaque, 2016), the relationship between OE and anxiety, depression and shame was investigated. It was found that imaginal and emotional OE explained 17.6% of the variance for shame, whereas emotional OE explained 15.4% of the variance for anxiety and 9.8% of the variance for depression.

A study by Bedun and Perrone-McGovern (2016) showed that the relationship between emotional and intellectual OE and satisfaction with life is mediated by emotional competencies (which the authors refer to as emotional intelligence). The study found that although satisfaction with life did not correlate with OE, there is a positive relationship between satisfaction with life and emotional and intellectual OE if emotional competencies are included in the path model. Both kinds of OE correlated positively with emotional competencies (for emotional OE  $r = .31$ , and for intellectual OE  $r = .40$ ).

In a study by Botella et al. (2015) the researchers looked for correlations between OE and alexithymia, and found that they are different in adolescents and adults. In adolescents, there are positive correlations with sensual OE ( $r = .33$ ), intellectual OE ( $r = .29$ ), imaginal OE ( $r = .37$ ) and emotional OE ( $r = .30$ ), while in adults there are negative correlations with sensual OE ( $r = -.33$ ), intellectual OE ( $r = -.30$ ), imaginal OE ( $r = -.28$ ) and emotional OE ( $r = -.41$ ). A relationship between psychomotor OE and alexithymia was not found in any of the groups.

Since the empirical data collected so far is insufficient, the objective of this study was to determine the correlates of overexcitability that could cast light on its origin, structure, and functions. Looking for the specificity of OE types, we applied Dąbrowski's description of the concept of the OE characteristics for each OE type. Firstly, the study involved variables such as temperamental qualities and intelligence, which are useful in determining the nature of OE types. Secondly, the relationships between OE and socio-emotional functioning (emotional and social competencies and well-being) were examined. We expected different types of OE to have different correlates. We made the following hypotheses:

1. Psychomotor OE correlates positively with temperamental qualities which determine a high demand for stimulation, reflected in taking on lots of activities and a quick response, i.e. briskness and activity.

2. Sensual OE correlates positively with sensory sensitivity, i.e. the temperamental quality that has similar characteristics – sensory alertness and openness to external stimuli.

3. Imaginal OE correlates positively with emotional reactivity – the dominance of the sphere of dreams, imagination and fantasies over reality, typical of people with imaginal OE, is probably connected with their high sensitivity to emotional stimuli and low resistance to stress.

4. Emotional OE correlates positively with the temperamental qualities that determine the strength and persistence of the response to emotional stimuli, i.e. emotional reactivity and perseverance.

5. Intellectual OE correlates positively with general intelligence, because the inclination toward intensive mental activity and insight, typical of people with intellectual OE, is especially conducive to intellectual development.

Previous findings have shown that while OE is a disposition especially characteristic of people with high abilities, on the other hand there is some data that suggests these people may experience serious problems with adjustment. This legitimizes the question of the role of OE in socio-emotional functioning. However, by analyzing the definitions of different types of OE and their probable temperamental correlates, we may presume that the answer to this question is far from clear. Therefore, no hypotheses were formulated about this topic. Instead, the researchers decided to look for relationships between OE and emotional competencies, social competencies, and well-being.

Four separate studies were carried out. The first referred to the relationship between OE and temperament and intelligence, the second looked into the relationship between OE and emotional competencies, the third focused on the relationship with social competencies, and the fourth, the relationship with well-being.

## METHOD

### PARTICIPANTS AND PROCEDURE

All the participants were male and female students of different faculties aged 19–30. Unlike in most previous studies on OE, the participants were not selected based on their intellectual abilities. The first study comprised 65 subjects, the second – 172, the third – 65, and the fourth – 340. The research involved an anonymous group study. The respondents were informed of the objective of the study, of the fact that it was anonymous and voluntary, and of the application of the study results.

### RESEARCH TOOLS

Overexcitability was evaluated using *Overexcitability Questionnaire-Two*<sup>2</sup> (OEQ-II) by R. Frank Falk, Charon Lind, Nancy B. Miller, Michael M. Piechowski and Linda K. Silverman (1999), which was translated into Polish in 2001 by Franciszek Leśniak and modified in 2006 by Wiesława Limont.

The inventory comprises 50 questions, 10 for each scale. The scales of the inventory correspond to OE types: psychomotor (e.g. “*I love to be in motion*”), sensual (e.g. “*I enjoy the sensations of colors, shapes, and designs*”), imaginal (e.g. “*Things that I picture in my mind are so vivid that they seem real to me*”), intellectual (e.g. “*I like to dig beneath the surface of issues*”) and emotional (e.g. “*My strong emotions move me to tears*”). The respondent decides to what extent each statement fits him or her and chooses the correct item on a Likert scale, from 1 (*not at all like me*) to 5 (*very much like me*). Some items are scored reversely.

---

<sup>2</sup> The inventory could be used in the study thanks to the consent of R. Frank Falk, the director of the Institute for the Study of Advanced Development (05/05/2014).

The score on each scale is the sum of points for responses divided by the number of items. Cronbach's  $\alpha$  coefficients, computed for the outcomes of 342 subjects (students aged 19–30; 221 female, 121 male) were:  $\alpha = .89$  for psychomotor OE,  $\alpha = .89$  for sensual OE,  $\alpha = .85$  for imaginal OE,  $\alpha = .81$  for intellectual OE,  $\alpha = .79$  for emotional OE.

A self-descriptive FCB-TI questionnaire by Bogdan Zawadzki and Jan Strelau (1997), developed on the basis of the *Regulative Theory of Temperament* (RTT) by Strelau (2001), was used to measure temperamental traits. It is made up of 120 statements, 20 for each scale. They are: Briskness (the tendency to react quickly and keep a high speed of action, e.g. "I usually manage to jump away to avoid getting splashed by a passing car",  $\alpha = .77$ ), Perseverance (the tendency to continue or repeat behaviours despite a change or disappearance of the stimuli which evoked them, e.g. "I keep having the same persistent thought on my mind",  $\alpha = .79$ ), Activity (the tendency to take up highly stimulatory behaviours or behaviours providing strong external stimulation, e.g. "I try to arrange my holidays so as to have a lot of adventures",  $\alpha = .83$ ), Emotional reactivity (the intensity of reactions to emotion-evoking stimuli, e.g. "I lose my self-confidence when I'm criticized",  $\alpha = .83$ ), Endurance (the ability to react adequately in situations which require long-term or highly stimulating activity, e.g. "I stay fresh and energetic even after a long trip",  $\alpha = .85$ ) and Sensory sensitivity (the ability to react to weak sensory stimuli, e.g. "I see the stars twinkling",  $\alpha = .73$ ).

The "Omnibus" Intelligence Test (Jaworowska, Matczak, 2002) was used to measure intelligence. The test includes 60 tasks such as finding antonyms, completing verbal analogies and sequences of numbers, recognizing the meanings of idiomatic phrases, and evaluating conclusions drawn from premises (syllogisms). In each task, the respondent had to choose the only correct answer out of five options. This test provides a general score ( $\alpha = .92$ ) and two factorial scores, interpreted as the ability to acquire knowledge ( $\alpha = .78$ ) and the ability to reason ( $\alpha = .84$ ).

Emotional competencies were evaluated using the *Popular Emotional Intelligence Questionnaire* (*Popularny kwestionariusz inteligencji emocjonalnej*, PKIE) by Anna Matczak and colleagues (Jaworowska, Matczak, 2005). Although this tool, as the name suggests, was created to test emotional intelligence, thanks to its questionnaire nature it can be used as a method to assess emotional competencies, understood as the skills at coping in real situations in which emotions are engaged. PKIE contains 94 items and provides both a general score and the indices of four specific competencies. They are measured on four scales: ACC – concerning the skills at accepting, expressing and using emotions in action, EMP – concerning empathy, CON – concerning the skill at controlling emotions, and UND, concerning the skill at understanding emotions. The first two scales measure competencies connected with experiential emotional intelligence, while the other two competencies are associated with

strategic emotional intelligence – the difference between these two types of emotional intelligence is discussed for example by Brackett, Mayer and Warner (2004). The statements in the questionnaire are formulated in the first person singular. The respondent decides on a scale of 1–5 how much he or she agrees with the statement. Cronbach's  $\alpha$  coefficients for the scales vary from .74 to .88.

A self-descriptive *Social Competencies Questionnaire* (*Kwestionariusz kompetencji społecznych*, KKS) by Anna Matczak (2007) was used to measure social competencies. The questionnaire comprises 90 items, including 60 diagnostic ones (concerning social activities and tasks) and 30 non-diagnostic ones (concerning non-social skills). The respondents assess their skills at coping with these activities and tasks on a four-point scale: *very good*, *quite good*, *rather poor* and *very poor*. The diagnostic items of the questionnaire comprise three detailed scales: competencies determining effective functioning in intimate situations – *intimate competence* (e.g. “*Hugging a person who needs consolation*”), competencies determining effective functioning in situations necessitating social exposition – *social exposition competence* (e.g. “*Speaking in public*”) and competencies determining effective functioning in situations requiring assertiveness – *assertive competence* (e.g. “*Refusing to lend money to a friend*”). A general coefficient for social competencies was also calculated, involving the results obtained in all 60 diagnostic items. Cronbach's  $\alpha$  coefficients for the scales vary from .74 to .88, and for the general score from .93 to .95, in different studied groups.

*Depression Symptoms Questionnaire* (*Kwestionariusz symptomów depresyjnych*, KSD) by Anna Matczak and Katarzyna Martowska (2011) was used to measure well-being. The questionnaire comprises 15 items – expressions referring to different symptoms which may indicate that a person is not functioning properly: anxiety, irritation, tiredness, a sense of hopelessness, lack of motivation, sleeping difficulties, excessive sleepiness, lack of appetite, overeating, aversion to interpersonal contact, aversion to going out, changeable moods, tearfulness, pain, thoughts about death. The respondent's task is to determine whether and how often he or she has had these symptoms, using a three-point scale: going from *never* (0 points), through *rarely* (1 point), up to *often* (2 points). The result of the study is the general score, which is the total number of points obtained in all questions. The higher the score, the worse the condition. The questionnaire's internal consistency is  $\alpha = .80$ , measured with Cronbach's  $\alpha$  on the basis of data from 691 subjects.

## RESULTS

### STUDY 1: OVEREXCITABILITY VS TEMPERAMENT AND INTELLIGENCE

The correlation coefficients between the types of overexcitability and temperamental qualities are presented in Table 1.

Table 1

*Overexcitability vs temperament: Pearson's r correlation coefficients (N = 65)*

| Temperamental traits | P-OE   | S-OE              | M-OE  | I-OE              | E-OE             |
|----------------------|--------|-------------------|-------|-------------------|------------------|
| Briskness            | .40**  | .11               | -.29* | .12               | -.28*            |
| Perseverance         | -.19   | -.03              | .15   | -.24 <sup>+</sup> | .62***           |
| Sensory sensitivity  | .05    | .42**             | .06   | .11               | .24 <sup>+</sup> |
| Emotional reactivity | -.37** | -.22 <sup>+</sup> | .29*  | -.45***           | .54***           |
| Endurance            | .26*   | .22 <sup>+</sup>  | -.18  | .31*              | -.14             |
| Activity             | .65*** | .12               | -.18  | .09               | -.08             |

Note. P-OE – psychomotor overexcitability, S-OE – sensual overexcitability, M-OE – imaginal overexcitability, I-OE – intellectual overexcitability, E-OE – emotional overexcitability.

\*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$ ; +  $p < .10$ .

As we can see in Table 1, psychomotor OE and emotional OE have the strongest correlations with temperament. The former correlates positively with activity, briskness and endurance, and negatively with emotional reactivity. The latter correlates positively with perseverance, emotional reactivity and (at the level of tendency) sensory sensitivity, while it correlates negatively with briskness. Consequently, psychomotor OE is positively related to temperamental qualities associated with a high demand for stimulation and a high ability to process stimulation, and emotional OE is related to temperamental qualities that indicate low abilities to process stimulation. The other types of OE are less correlated with temperament. The correlations of intellectual OE are similar to those of psychomotor OE: negative correlation with emotional reactivity and (at the level of tendency) with perseverance and endurance. Imaginal OE correlates with temperamental qualities in the same way as emotional OE, i.e. positively with emotional reactivity and negatively with briskness. Sensual OE, in turn, is positively related to sensory sensitivity and, at the level of tendency, positively with endurance and negatively with emotional reactivity.

In summary, correlation patterns suggest that OE is not a uniform construct. Its different types have different correlations with temperamental qualities. The observed correlations meet the expectations formulated in hypotheses 1–4.

Table 2 presents the coefficients of the correlation between overexcitability types and the results of the „*Omnibus*” *Intelligence Test* – factors such as knowledge and reasoning as well as the general score.

Table 2

*Overexcitability vs intelligence: Pearson's r correlation coefficients (N = 65)*

| Intelligence                 | P-OE | S-OE | M-OE | I-OE | E-OE |
|------------------------------|------|------|------|------|------|
| Ability to acquire knowledge | .14  | .21  | .05  | .31* | -.13 |
| Ability to reason            | -.04 | -.14 | -.04 | -.05 | .02  |
| General score                | .09  | -.02 | -.04 | .18  | -.17 |

*Note.* P-OE – psychomotor overexcitability, S-OE – sensual overexcitability, M-OE – imaginal overexcitability, I-OE – intellectual overexcitability, E-OE – emotional overexcitability.

\*  $p < .05$ .

As we can see, only intellectual OE correlates positively with the knowledge factor, which is an indicator of crystallized intelligence. This is in agreement with the expectations from hypothesis 5.

The results of study 1 show the specificity of the correlates of each OE type. Psychomotor OE proved to be the only type positively (most strongly) correlated with activity and briskness. Sensual OE correlates positively with sensory sensitivity. The relationship between imaginal OE and temperamental qualities is the weakest. Intellectual OE is the only one to correlate positively with intelligence. The most characteristic feature of emotional OE is the high positive correlation with perseverance.

#### STUDY 2: OVEREXCITABILITY VS EMOTIONAL COMPETENCIES

The correlation coefficients between the types of overexcitability and emotional competencies are shown in Table 3.

Table 3

*Overexcitability vs emotional competencies: Pearson's r correlation coefficients (N = 172)*

| Emotional competencies | P-OE             | S-OE   | M-OE   | I-OE             | E-OE    |
|------------------------|------------------|--------|--------|------------------|---------|
| ACC                    | .29***           | .28*** | .15*   | .23**            | .16*    |
| EMP                    | .13 <sup>+</sup> | .36*** | .36*** | .34***           | .48***  |
| CON                    | .12              | .08    | -.19*  | .13 <sup>+</sup> | -.36*** |
| UND                    | .11              | .08    | -.13   | .11              | -.22**  |

*Note.* ACC – concerning the skills at accepting, expressing and using emotions in action, EMP – concerning empathy, CON – concerning the skill at controlling emotions, UND – concerning the skill at understanding emotions, P-OE – psychomotor overexcitability, S-OE – sensual overexcitability, M-OE – imaginal overexcitability, I-OE – intellectual overexcitability, E-OE – emotional overexcitability.

\*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$ ; +  $p < .10$ .

The data in Table 3 shows that all OE types correlate positively with empathy and the skill at of accepting emotions, i.e. competencies associated with experiential emotional intelligence. On the other hand, competencies associated with strategic emotional intelligence are negatively correlated with emotional and imaginal OE (the correlation is weaker and only refers to the skill at controlling emotions). Intellectual OE correlates positively, albeit it weakly and only at tendency level, with the skill at controlling emotions.

### STUDY 3: OVEREXCITABILITY VS SOCIAL COMPETENCIES

The correlation coefficients between the types of overexcitability and social competencies are presented in Table 4.

Table 4

*Overexcitability vs social competencies: Pearson's r correlation coefficients (N = 65)*

| Social competencies          | P-OE | S-OE   | M-OE | I-OE | E-OE  |
|------------------------------|------|--------|------|------|-------|
| Intimate competence          | -.01 | .37**  | .01  | .11  | .36** |
| Social exposition competence | .28* | .43*** | .04  | .27* | .04   |
| Assertive competence         | .24* | .31*   | -.12 | .29* | .07   |

*Note.* P-OE – psychomotor overexcitability, S-OE – sensual overexcitability, M-OE – imaginal overexcitability, I-OE – intellectual overexcitability, E-OE – emotional overexcitability.

\*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$ .

As we can see in Table 4, sensual OE correlates positively with all types of social competencies. Psychomotor and intellectual OE correlate positively with social exposition competence and assertive competence. Emotional OE, in turn, proved to only be correlated with intimate competence. No relationships were found between imaginal OE and social competencies.

### STUDY 4: OVEREXCITABILITY VS WELL-BEING

Table 5 shows the coefficients of correlation between overexcitability types and well-being. It must be remembered that high scores in this questionnaire denote low levels of well-being.

Table 5

*Overexcitability vs well-being: Pearson's r correlation coefficients (N = 340)*

| P-OE    | S-OE | M-OE   | I-OE | E-OE  |
|---------|------|--------|------|-------|
| -.24*** | .06  | .27*** | -.05 | .40** |

*Note.* P-OE – psychomotor overexcitability, S-OE – sensual overexcitability, M-OE – imaginal overexcitability, I-OE – intellectual overexcitability, E-OE – emotional overexcitability.

\*\*  $p < .01$ ; \*\*\*  $p < .001$ .

Only psychomotor OE, imaginal OE and emotional OE proved to be correlated with well-being: P-OE was positively correlated (negative correlation coefficient), while I-OE and E-OE were negatively correlated (positive correlation coefficients). The correlation for emotional OE was the strongest.

## DISCUSSION

The results of studies presented above allow us to characterize the different types of OE. As could be expected from Dąbrowski's description, psychomotor OE is correlated with temperamental qualities that have similar definitions, which refer to the quickness of reaction and the inclination to take up activities with high stimulation value – briskness and activity. It is also connected with high stimulation-processing abilities, i.e. high endurance and low emotional reactivity. This leads to the question of to what extent the disposition differs from temperamental qualities. Its affiliation to those qualities can also be indirectly derived from its correlation with social exposition and assertive competencies, which (as shown in other studies) are determined by temperamental qualities associated with a high demand for stimulation. It is also worth mentioning that people with such temperamental characteristics (low-reactive extroverts) are relatively insensitive to social stimuli (Ogińska-Bulik, 1992), which may be associated with their low level of empathy (cf. Kliś, Kosewska, 1994). The outcome of our study is in agreement with this: the correlation of empathy with psychomotor OE proved to be weaker than with the other types. The positive relation of (only) psychomotor OE with well-being agrees with the data proving that extroverts display high levels of well-being (Golińska, 2011). Finally, our results comply with the outcomes of previous studies which show that the correlates of psychomotor OE differ from other types. For example, in a study by Botella et al. (2015), psychomotor OE proved to be the only type of overexcitability to be positively correlated with extraversion (see also Limont, Dreszer & Bedyńska, 2010) and not correlated with openness to experience or alexithymia. Data concerning the positive relationship between this type of OE and self-concept (Gross et al., 2007; Rinn et al., 2010) also agrees with our results.

First of all, sensual OE proved to be correlated positively with sensory sensitivity, which has a similar definition. People with sensual OE as well as those with high temperamental sensory sensitivity display high sensitivity associated with their senses, and are open to subtle changes in the environment. Furthermore, the sensory sensitivity of people with sensual OE does not translate into high emotional reactivity (tendency to a negative correlation) or to low endurance (tendency to a positive correlation). This pattern of traits should promote the development of social competencies. And indeed, as the study demonstrated, sensual OE is the only OE type to correlate positively with all kinds of social competencies. Furthermore, just like the other types of OE, it correlates

positively with emotional competencies associated with experiential emotional intelligence and, like psychomotor OE but unlike imaginal OE or emotional OE, does not correlate with competencies associated with strategic emotional intelligence. It can be concluded that the acquisition of emotional competencies connected with experiential emotional intelligence is promoted by an openness to experience which, as shown in another study (Limont et al., 2014), is a correlate of sensual OE.

Imaginational OE proved to be the least correlated with temperamental qualities. It may coexist with introversion, i.e. a low ability to process stimulation and low demand for stimulation (positive correlation with emotional reactivity, negative correlation with briskness). It was the only type that was not related to social competencies, and it correlated negatively with the ability to control emotions. Considering that regulatory skills are an important condition for well-being (Pragłowska, 2011), we could expect a negative relationship between imaginal OE and well-being. This relationship was indeed revealed. Other studies have also proved a relationship between imaginal OE and expressions of low well-being. As mentioned above, Thomson and Jaque (2016) have shown that it explains nearly 18% of variance in shame, and a study by Harrison and Van Haneghan (2011) demonstrated that it is strongly related to insomnia and a fear of the unknown. A positive relationship between imaginal OE and neuroticism was also revealed (Botella et al., 2015).

Intellectual OE is associated with a high ability to process stimulation (positive correlation with endurance, negative with emotional reactivity) and is the only one to correlate with crystallized intelligence (the knowledge factor measured with the Omnibus test). This supports the specificity of intellectual OE, which is defined by Dąbrowski as the inclination to partake in intensive mental activity and intellectual insight, thus promoting knowledge acquisition (development of crystallized intelligence). Hence, the positive relationship between intellectual OE and conscientiousness, found by Limont et al. (2014) and Botella et al. (2015), is not surprising. However, intellectual OE is not tantamount to intelligence, understood as biologically determined mental potential: there is no correlation between this OE and the reasoning factor, which – unlike the knowledge factor – is saturated more with fluid intelligence than crystallized intelligence (cf. Jaworowska, Matczak, 2002). Moreover, although psychomotor OE was also associated with a high ability to process stimulation and a high demand for stimulation, it did not correlate with intelligence, whereas intellectual OE did. This strengthens the conclusion that these two types of OE are different. Intellectual OE was also the only one to be positively (albeit weakly and at tendency level) related to the skill at controlling emotions, based on cognitive emotion processing abilities. The results obtained also suggest that intellectual OE may promote the acquisition of social competencies (especially social exposition competence and assertive competence). Interestingly, Bedun

and Perrone-McGovern (2016) also found in their study that intellectual OE is related to emotional competencies.

Emotional OE proved to be the most strongly related to temperamental qualities. It mostly coexists with high perseverance and emotional reactivity (moderate or strong correlations). This correlation pattern may support the conjecture that emotional OE inhibits the development of competencies associated with the regulation and control of emotions. On the other hand, it may help the acquisition of competencies needed in close interpersonal relationships. Both expectations were confirmed: emotional OE proved to be negatively correlated with skills at controlling and understanding of emotions and was positively correlated with empathy and intimate competencies. It corresponds very well with Dąbrowski's characterization of people with emotional OE. He stressed that these people were characterized by high empathy, a sensitivity to other people's suffering, the need for deep and lasting love and friendship relationships, as well as a strong affective memory of emotionally-charged events (typical of perseverance). Finally, it is worth pointing out that emotional OE is related to low levels of well-being. This is understandable due to the high sensitivity of people with emotional OE and the persistence of emotions typical of them, which may lead to long-term experience of negative events and depressive symptoms. Actually, in a study by Thomson and Jaque (2016), emotional OE explained more than 15% of variance in anxiety and nearly 10% of variance in depression; in a study by Harrison and Van Haneghan (2011) it correlated positively (just like imaginal OE) with insomnia and a fear of the unknown, while in a study by Limont et al. (2014) and Botella et al. (2015), it correlated positively with neuroticism.

In summary, the presented research results agree with previous data indicating differences between correlates of different types of OE, which suggest their different nature. It seems that their importance for socio-emotional functioning (socio-emotional competencies and well-being) is also different. Probably the most problematic types from this point of view are imaginal and emotional OE. Psychomotor OE, on the other hand, promotes well-being, which may be due to its temperamental and personality determinants (extraversion, activity, and briskness).

#### REFERENCES

- Ackerman, Ch. M. (2009). The essentials elements of Dabrowski's theory of positive disintegration and how they are connected. *Roeper Review*, 31, 81–95.
- Ackerman, Ch. M., Paulus, L. E. (1997). Identifying gifted adolescents using personality characteristics: Dabrowski's overexcitabilities. *Roeper Review*, 19, 229–236.

- Beduna, K., Perrone-McGovern, K. M. (2016). Relationships among emotional and intellectual overexcitability, emotional IQ, and subjective well-being. *Roepers Review*, 38, 24–31.
- Botella, M., Fürst, G., Myszkowski, N., Storme, M., Pereira da Costa, M., Luminet, O. (2015). French validation of Overexcitability Questionnaire 2: Psychometric properties and factorial structure. *Journal of Personality Assessment*, 97, 209–220.
- Bouchet, N., Falk, R. F. (2001). The relationship among giftedness, gender, and overexcitability. *Gifted Child Quarterly*, 45, 260–267.
- Brackett, M. A., Mayer, J. D., Warner, R. M. (2004). Emotional intelligence and its relation to everyday behavior. In P. Salovey, M. A. Brackett, J. D. Mayer (Eds.), *Emotional intelligence. Key Reading on the Mayer and Salovey model* (pp. 223–241). Port Chester, NY: Dude Publishing.
- Van den Broeck, W., Hofmans, J., Cooremans, S., Staels, E. (2013, September 30). Factorial validity and measurement invariance cross intelligence levels and gender of the Overexcitabilities Questionnaire–II (OEQ-II). *Psychological Assessment*. Advance online publication. doi: 10.1037/a0034475
- Dąbrowski, K. (1979). *Dezintegracja pozytywna*. Warszawa: Państwowy Instytut Wydawniczy.
- Dąbrowski, K. (1986). *Trud istnienia*. Warszawa: Wiedza Powszechna.
- Falk, R. F., Lind, S., Miller, N. B., Piechowski, M. M., Silverman, L. (1999). *The Overexcitability Questionnaire–II (OEQ-II). Manual, scoring system, and questionnaire*. Denver, CO: Institute for the Study of Advanced Development (translation by F. Leśniak; polish adaptation by W. Limont and M. M. Piechowski, 2006).
- Golińska, L. (2011). W poszukiwaniu optymalnej aktywności. Reaktywność a nastrój, poczucie zdrowia i preferowane formy spędzania urlopu. In M. Marszał-Wiśniewska, J. Strelau (Eds.), *Uwikłany temperament* (pp. 251–278). Warszawa: Wydawnictwo Naukowe Scholar.
- Gross, C. M., Rinn, A. N., Jamieson, K. M. (2007). Gifted adolescents' overexcitabilities and self-concepts: An analysis of gender and grade level. *Roepers Review*, 29, 240–248.
- Harrison, G. E., Van Haneghan, J. P. (2011). The gifted and the shadow of the night: Dabrowski's overexcitabilities and their correlation to insomnia, death anxiety, and fear of the unknown. *Journal for the Education of the Gifted*, 34, 669–697.
- Jaworowska, A., Matczak, A. (2002). *Omnibus. Test inteligencji. Podręcznik*. Warszawa: Pracownia Testów Psychologicznych Polskiego Towarzystwa Psychologicznego.
- Jaworowska, A., Matczak, A. (2005). *Popularny Kwestionariusz Inteligencji Emocjonalnej. PKIE*. Warszawa: Pracownia Testów Psychologicznych Polskiego Towarzystwa Psychologicznego.

- Kliś, M., Kossewska, J. (1994). Empatia i inteligencja, cechy osobowości i temperamentu. *Psychologia Wychowawcza*, 37, 385–394.
- Limont, W., Dreszer, J., Bedyńska, S. (2010). Wzmoczona pobudliwość psychiczna, wybrane cechy osobowości a płeć szczególnie zdolnych uczniów. In A. E. Sękowski, W. Klinkosz (Eds.), *Zdolności człowieka w ujęciu współczesnej psychologii* (pp. 33–62). Lublin: TN KUL.
- Limont, W., Dreszer-Drogorób, J., Bedyńska, S., Śliwińska, K., Jastrzębska, D. (2014). Old wine in new bottles? Relationship between overexcitabilities, the Big Five personality traits and giftedness in adolescents. *Personality and Individual Differences*, 69, 199–204.
- Martowska, K. (2012). *Psychologiczne uwarunkowania kompetencji społecznych*. Warszawa: Wydawnictwo Liberi Libri.
- Matczak, A. (2007). *Kwestionariusz Kompetencji Społecznych. KKS. Podręcznik*. Warszawa: Pracownia Testów Psychologicznych Polskiego Towarzystwa Psychologicznego.
- Matczak, A., Martowska, K. (2011). *Kwestionariusz symptomów depresyjnych* (unpublished tool). Warszawa.
- Mendaglio, S., Tillier, W. (2006). Dabrowski's theory of positive disintegration and giftedness: Overexcitability research findings. *Journal for the Education of the Gifted*, 30, 68–87.
- Miller, N. B., Falk, R. F., Huang, Y. (2009). Gender identity and the overexcitability profiles of the gifted college students. *Roeper Review*, 31, 161–169.
- Miller, N. B., Silverman, L. K., Falk, R. F. (1994). Emotional development, intellectual ability, and gender. *Journal for the Education of the Gifted*, 18, 20–38.
- Moon, J., Montgomery, D. (2005). Profiles of overexcitabilities for Korean high school gifted students according to gender and domain of study. *Journal of Gifted/Talented Education*, 15, 1–10.
- Ogińska-Bulik, N. (1992). Temperament a poznawcza koncentracja na bodźcach pochodzących z różnych sfer rzeczywistości. In A. Eliaż, M. Marszał-Wiśniewska (Eds.), *Temperament a rozwój młodzieży* (pp. 141–170). Warszawa: Wydawnictwo Instytutu Psychologii PAN.
- Piechowski, M. M. (1992). Emotional development and emotional giftedness. In N. Colangelo, G. Davis (Eds.), *Handbook of gifted education* (pp. 285–306). Boston, MA: Allyn & Bacon.
- Piechowski, M. M., Silverman, L. K., Falk, R. F. (1985). Comparison of intellectually and artistically gifted on five dimensions of mental functioning. *Perceptual and Motor Skills*, 60, 539–549.
- Praǳowska, E. (2011). Temperament w zaburzeniach afektywnych. Reaktywność a nastrój, poczucie zdrowia i preferowane formy spędzania urlopu. In M. Marszał-Wiśniewska, J. Strelau (Eds.), *Uwikłany temperament* (pp. 225–250). Warszawa: Wydawnictwo Naukowe Scholar.

- Rinn, A. N., Mendaglio, S., Moritz Rudasill, K., McQueen, K. (2010). Examining the relationship between the overexcitabilities and self-concepts of gifted adolescents via multivariate cluster analysis. *Gifted Child Quarterly*, 54, 3–17.
- Strelau, J. (2001). *Psychologia temperamentu*. Warszawa: PWN.
- Thomson, P., Jaque, S. V. (2016). Overexcitability: A psychological comparison between dancers, opera singers, and athletes. *Roeper Review*, 38, 84–92.
- Tillier, W. (2009). Dabrowski without the theory of positive disintegration just isn't Dabrowski. *Roeper Review*, 31, 123–126.
- Wirthwein, L., Rost, D. H. (2011). Focussing on overexcitabilities: Studies with intellectually gifted and academically talented adults. *Personality and Individual Differences*, 51, 337–342.
- Yakmaci-Guzel, B., Akarsu, F. (2006). Comparing overexcitabilities of gifted and non-gifted 10th grade students in Turkey. *High Ability Studies*, 17, 43–56.
- Zawadzki, B., Strelau, J. (1997). *Formalna Charakterystyka Zachowania – Kwestionariusz Temperamentu (FCZ-KT)*. Podręcznik. Warszawa: Pracownia Testów Psychologicznych Polskiego Towarzystwa Psychologicznego.