STUDIA PSYCHOLOGICA

SELECTED ARTICLES PUBLISHED IN STUDIA PSYCHOLOGICA
IN 2009-2017

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CONTENT

PAWEŁ ATROSZKO*
Institute of Psychology University of Gdańsk

WORK ADDICTION – THE RESULT OF "WEAK WILL" OR THE NEED FOR PERFECTION?[1]

Abstract

According to the existing studies the important predictors of the levels of work addiction are action control (Atroszko, 2009; Wojdyło & Lewandowska-Walter, 2009) and neurotic perfectionism (Atroszko, 2009). On the basis of the literature of the subject, hypotheses were formulated stating that dysfunctional perfectionism dimensions – concern over mistakes and doubts about actions – mediate the link between action control and workaholism. Baron and Kenny's (1986) approach was used to verify the mediation hypotheses. As predicted, both concern over mistakes and doubts about actions are mediating variables between failure-related action control and work addiction. Similarly, both dimensions of neurotic perfectionism mediate the link between decision-related state orientation and workaholism.

Keywords: work addiction. workaholism, perfectionism

1. Introduction

Work addiction is increasingly often mentioned as one of the serious threats of the contemporary world, or one of the diseases of affluence (cf. Pospiszyl, 2008). Wayne Oates (1971) is considered to be the author of the term "workaholism". The term was coined by analogy to the concept of alcoholism. Oates (1971, p. 1) defined workaholism as "addiction to work, the compulsion or the uncontrollable need to work incessantly". Despite a growing number of publications on workaholism and the wide use of the term itself in the society, scientific knowledge about it is still limited (McMillan, O'Driscoll, & Burke, 2003). Burke (2001) notes that a substantial part of the subject literature on workaholism is not based on clear definitions of this construct or on well-developed tools for its measurement. Porter (2001) notices that authors publishing on the subject of workaholism can be divided into two groups, depending on how they define this phenomenon. Some of them use the word "workaholism" as a general term to refer to a considerable amount of time devoted to work-related activities. Others emphasise

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* Corresponding author: pawel.atroszko@gmail.com

that the meaning of the word can be traced to an analogy with alcoholism and believe that it should point to the problem of excessive and uncontrolled work involvement. This approach, based on a narrow understanding of workaholism as a compulsive disorder, is represented by clinically-oriented authors, such as, among others, Oates (1971), Killinger (1993), Porter (1996, 2001), Robinson (1998), and Wojdyło (2003).

The following groups of characteristics typical for workaholics have been identified in the literature published so far on the subject: addictive, compulsive need to work associated with work overload, the inability to stop working and obsessive thinking about work (Chonko, 1983; Naughton, 1987; Oates, 1971; Porter, 1996; Robinson, 1998; Scott et al., 1997; Spence & Robbins, 1992), neglecting the spheres of life which are not related to work, and disregarding physical and mental ailments (Oates, 1971; Robinson, 1989, as cited in Robinson, 2001; Porter, 1996, 2001; Scott et al. 1997), perfectionism (Porter, 1996, 2001; Robinson, 1989, as cited in Robinson, 2001; Scott et al., 1997; Spence & Robbins, 1992) and the related need for control, rigidity of behaviour, reluctance to delegate tasks and responsibilities, vulnerability to frustration, irritation and other negative emotions (Cantarow, 1979; Robinson, 1989, as cited in Robinson, 2001), as well as low work satisfaction (Porter, 2001; Spence & Robbins, 1992). It should also be emphasised that in the light of research on workaholism, the requirement of increasing amounts of time devoted to work-related activities is not a necessary criterion for the diagnosis of work addiction (Buelens & Poelmans, 2004; Burke & Matthiesen, 2004; Ersoy-Kart, 2005). There is a tendency in workaholics to spend increasing amounts of time at work (Burke, 1999), however, many addicted people are not different in this regard than non-addicted people (Wojdyło, 2003).

The abovementioned features used for defining workaholism have been developed mainly based on clinical observations and theoretical considerations. Empirical research confirms that they can be treated as a set of symptoms that is characteristic of work addiction (Flowers & Robinson, 2002; Spence & Robbins, 1992). The author's own research assumed a narrow understanding of workaholism as a compulsive behavioural disorder – a syndrome consisting of the abovementioned main symptoms.

2. Work Addiction and Action Control and Neurotic Perfectionism

Action Control Theory (Kuhl, 1994a) concerns processes that mediate between intention and its implementation. These processes are referred to as action control or volitional control, and in everyday language as "will-power". Studies on workaholism to date have shown that work addiction is related to low action control (Wojdyło & Lewandowska-Walter, 2009). The hypothesis that was proposed in this study was that workaholics formulate an intention to overcome the addiction but are unable to implement it due to low action-orientation. Based on research findings indicating a high level of negative emotions in people addicted to work, their orientation towards avoidance of failure and a low level of their emotional competence, it was assumed that workaholism is related to low failure-related action control (Wojdyło & Lewandowska-Walter, 2009). In turn, workaholics' inability to stop working and use their free time led Wojdyło and Lewandowska-Walter to formulate a hypothesis about such persons' orientation to variability in situations of engagement in pleasant, rewarding activities, as well as to interrupting these activities and engaging in new ones. The said authors did not formulate any hy-

potheses concerning the relationship of workaholism with state orientation in situations of planning and decision-making because, in their opinion, the current state of research does not provide any grounds enabling the formulation of any expectations in this regard. The findings of their research carried out in Poland on a sample of 211 (111 female and 100 male) students from the University of Gdańsk and Gdynia Maritime University showed negative correlations between work addiction and all types of action control. Correlation coefficients were between $r = -.26$ and $r = -.27$. Significant differences were also noted between groups of workaholics and non-workaholics based on the quartile values of the results of the Work Addiction Risk Test (WART) questionnaire (Flowers & Robinson, 2002; Robinson, 1999). Addicted people, as compared to non-addicted people, have lower action orientation in situations of failure, in decision-making situations, and higher variability orientation in situations of pleasant activities. The results of multiple regression analysis using the stepwise progression method showed that 12% of the observed variance of work addiction can be explained with the use of a model with two variables: action control in situations of pleasant activities and in situations of failure.

The relationship between workaholism and variability orientation which is a symptom of overactivity of the action-initiating system is consistent with the theoretical interpretation according to which it is low action orientation in situations of pleasant activities that can result in workaholics' inability to use free time and "immerse in" rewarding activities. On the other hand, research findings pointing to the relationship between work addiction and state orientation in situations of failure and decision-making situations raises the following questions: what exactly are the mechanisms that are responsible for the relationship between these variables? In what way excessive analysis of one's own failures coinciding with passivity in action can result in a high level of work addiction? In what way indecisiveness in decision-making related to postponing the implementation of an intention after it has been formulated can foster workaholism? Based on the results of the abovementioned studies and the current state of research on the subject of workaholism, an analysis of the issue was carried out which led to the formulation of research hypotheses. The presented reasoning is based on three key assumptions related to subsequent stages of own research, which should be discussed in turn.

1) Workaholism is related to action control.

2) Workaholism is related to the dimensions of neurotic perfectionism.

3) There is a theoretical relationship between action control and the dimensions of neurotic perfectionism allowing us to suppose that the dimensions of neurotic perfectionism mediate between action control and workaholism.

(1) Work addiction and action control

At the first stage of own study, the relationship between action control and workaholism was confirmed in Spanish population (Atroszko, 2009). A group of 292 students of the University of Valencia and occupationally active individuals was studied, including 199 women and 93 men. Work addiction measured with the use of a Spanish version of the WART (Flowers & Robinson, 2002; Robinson, 1999) in the author's own adaptation (Atroszko, 2009) correlated negatively with all types of action control. Comparisons between groups of workaholics and non-workaholics confirmed the findings of Polish research studies.

(2) Work addiction and perfectionism

Most researchers publishing on workaholism agree that there is a relationship between work addiction and perfectionism (Porter, 1996, 2001; Robinson, 1989, as cited

in Robinson, 2001; Scott et al., 1997; Spence & Robbins, 1992). However, most of data on the relationship between these variables are obtained from clinical observations and theoretical deliberations. Spence and Robbins (1992) used in their research their own short questionnaire method to measure perfectionism, however without providing the data concerning its reliability and accuracy. Porter (1996) believes that perfectionism is one of the symptoms of workaholism. The researcher developed a scale of perfectionism which, in its author's opinion, reflects proneness to work addition (Porter, 2001). Items on the said scale pertain to the general belief of the respondents that others do not, or cannot maintain the same standards as respondents in terms of attention to detail, assuming responsibility and working equally well as the respondents, or as scrupulously as they. Porter contrasts workaholics' tendencies towards perfectionism with a high degree of work commitment related to work satisfaction. The research findings obtained by this author show that the views of perfectionists, as compared to individuals who enjoy their work, are related to a lower quality of personal interactions at work and, as a result, with higher stress levels. Perfectionism is also perceived as an aspect of work addiction in the interpretation of Robinson and his associates (Flowers & Robinson, 2002; Robinson, 1999; Robinson & Phillips, 1995; Robinson & Post, 1994).

Despite numerous arguments supporting the relationship between work addiction and perfectionism, there are no research studies confirming the relationship between workaholism and neurotic perfectionism perceived as a multidimensional phenomenon. The first empirical data of this type have been provided by the author's own research (Atroszko, 2009) conducted in Spain based on the idea of dysfunctional perfectionism proposed by Frost, Marten, Lahart, and Rosenblate (1990). The said authors define perfectionism as "a set of extremely high standards (models or principles) for performance accompanied by overly critical evaluations of one's behaviour" (p. 450). According to their conception, there are five dimensions that are fundamental components of neurotic perfectionism that can be measured using respective subscales of the Multidimensional Perfectionism Scale developed by the said authors (Frost et al., 1990): (1) Concern over mistakes – this dimension reflects a tendency towards being overly critical about oneself, the obsession to be perfect, to be the best one, someone who does not make mistakes, treating all mistakes as failures; (2) Doubts about actions – this dimension pertains to a tendency to be uncertain about the quality/correctness of one's own decisions and behaviour; it is related to obsessive doubts, lack of satisfaction with one's results and a tendency to think that results can always be better; (3) Personal standards – reflects a tendency to set high standards of one's own performance. It is assumed that growing up under the care of parents who are highly critical or have high expectations is conducive to the development of perfectionism. Therefore, Frost et al. (1990) also distinguished two dimensions related to the perception of parents' behaviour and attitudes: (4) Parental expectations – they pertain to the degree to which parents are perceived as having over-high expectations about us; (5) Parental criticism – it points to the extent to which parents are believed to be overly critical, harsh, and have little understanding; The sixth dimension, (6) Organisation, differs from other dimensions and pertains to a tendency to be over-organised, neat and orderly. Unlike other components, it is not strictly negative.

The findings of own research (Atroszko, 2009) confirmed a close relationship between workaholism and dysfunctional perfectionism. All subscales of the Multidimensional Perfectionism Scale (Frost et al., 1990) correlated positively with work addiction

measured using the Spanish version of the WART test (Flowers & Robinson, 2002; Robinson, 1999). Only the Organisation subscale did not correlate with workaholism, which was in accordance with predictions since it is different in nature from the other subscales. As expected, people addicted to work, when compared to people not addicted to work, had a higher level of dysfunctional perfectionism in the overall score, as well as in the scores of individual subscales of perfectionism. The results of linear regression analysis showed that concern over mistakes, doubts pertaining to action and personal standards explained more than 38% of the work addiction variance, with concern over mistakes alone explaining more than 30% of the variance. It is one of the highest percentages of the explained variance in research pertaining to personality--related determinants of workaholism and it points to a significant role of these factors in relation to work addiction syndrome.

According to the assumptions adopted by the authors of the concept of dysfunctional perfectionism (Frost et al., 1990), concern over mistakes is the central dimension of this construct and points to a distinct obsessive aspiration to be perfect. At this point it should be highlighted that this motivation is strongly related to the need to be perceived positively by others and is associated with unstable self-esteem. Examples of items on this subscale are: "If I partially fail, it is just as bad as if I suffered complete failure," "The fewer mistakes I make, the more other people will like me," or "If I fail at work or at school, it means that I am a failure as a person." If we also take into account the fact that virtually every mistake is treated as a failure, it can clearly be seen how emotionally overwhelming is the system of assumptions formulated by workaholics – they can never be wrong because every mistake means a failure for them, and in accordance with their beliefs, people stop liking and respecting them, and they themselves become worthless. Even the Personal standards subscale, which measures the level of goals set for oneself, criteria of performance and competencies reflects the belief in a strong relationship between being perfect and self-esteem: "If I do not set the highest standards for myself I will probably end up as a second-rate person." This type of beliefs affects behaviours in the work environment, leading to an obsession with it and compulsive implementation of tasks in such a way as to avoid any mistakes or failures. This is reinforced by doubts about actions which are expressed by such items on the subscale measuring them, as "I tend to fall behind with my work because I keep repeating things all over again, ," or "It takes me a lot of time to do anything 'well.'" Based on the results of this research it can be concluded that work addiction is closely related to a tendency to set unrealistically high standards for one's own actions, to a persistent pursuit of perfection and avoidance of any mistakes or failures.

The findings presented above are consistent with other research studies on workaholism which proved that people addicted to work are motivated by the avoidance of failure, and thus they strive not to reveal their own incompetence and the aims of their achievements are pursuit-oriented – they demonstrate a strong tendency to prove their own competencies related to the need of social approval in the scope of efficiency features (Wojdyło, 2007). The findings of research studies conducted on workaholics in relation to the dimensions of temperament indicate that they are characterised by the avoidance of negative reinforcement and high perseverance (Paluchowski & Hornowska, 2003). According to Burke's research (2000) conducted in Norway, the conviction about the necessity to prove oneself is positively correlated with the

subscale of Internal work pressure and negatively correlated with the subscale of Work satisfaction in the WorkBAT workaholism questionnaire (Spence & Robbins, 1992). This belief stresses that an individual must be continuously proving oneself through accomplishments, or otherwise he or she risks being judged as unsuccessful and worthless. Research findings demonstrate that workaholics are characterised by anxiety as a feature and as a state (Robinson, 1996), as well as by a high level of negative emotions and a low level of positive ones (Atroszko, 2009; Wojdyło, 2007; cf. Burke & Matthiesen, 2004). It should also be emphasised that workaholics have low self-esteem (Atroszko, 2009; cf. Burke, 2004). Moreover, according to research conducted by Paluchowski and Hornowska (2003), work is for workaholics relatively the most important field of realisation of fundamental values, which for them are, by order of significance – authority, prestige and promotion.

The above research findings combine to a coherent picture of a workaholic. He or she is a person with low self-esteem who wants to confirm his or her value through achievements and success. He or she tries, at all costs, to avoid situations in which his or her lack of competencies or weakness could be revealed. A workaholic derives his or her work motivation from anxiety, and therefore his or her pursuit of perfection assumes the form of behaviour with features of obsession and compulsion aimed at preventing any failures.

(3) The dimensions of neurotic perfectionism as variables mediating between action control and addition to work

A detailed analysis of action control types (Kuhl, 1994a, 1994b) and the dimensions of neurotic perfectionism according to the conception proposed by Frost et al. (1990) suggests a hypothesis about a close relationship between state orientation in situations of failure and decision-making situations and such dimensions of perfectionism as concern over mistakes and doubts about actions (see Table 1). It can be assumed that low failure-related action control characterised by dwelling on failures and passivity in action is related to concern over mistakes which reflects an obsession with being perfect and not making mistakes. At the same time, this type of action control can be related to obsessive doubts about actions, a pathological uncertainty as to the correctness of one's own decisions and dissatisfaction with one's own actions. A hypothesis can be formulated that state orientation in situations of failure is related to perfectionist patterns of behaviour since people in whom it is manifest, as they are unable to stop thinking about failures, will be at all costs trying to avoid them in the future. In this way they will develop an obsession with perfection revealing itself in over-anxiousness and doubts about any actions and decisions. This in turn will contribute to the development of workaholic behaviour. To avoid any mistakes and failures people characterised by high neurotic perfectionism will spend increasingly more time and energy on planning and performing all their tasks.

Similarly, low decision-related action control manifesting itself as the inability to proceed from formulating an intention to its implementation, and associated with excessive doubts and hesitation, can be related both to concern over mistakes and doubts about actions. The hypothesis that state orientation in decision-making situations is related to perfectionism seems plausible because indecisiveness, which is a characteristic of it, can foster the development of proneness to be overly self-critical, a desire to avoid any mistakes whatsoever, uncertainty as to the correctness of one's own decisions and actions, as well as the lack of satisfaction with the results of undertaken tasks.

Table 1. Comparison of types of action control and selected dimensions of neurotic perfectionism

Type of action control	Dimensions of perfectionism
Failure-related action control, in unpleasant situations (AOF) state orientation – is characterised by thinking about failures suffered, recalling one's past failures, inability to stop thinking about a failure which is accompanied by passivity in action, action orientation – the ability to stop thinking about a suffered failure and stop emotionally experiencing it, and the ability to engage in a new task or continue the intended actions.	Concern over mistakes – reflects a tendency to be overly self-critical, an obsession with being perfect, being the best one and making no mistakes, treating any mistake as a failure.
Action control in a situation of planning and decision making (AOD) state orientation during planning – inability to implement an intention after it has been formulated which is related to hesitation and indecisiveness, action orientation – the ability to quickly plan and engage in a specific action.	Doubts about actions – pertains to a tendency to being uncertain about the quality/correctness of one's own decisions and behaviour; it is related to obsessive doubts, lack of satisfaction with one's results, and a tendency to believe that results can always be better.

Based on the above analysis, the following hypotheses were formulated: (1) the dimensions of dysfunctional perfectionism: concern over mistakes and doubts about actions mediate between failure-related action control or unpleasant situations and workaholism; (2) dimensions of dysfunctional perfectionism: concern over mistakes and doubts about actions mediate between action control in situations of planning or decision making and work addiction.

3. Method

3.1 Participants

The research involved 292 students from the University of Valencia (majoring in geography, philosophy, economy, and psychology), research staff of the University of Valencia and students professionally active on a daily basis, including 199 women and 93 men, aged between 17 and 68 (M = 22.22, SD = 6.85).

3.2 Research Tools

1. A Spanish adaptation (Atroszko, 2009) of the WART test (Flowers & Robinson, 2002; Robinson, 1999) was used to measure workaholism. It is a research tool consisting of 25 items measuring the patterns of behaviour, cognitive and emotional responses typical of work addiction. Respondents respond to statements describing their habits related to work, providing answers on a four-point Likert scale – from 1, where 1 means *never true*, to 4, where 4 means *always true*. The higher the score, the higher the level of work addition. The reliability of the questionnaire measured with the test-retest method amounted to .83, and Cronbach's alpha coefficient amounted to .85 (Robinson,

Post, & Khakee, 1992). Reliability measured with the split-half method amounted to .85 (Robinson & Post, 1995). Also, face validity of the WART test (Robinson & Post, 1994) and its content validity (Robinson & Phillips, 1995) was demonstrated. This tool has well-documented theoretical validity (Flowers & Robinson, 2002; Robinson, 1996). The Spanish version of the WART test is also characterised by good reliability and accuracy (Atroszko, 2009).

2. To measure action control, Spanish language adaptation (Acosta Uribe, Padilla Garcia, Hurtado Lara, Sánchez Santa-Bárbara, & Guevara, 2004) of J. Kuhl's Action Control Scale (ACS-90) was used. This scale measures three types of action control: failure-related (AOF), decision-related (AOD) and performance-related (AOP). In the present research, the results of only two first subscales were used. Each of the subscales consists of twelve items with alternative answers (A and B) indicating action orientation and state orientation respectively. Scores are calculated separately in each of the subscales. Cronbach's alpha reliability coefficients for the subscales amount to .77 for AOF and .75 for AOD. ACS-90 also has adequate theoretical validity (Kanfer, Dugdele, & McDonald, 1994; Kuhl, 1994b). Satisfactory reliability and validity of the Spanish language version of this scale were also demonstrated (Acosta Uribe et al., 2004; Guevara, Padilla Garcia, & Sánchez Santa-Bárbara, 2001; Padilla Garcia, Sánchez Santa-Bárbara, Guevara, & Acosta Uribe, 2002). In the present research, reliability coefficients amounted to .77 for the AOF subscale and .74 for the AOD subscale.

3. Perfectionism was measured using the Multidimensional Perfectionism Scale developed by Frost et al. (1990). This tool consists of 35 items and investigates six dimensions of perfectionism distinguished by the authors. Responses to individual items are provided on a five-point Likert scale, from 1, where 1 means *I completely disagree* to 5, where 5 means *I completely agree*. High scores in individual subscales mean a high level of perfectionism in their respective dimensions. In the present research, the results of two subscales measuring the level of perfectionism were used: (1) Concern over mistakes – this subscale consists of nine items; (2) Doubts about actions – this subscale consists of four items. The Spanish language versions of these subscales have satisfactory reliability measured with Cronbach's alpha coefficient, exceeding the value of .70 (Zorroza, Soriano, & Sánchez-Cánovas, 1998).

3.3 Research Procedure

The research was conducted at the University of Valencia in Spain. Participation in the study was voluntary. Before filling in the questionnaires the subjects were informed that the research is anonymous and that its results are for research purposes only. This information was provided orally, and it was also included in questionnaire instructions. Questionnaires were filled in during one session in groups of 16 to 84 people. The time to complete the questionnaires did not exceed 45 minutes.

4. Results

At the first stage of statistical analyses, the relationship between workaholism, failure-related action control and decision-related action control, dimensions of neurotic perfectionism: concern over mistakes and doubts about actions were studied. As can be seen in Table 2, all studied variables were correlated with one another. The strongest correlations could be observed between workaholism and dimensions of dysfunctional perfectionism.

Relatively lowest correlations were obtained in the case of decision-related action control and workaholism, and also decision-related action control and concern over mistakes. The directions of correlations were as expected: dimensions of perfectionism positively correlated with workaholism, and types of action control negatively correlated with workaholism and dimensions of perfectionism. This means that the lower the level of action control, the higher the level of workaholism and concern over mistakes and doubts about actions.

Table 2. Mean values, standard deviations and Pearson's r correlation coefficients for the variables: Workaholism, failure related and decision-related action control, dimensions of perfectionism – doubts about actions and concern over mistakes.

Variable	*M*	*SD*	2.	3.	4.	5.
Workaholism	53.01	9.25	–.35*	–.20*	.44*	.55*
AOF	5.38	2.93		.42*	–.34*	–.36*
AOD	6.15	2.89			–.40*	–.19*
Doubts about actions	11.45	3.26				.43*
Concern over mistakes	19.70	6.60				

* $p < .01$.

Then, the mediation procedure described by Baron and Kenny (1986) was used for verifying whether the direct relationship between action control in situations of planning and decision making and situations following failures, unpleasant situations (independent variables) and workaholism (explained variation; path c) was significantly lower after introducing to the model the dimensions of neurotic perfectionism: concern over mistakes and doubts about actions (intermediating variables; path c'). Four consecutive mediation analyses were conducted (Figure 1).

The results of linear regression analysis pointed to a direct relationship between action control in a situation of planning and decision making (AOD) (independent variable) and workaholism (explained variation). Unstandardised regression coefficient was $B = 0.64$, $p < .001$ (path c (1)). After the introduction of the intermediating variable – doubts about actions – to the model, the relationship between action control in a situation of decision making and work addiction became insignificant. Unstandardised regression coefficient was $B = -0.06$; n.s. (path c (1)'). Sobel test (1982) result was significant: $z = -6.14$, $p < .001$ and confirmed full mediation.

A similar result was obtained in the case of the relationship between decision-related action control and workaholism after the introduction of the intermediating variable of concern over mistakes to the model. This time the relationship between action control and work addiction significantly decreased but was not entirely reduced. Unstandardised regression coefficient was $B = -0.29$, $p < .001$ (path c (1)'). Sobel test (1982) result was significant: $z = -3.05$; $p < .003$. In this case, we can talk about partial mediation.

The obtained results of linear regression analysis showed that there is a direct relationship between action control in a situation following a failure, unpleasant situation (AOF; independent variable) and workaholism (explained variation). Unstandardised

regression coefficient was $B = 1.10$, $p < .001$ (path c (2)). After the introduction of the intermediating variable of doubts about actions to the model, the relationship between action control in a situation of a failure and work addition decreased significantly. Unstandardised regression coefficient was $B = -0.73$, $p < .001$ (path c (2)'). Also on this occasion Sobel test (1982) result was significant: $z = -5.31$, $p < .001$ and confirmed partial mediation.

Relationship between action control in situations after a failure, unpleasant situations and workaholism decreased significantly after the introduction of the intermediating variable of concern over mistakes to the model. Unstandardised regression coefficient was $B = -0.57$, $p < .01$ (path c (2)'). Sobel test (1982) result was significant: $z = -5.15$, $p < .001$. Also in this case we can talk about partial mediation.

Diagrams of models of mediation

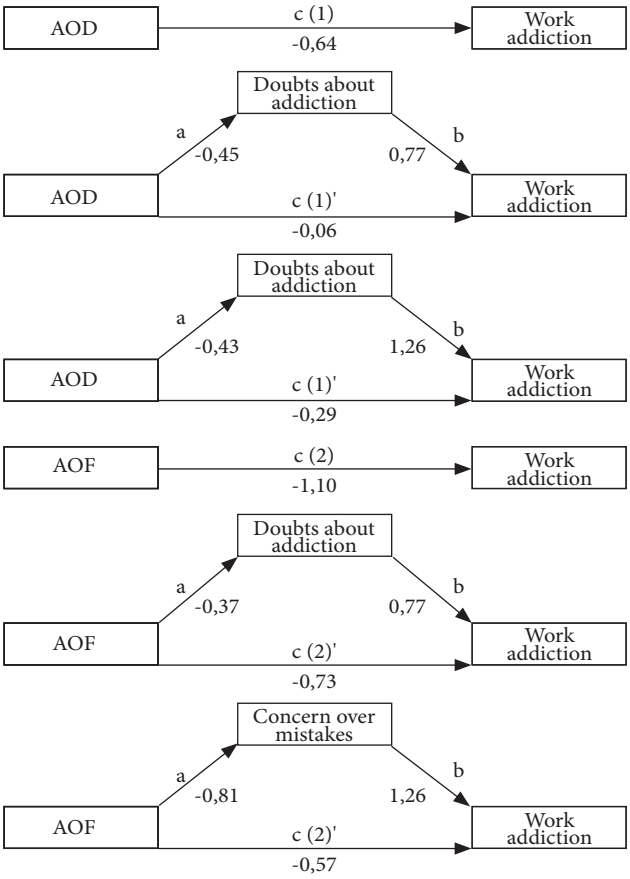

Figure 1. Models of relationship between types of action control and the level of workaholism without taking intermediating variables into account, and taking into account the intermediating variables of neurotic perfectionism: concern over mistakes and doubts about actions.

5. Discussion and Conclusions

The obtained results confirm the formulated research hypotheses. Both doubts about actions and concern over mistakes mediate between failure-related action control, unpleasant situations and work addiction. Similarly, both investigated dimensions of neurotic perfectionism mediate between decision-related action control and workaholism. However, it should be noted that only in the case where decision-related action control was the independent variable, and workaholism was the explained variation, and doubts about actions were the intermediating variable, the obtained result attested to full mediation. This means that doubts about actions fully mediate between decision-related action control and work addiction. In the case of the remaining three models, the obtained results are indicative of partial mediation, and hence the intermediating variables do not fully explain the relationship between independent variables and the explained variation. In such a situation it can be assumed that either there is a partially direct relation between action control and workaholism, or that there are other intermediating variables.

The described research findings are consistent with the studies quoted above concerning personality-related determinants of workaholism (Atroszko, 2009; Burke, 2000; Burke & Matthiesen, 2004; Paluchowski & Hornowska, 2003; Robinson, 1996; Wojdyło, 2007). Moreover, they are of significant theoretical importance because they combine the findings of studies conducted within the motivational doctrine (Wojdyło, 2007) with the data obtained within the volitional doctrine (Wojdyło & Lewandowska-Walter, 2009) to provide a more detailed version of the model of personality-related determinants of workaholism. On their basis, one can point to the mechanism which probably binds low failure-related and decision related action control to work addiction. This way, two questions will be answered. The first one is – why do people who are preoccupied with thinking about failure and find it difficult to initiate new actions after a failure are more prone to work addiction? In light of the presented research findings, it seems that this is because the tendency of excessive preoccupation with failures can cause the development of dysfunctional anxiety related to the possibility of making mistakes and exaggerated doubts about any actions. Unrealistic expectations shaped in this way result in spending increasingly more time on performing tasks and investing increasingly more energy in work. And because from a practical point of view it is impossible to achieve a perfect result, this mechanism leads to an increasing obsession with work and the inability to stop thinking about it. Mudrack and Naughton (2001) perceive thinking about work as a behavioural tendency. One of the scales that they invented for the measurement of tendencies to workaholism pertains to the performance of non-required work. It mainly involves questions about the amount of time and energy spent to thinking about the ways to improve professional activities. This is because obsession with work can operate in the minds of workaholics also in their free time. This is consistent with a view advocated by many authors according to which the number of working hours should not constitute the only premise for the diagnosis of workaholism (cf. Ersoy-Kart, 2005; Harpaz & Snir, 2003; Naughton, 1987; Schaufeli, Taris, & van Rhenen, 2008; Spence & Robbins, 1992; Taris, Schaufeli, & Verhoeven, 2005).

The second question, the premises for the answer to which are provided by the research findings, is "why do people who find it difficult to initiate the planned actions or

engage in activities in their free time are more prone to work addiction?" The findings suggest that it may be the case because the inability to proceed from formulating an intention to its realisation probably causes constant doubts and uncertainty whether or not the expected result will be achieved, and this in turn can lead to endless analyses of the situation. People with such tendencies will be continuously thinking about work, and when they finally start acting, then most probably they will be repeating actions leading to a particular goal to make sure that everything is done in a proper way.

The findings of the conducted research are of great practical significance because they draw attention to the potential mechanism behind the development of addiction and the possibility of applying appropriate remedial strategies. In light of the obtained data, therapeutic interventions should be focused on the correction of unrealistic perfectionist standards of behaviour and related response and action habits based on a compulsive need to avoid any kind of mistakes and failures. It can be assumed that a change in these areas of functioning of workaholics will lead to a reduction of symptoms of work addiction.

The general conclusion of the presented study is that workaholism is most probably the result of both the so-called "weak will" and a pathological desire for perfection. At the same time, the neurotic way of striving to be perfect mediates between a low level of activity – inability to implement one's formulated intentions – and work addiction.

The limitation of this research study is the fact that is was conducted in a correlation model. Based on the findings, it is not possible to draw unambiguous conclusions about the causal relations between the studied variables. Further longitudinal studies should overcome this limitation as well as provide data that would enable us to answer the question under what conditions low action control is conducive to the development of dysfunctional perfectionism. Is it developed based on high standards – in other words, does low action control make a person with high standards develop dysfunctional perfectionism? Will a person with high standards and high action orientation not be characterised by the so-called positive perfectionism, also referred to as "normal" perfectionism (Hamachek, 1978, as cited in Sánchez-Cánovas, Soriano, & Zorroza, 2000) and will be a well-functioning individual striving for success? The next question is whether there are other variables that mediate between action control and work addiction, and if so, what they are.

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MONIKA MYNARSKA*
Institute of Psychology
Cardinal Stefan Wyszyński University in Warsaw

APPLICATION OF THE THEORY OF PLANNED BEHAVIOUR FOR EXPLAINING CHILDBEARING INTENTIONS – ASSESSMENT OF OPERATIONALIZATION AND MEASUREMENT[1]

Abstract

The article aims to evaluate how well the theory of planned behaviour (TPB; Ajzen, 1991) has been operationalized within the Generation and Gender Programme. In this project, the TPB has been applied as a theoretical framework for investigating childbearing intentions. According to the model, childbearing intentions are determined by attitudes towards having children, subjective norms concerning childbearing and perceived behavioural control. Scales to measure these variables have been introduced into the Generation and Gender Survey (GGS) that has been administered to thousands of respondents in Europe – almost 7 thousand individuals responded to the questions on childbearing intentions in Poland. The analyses conducted on the Polish data indicate that the reliability of the scales to measure attitudes, norms and perceived behavioural control is high. Nevertheless, several significant problems with their validity have been identified. In particular, the scale of the perceived behavioural control does not provide valid results and should not be used to explain childbearing intentions.

Keywords: childbearing intentions, theory of planned behaviour, reliability, validity

1. Introduction

This article aims to evaluate the operationalization of the theory of planned behaviour (TPB, Ajzen, 1991), which was carried out as part of the study "Generations, families and gender – GGS-PL" (Kotowska & Jóźwiak, 2011). In this study the theory of planned behaviour was used to explain the difference in childbearing intentions of Polish men and women.

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* Corresponding author: m.mynarska@uksw.edu.pl

Both in Poland and other developed countries, fewer children are born each year, which leads to an ageing population. To take effective action against this phenomenon, it is necessary to better understand the reasons why young people decide to have smaller families or give up having offspring at all. Therefore, social researchers are showing increasing interest in the process of shaping parental intentions and the factors that determine their implementation (e.g., Billari, Philipov, & Testa, 2009; Dommermuth, Klobas, & Lappegård, 2011; Jokela, Alvergne, Pollet, & Lummaa, 2011; Liefbroer, 2009; Miller, Rodgers, & Pasta, 2010; Philipov, 2009; Roberts, Metcalfe, Jack, & Tough, 2011; Sobotka & Testa, 2008; Spéder & Kapitány, 2009). They also increasingly refer in their research to psychological models of intentions and decision making. In recent years, the most frequently used model is the theory of planned behaviour of Icek Ajzen (1991). It is now one of the theoretical bases of the "Generations and Gender" project (Vikat et al., 2007), whose main objective is to collect the data needed for a better understanding of demographic change in an ageing Europe. Within the Polish part of this project "Generations, families and gender – GGS-PL" (Kotowska & Jóźwiak, 2011) a very extensive and detailed survey was conducted, covering 20 thousand respondents. Almost half of this sample were people of reproductive age and these people were asked a series of questions about their childbearing intentions (Mynarska, 2011). The survey also included questions about the variables that, according to the theory of planned behaviour, d,etermine the intention to have children. In this paper, an attempt will be made to assess how well these variables have been operationalized and measured.

2. The Theory of Planned Behaviour

2.1 The Theory of Reasoned Action and Planned Behaviour

Icek Ajzen's *theory of planned behaviour* (Ajzen, 1985, 1991) was created as an extension of the *theory of reasoned action,* developed by Ajzen together with Martin Fishbein (Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975). The concept of intention is central to both these models. Intentions include all the motivational components of human behaviours and are "indicators of how hard people are willing to try to, of how much of an effort they are planning to exert, in order to perform the behaviour" (Ajzen, 1991, p. 181). The main assumption of both theoretical models is that unless there are any unforeseen circumstances, people will behave according to the formulated intentions (Ajzen, 1985; Ajzen & Fishbein, 1980; Fishbein & Ajzen, 2010). Naturally, intentions are not constant over time and can be modified as a result of any change in one of the three groups of factors influencing them. These factors, as postulated by the theory and described below, are: attitudes towards behaviour, subjective norms and perceived control over behaviour.

Attitudes. Each intention is formed primarily by attitudes that derive from the individual's beliefs about the expected effects of a given behaviour (the expectancy-value model). The higher the subjective value of the expected outcome of a given behaviour, the more positive the attitude towards it, and, as a result, the stronger the intention to implement it.

Subjective norms. The second group of factors influencing intentions are subjective norms. According to the theory of planned behaviour, these norms are closely related to social pressure to implement or refrain from carrying out a given behaviour. Subjective norms are created based on personal beliefs that certain behaviour will or will not be approved by "significant others". As "significant others", an individual can consider

their parents, partner, friends, yet also society as a whole. Furthermore, some of the subjective norms can be internalized and independent of the presence of any reference persons. Such norms are defined by Ajzen as moral norms (Ajzen, 1991).

A perceived behavioural control. The last group of intent-determining variables refers to the resources and capabilities available to the individual, which are necessary for the performance of a given behaviour. In the early version of the theory of reasoned action (Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975), the authors only considered *actual behavioural control*: whether an individual has adequate resources, such as time, material resources, skills, or the cooperation of others, determines the possibility of achieving a given intention. Ajzen (1991) noted, however, that subjective evaluation of resources and capabilities (*perceived behavioural control*) plays a key role in the process of shaping intentions and can support or inhibit their realization.

The attitudes, subjective norms and the perceived behavioural control are based on the individual's beliefs. These, however, can be shaped by numerous variables, treated in the discussed theoretical model as external variables (external to the axial variables of the model): socio-demographic characteristics, personality, previous experiences of the individual, their knowledge, etc. (Ajzen & Fishbein, 1980; Fishbein & Ajzen, 2010). The chart below schematically presents the relationships between the key variables in the planned behaviour theory.

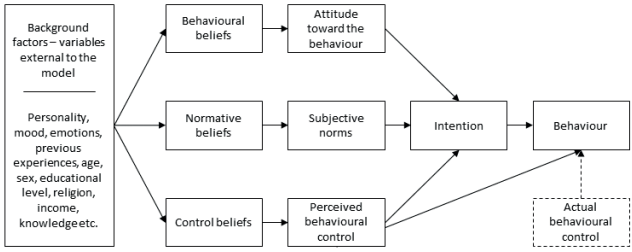

Figure 1. Schematic presentation of the theory of planned behaviour (based on Fishbein & Ajzen, 2010, p. 22).

As it results from the above scheme, intentions are shaped by the direct influence of the three aforementioned groups of variables: attitudes towards the behaviour, subjective norms and perceived behavioural control. All other variables influence intentions indirectly. Therefore, a good (valid and reliable) measurement of attitudes, subjective norms and perceived behavioural control is a key element in empirical research referring to the theory of planned behaviour.

2.2 Measurement of the Variables Postulated in the Theory of Planned Behaviour

A significant advantage of the theory of planned behaviour is that the proponents of this theoretical approach have published many guidelines for measuring intentions,

attitudes, norms and perceived behavioural control. Providing a complete list of recommendations is well beyond the scope of this study, but the main guidelines of Fishbein and Ajzen and sample questions will be presented. All examples are taken from Ajzen and Fishbein (1980) and Fishbein and Ajzen (2010).

Intentions. Questions about intent should assess how likely it is that the subject will engage in a particular activity. It is important to clearly define in the question what the intention (purpose, behaviour) is about and what is the time perspective and context for the implementation of this intention. The scale of the answers should reflect the degree of involvement of the respondent in the implementation of this intention, for example: *I intend to donate blood during an event organized at the university next week. (definitely no 1 – 2 – 3 – 4 – 5 – 6 – 7 definitely yes)*

Attitudes. In measuring attitudes, the questions must be formulated with regard to the specific behaviour of interest us and that they allow to determine the degree to which a given attitude is positive or negative (bipolarity of assessments). The semantic differential method is useful here. The respondent may be asked to rate the extent to which a given behaviour is good–bad, desirable–undesirable, favourable–unfavourable, and so forth (Fishbein & Ajzen, 2010). There are also possible methods referring to the person's beliefs about the consequences of a given behaviour. The following items are an example of this: *The use of condoms can have a negative effect on the relationship: The use of condoms is uncomfortable. (I strongly disagree 1 – 2 – 3 – 4 – 5 I strongly agree).*

Subjective norms. In the case of measurement of subjective norms, respondents should be asked whether the people who are important to them approve or condemn the behaviour. The questions can be formulated in a general way, for example: *Most people who are important to me think that: I should 1 – 2 – 3 – 4 –5 –* 6 – 7 *I should not go on holiday this year.* It is also possible to ask questions about specific people, for example: *My husband believes that: I should 1 – 2 – 3 – 4 – 5 –* 6 – 7 *I should not have a child in the next 12 months.* The authors draw attention to the fact that in the latter case it should be empirically established whether the respondent really relies on the opinion of certain people. This can be done, for example, by asking open-ended questions in the first step, for the respondent to name five people who could influence his or her decision about the behaviour. Then questions are asked with regard to these people.

Perceived behavioural control. The aim of the questions about the perceived behavioural control is to determine the extent to which the respondent feels that he or she has the appropriate resources and capabilities to implement the intention. Questions may concern the extent to which the respondent considers a given behaviour to be difficult or easy, under their control, or dependent only on their will, for example: *Quitting smoking in the next six months is for me: very difficult 1 – 2 – 3 – 4 – 5 – 6 – 7 very easy. I have full control over whether I can quit smoking in the next six months: definitely no 1 – 2 – 3 – 4 – 5 – 6 – 7 definitely yes.*

In conclusion, in the opinion of the proponents of the theory of planned behaviour, questions about intentions and their determinants must be asked in a precise manner, with regard to a specific behaviour, planned in a specific context and time perspective. It is also worth noting that for each question, at least a five-point (and usually seven-point) response scale is suggested.

2.3 The Theory of Planned Behaviour in Studies on Childbearing Intentions

The theory of planned behaviour was used in research to explain a very wide range of human behaviour such as quitting smoking, using contraception, voting in elections, using drugs, changing jobs, using new teaching methods, taking up studies or even using a solarium (a rich overview of this research can be found in publications, for example: Armitage & Conner, 2001; Notani, 1998). The interest in the theory of planned behaviour has grown exponentially over the past decade among demographers and sociologists, who are increasingly using it to explain childbearing intentions. The studies look at the determinants of these intentions (Billari et al., 2009; Dommermuth et al., 2011; Klobas, 2010), their variability over time (Iacovou & Tavares, 2011) and factors affecting their realization (Philipov, 2009; Spéder & Kapitány, 2009). The theory of planned behaviour is also referred to by authors dealing with unplanned pregnancies (Lifflander, Gaydos, & Hogue, 2007). At the beginning of this century, Icek Ajzen's theoretical model was operationalized under the "Generations and Gender Programme" (Vikat et al., 2007). The research of this programme is carried out in 19 countries – mainly in Europe, but also in Australia and Japan (more detailed information on the project and available data can be found on the website: http://www.ggp-i.org/). In Poland, the research of the above project was carried out by the Institute of Statistics and Demography of the Warsaw School of Economics in cooperation with the Central Statistical Office. The survey was conducted using the face-to-face interviewing method at the turn of 2010 and 2011 and covered 20 thousand respondents (Kotowska & Jóźwiak, 2011). One of the sections of the survey was entirely about procreative behaviour and intentions. According to the assumptions of the theory of planned behaviour, respondents were asked about their intention to have a child within the next three years. Additionally, the survey included questions about the remaining variables postulated by Ajzen's theory. These questions were supposed to create scales for measuring attitudes, subjective norms and perceived behavioural control, connected with having offspring. These scales will be presented later in the article, and then their psychometric properties will be assessed.

3. Method

3.1 Research Sample

The survey "Generations, families and gender – GGS-PL", from which the analysed data come, covered respondents aged 18–79 years. For obvious reasons, questions about childbearing intentions were addressed only to people of reproductive age: women aged 49 or less and men whose partner was under 50. For the presented analyses, the research sample was limited to people under the age of 40, because among older respondents only 4% declared intentions to have a child. Table 1 below shows the basic characteristics of the sample, divided by sex. The analyses included all persons who answered the question about childbearing intentions: there were 6,685 persons in total. In the case of subsequent analyses, the number of cases taken into account may be smaller due to the missing data on attitudes, norms or perceived behavioural control.

Table 1
Sample characteristics

		Men n = 2,943	Women n = 3,742
Age	Under 20	7,3%	7,7%
	20–29 years	43,7%	41,7%
	30–39 years	48,9%	50,6%
Children	Childless	55,3%	38,6%
	One child	22,8%	26,7%
	Two or more children	21,9%	34,7%
Marital status	Single	51,4%	38,7%
	Married	45,5%	54,0%
	Widowed, divorced or in separation	3,1%	7,3%
Place of residence	Village	31,5%	31,8%
	Town/City	68,5%	68,2%
Education	Junior high school or lower	11,5%	10,1%
	Basic vocational	23,7%	16,1%
	Vocational secondary	21,2%	17,4%
	Secondary and post-secondary	17,6%	22,7%
	Bachelor's degree or higher	26,0%	33,6%

3.2 Variables

The questions about childbearing intentions used in the Polish research are an exact translation of the questions designed by the international consortium responsible for the international "Generations and Gender Programme". During the preparation of the translation, only slight linguistic corrections were allowed, which did not change the meaning of the original questions. The detailed questions of the survey, designed to measure the variables, as postulated in the Ajzen's theoretical model, are presented in Table 2.

Table 2

Questions about intentions, attitudes, norms and subjective control, GGS-PL questionnaire

Questions	Coding of responses
Intentions	
Do you intend to have a child (or another child) during the next 3 years? Please do not include adoption plans.	Definitely no – 1 Probably no – 2 Probably yes – 3 Definitely yes – 4
Attitudes	
Suppose that during the next 3 years you were to have a (another) child . What effect would that have on various aspects of your life. Would it be better or worse for: a. your possibility to do what you want b. your employment opportunities c. your financial situation d. your sexual life e. what people around you think about you f. the joy and satisfaction that you get from life g. the closeness between you and your spouse/partner h. your partner's employment opportunities i. the care and security you may get in old age j. certainty in your life k. the closeness between you and your parents.	Much worse – 1 Worse – 2 Neither better nor worse – 3 Better – 4 Much better – 5 Not applicable – no data
Subjective norms	
Please state to what extent you agree or disagree with the following statements a. most of your friends think you should have a (another) child within the next 3 years b. Your parents think you should have a (another) child within the next 3 years c. Most of your relatives think you should have a (another) child within the next 3 years	Strongly disagree – 1 Disagree – 2 Neither agree nor disagree – 3 Agree – 4 Strongly agree – 5 Not applicable – no data
Perceived behavioural control	
To what extent your decision whether to have or not to have a (another) child during the next 3 years depends on the following factors: a. your financial situation b. your work c. your housing conditions d. your health e. you having a suitable partner f. your spouse's/partner's work g. your spouse's/partner's health h. availability of childcare h. your opportunity to take parental leave	Not at all – 1 A little – 2 Quite a lot – 3 A great deal – 4 Not applicable – no data available

3.3. Analyses

In order to assess how well the variables on childbearing intentions have been operationalized and measured, the following analyses were carried out:

1) assessment of measurement validity by analysing the content of the questions in relation to the theoretical model;

2) assessment of measurement reliability by analysing the internal consistency of the scales (analyses for women and men separately);

3) assessment of validity by examining the relationship between childbearing intentions and attitudes, subjective norms and perceived behavioural control postulated in the theoretical model.

4. Results

4.1 Assessment of Validity – The Analysis of the Content of Questions

First of all, one should consider to what extent the content of the questions reflects the measured variable as it is postulated in the theoretical model. This assessment is necessary to decide whether it is justified to create scales based on the questions about attitudes, norms and behavioural control.

Childbearing intentions. In accordance with the theory of planned behaviour, the aim (childbearing) and time frame (next three years) for achieving this intention, were specified in the question. Ajzen and Fishbein (Ajzen & Fishbein, 1980; Fishbein & Ajzen, 2010) additionally assert that there is a need of measuring the level of certainty of each formulated intention. A four-level scale allows to perform this type of measurement in the GGS survey (*definitely not*, *probably not*, *probably yes*, *definitely yes*). Nonetheless, the scale is shorter than recommended by the proponents of the theoretical model and that only one question is devoted to the measurement of intentions. This means that the variable which is key in the theoretical model is not measured as a continuous variable – the response scale is an ordinal scale.

Attitudes. According to the theory, the questions on attitudes are formulated in respect to the specific behaviour: having a child within the next three years. Survey participants assessed the expected impact of childbearing on different aspects of their lives. The response format (from *definitely worse* to *definitely better*) allows to distinctly determine whether the respondents expect a positive or negative outcome (bipolarity of assessment). However, it is problematic that not all of the questions concern all participants of the survey. For example, respondents were asked how a child would affect their relationship with their parents. This question could not be answered by respondents whose parents are deceased. Similarly, answering questions about the impact of childbearing on the relationship with a spouse/partner, or on the situation of a spouse/partner on labour market may be difficult or even impossible for people who are not in a relationship (they could only answer hypothetically, which they were not asked to do in the instruction).

Subjective norms. In questions concerning a subjective sense of social pressure, respondents were asked whether the fact of having a child (within the next three years) would be consistent with the expectations of their friends, parents and relatives. A five-point answering scale to each question allows calculating the total level of pressure felt. Unfortu-

nately, it is not possible to establish whether the respondents find the opinion of the people listed in the questions important. Moreover, some respondents were not able to answer all questions (not all respondents had living parents).

Perceived behavioural control. To measure perceived behavioural control, the authors of the survey asked a series of questions on how different resources and possibilities are relevant for procreative intentions. Unfortunately, the way the questions were formulated made it impossible to interpret the answers in the categories postulated by the theory of planned behaviour. Let us consider the first question: "To what extent your decision whether to have or not to have a (another) child or to resign from having a child within during the next 3 years depends on the following factors: Your financial situation". If a respondent answers this question by saying *It does not depend on it at all*, what does it mean? There are many possible interpretations: (1) a survey participant has relevant financial resources but they do not intend to have a child, (2) they do not have relevant financial resources but do not intend to have a child for completely different reasons than lack of financial resources, (3) they do not have relevant resources but still intend to have a child or (4) they have relevant resources and plan to have a child, but this aspect was not important in the decision. Clearly, the interpretation of an answer to such question may vary and one is not able to clearly assess whether the answer *it does not depend on it at all* indicates a low or high sense of control over behaviour. The same problem occurs in all items of this scale. As a result, although the questions seem to be very similar and coherent, they do not make it possible to clearly assess whether a respondent believes that he or she have the resources and prospects sufficient to have a child. The survey participants only determine how many and what factors their procreative decision depend on. They do not determine to what extent they control those factors.

In conclusion, the measurement of intentions, attitudes and subjective norms is overall consistent with the theoretical model However, there are significant problems related to how the scales are constructed (there is only one question to measure intentions, some questions are not applicable to all respondents, lack of empirical identification of "significant others" in questions on norms). However, one might consider the content of the questions as satisfactory. Unfortunately, the questions concerning perceived behavioural control were formulated in a completely incorrect way making it impossible to interpret the respondent's answers according to the theoretical model.

4.2 Measurement Reliability – Internal Consistency of Scales

The psychometric properties of the scales of attitudes, subjective norms and perceived behavioural control are presented in Tables 3–5 below. For each scale, the Cronbach's alpha internal consistency coefficient and the coefficients of discriminant power (corrected item-total correlations) for the questions were computed. The analyses were conducted separately for men and women.

Attitudes. As can be seen from the data presented in Table 3, the questions referring to attitudes created a consistent scale characterized by high reliability ($\alpha = .800$ for women and $\alpha = .804$ for men). The properties of the whole scale as well as of the individual questions are very similar in the sample of women and men. All questions are characterized by a satisfactory item-total correlations (all coefficients are statistically significant and range between .32–.62). One noteworthy aspect is the high level of missing data – almost

30% of cases were excluded from the analysis. This is due to the very large missing data in the questions that concerned the spouse/partner of the subject. These questions did not apply to about 20% of the respondents. Significant non-response was also reported for questions b) (5.5%) and d) (8%).

Table 3

Psychometric characteristics of the scale of attitudes towards having children in the next three years

	Women	Men
Item-total correlations: Suppose that during the next 3 years you were to have a (another) child. What effect would that have on various aspects of your life. Would it be better or worse for:		
a) your possibility to do what you want	.405	.393
b) your employment opportunities	.407	.461
c) your financial situation	.433	.460
d) your sexual life	.362	.401
e) what people around you think about you	.396	.413
f) the joy and satisfaction that you get from life	.638	.629
g) the closeness between you and your spouse/partner	.575	.559
h) your partner's employment opportunities	.348	.318
i) the care and security you may get in old age	.461	.466
j) certainty in your life	.552	.557
k) the closeness between you and your parents.	.456	.461
Number of valid observations	n = 2,640 (70.6%)	n = 2,075 (70.5%)
Number of excluded observations (missing data)	n = 1,102 (29.4%)	n = 868 (29.5%)
Mean of the scale	31.47	31.98
Standard deviation of the scale	4.35	4.46
Cronbach's alpha	.800	.804

Subjective norms. Questions on subjectively perceived norms have also created a consistent scale, characterised by very high reliability (α = .928 for women and α = .937 for men). The scale is short but very homogeneous: the item-total correlation of the questions ranges from .81 to .91. Missing data, although they do exist, do not pose as much of a problem as for the previous scale (on attitudes). The highest number of missing data was recorded in the case of question b) – about the opinions of the parents of the respondent. As with the previous scale, the psychometric properties are similar for men and women.

Table 4

Psychometric characteristics of the scale of subjective norms regarding having children in the next three years

	Women	Men
Item-total correlations:		
Please state to what extent you agree or disagree with the following statements		
a) Most of your friends think you should have a (another) child within the next 3 years	.812	.821
b) Your parents think you should have a (another) child within the next 3 years	.850	.883
c) Most of your relatives think you should have a (another) child within the next 3 years	.896	.907
Number of valid observations	n = 3,484 (93.1%)	n = 2,762 (93.8%)
Number of excluded observations (missing data)	n = 258 (6.9%)	n = 181 (6.2%)
Mean of the scale	7.59	7.68
Standard deviation of the scale	3.29	3.21
Cronbach's alpha	.928	.937

Perceived behavioural control. Although the analysis of the content of the questions (presented in the previous chapter) has shown that items on perceived behavioural control are formulated incorrectly, they represent a surprisingly homogeneous scale. The item-total correlation for individual questions is high (from .59 to .74), and the overall coefficient of internal consistency of the scale is above .90 in both the female and male samples. Also in this group of questions, missing data are a significant problem. Again, the biggest problem was caused by questions f and g, about the spouse/partner of the surveyed person, on which a significant number of people, who were not in a relationship, did not answer. Missing data in these questions reached 16–18%. Also, item b (concerning the job of the respondent) was not answered by a meaningful share of survey participants (11% of the whole sample).

Table 5
Psychometric characteristics of the scale of a subjective sense of control over behaviour

	Women	Men
Item-total correlations: To what extent your decision whether to have or not to have a (another) child during the next 3 years depends on the following factors:		
a) your financial situation	.694	.728
b) your work	.676	.739
c) your housing conditions	.648	.686
d) your health	.592	.686
e) you having a suitable partner	.613	.619
f) your spouse's/partner's work	.741	.680
g) your spouse's/partner's health	.710	.697
h) availability of childcare	.702	.698
i) your opportunity to take parental leave	.662	.648
Number of valid observations	n = 2,609	n = 2,081
	(69.7%)	(70.7%)
Number of excluded observations (missing data)	n = 1,133	n = 862
	(30.3%)	(29.3%)
Mean of the scale	21.59	21.30
Standard deviation of the scale	7.76	7.69
Cronbach's alpha	.901	.908

To sum up, all three scales are characterized by high or very high reliability (internal consistency, assessed using the Cronbach's alpha coefficient), and the psychometric properties of individual questions as well as the scales are similar in the sample of women and men. In the case of scales concerning attitudes and perceived behavioural control, missing data constitute a serious problems, as some questions do not apply to all respondents.

4.3 Assessment of Validity – The Relationship of Attitudes, Norms and Perceived Behavioural Control with Intentions

According to the operationalized model of the theory of planned behaviour, scales of attitudes, subjective norms and perceived behavioural control should show high positive correlation with declared intentions. To verify this, the total scores for each of the three scales were calculated for each respondent. The score consists of the sum of answers to the individual questions. Scales were coded in a way that a higher score on the attitudes scale indicates more positive attitude towards having children, and a higher score on the scale of norms indicates more positive opinions of the respondent's friends and relative on respondent having children (high level of felt pressure; see: Table 2). In the case of the scale which was intended by the authors to measure perceived behavioural control, a high

score means that in the opinion of the respondent, their decision on having or not having a child within the next three years depends on a large number of factors.

The childbearing intention was measured using a four-point ordinal scale (see: Table 6), hence Kendall's rank correlation coefficients were computed to measure strength and direction of the relations between the variables.

Table 6

Distribution of answers to questions about the intention to have a child in the next three years

Do you intend to have a child (or another child) in the next three years?	Women $n = 3,742$	Men $n = 2,943$
Definitely not	1,572 (42%)	1,026 (34.9%)
Probably not	967 (25.8%)	859 (29.2%)
Probably yes	727 (19.4%)	680 (23.1%)
Definitely yes	476 (12.7%)	378 (12.8%)

Table 7

Correlation coefficients between the intention to have children within the period of the next three years and the total scores of the scales of attitudes, norms and perceived behavioural control

Variable X	Variable Y	Nonparametric correlation coefficients (Kendall's Tau)	
		Women	Men
The intention to have a child within the next three years	Scale: Attitudes	.43 ($n = 2,640$)	.37 ($n = 2,075$)
	Scale: Norms	.45 ($n = 3,484$)	.43 ($n = 2,762$)
	Scale: Perceived control	−.04 ($n = 2,609$)	−.07 ($n = 2,081$)

All correlations are significant at $p < .01$

All correlation coefficients proved to be statically significant, which is not surprising for such large samples. The scale of attitudes and subjective norms correlates with intentions consistently with expectations: the more positive the attitudes of the respondents and the more positive the attitude of their close ones – the more positive the intentions to have offspring. These correlations are moderate for both women and men, although it should be noted that the lowest correlation occurs between attitudes and intentions in the male sample (Tau = .37). In the case of the perceived behavioural control scale, the correlation is negative. This means that the more factors the respondents found important for their decision to have a child, the more negative intentions they expressed (i.e., they did not intend to have children in the next three years). Nevertheless, although correlation coefficients are statistically significant, their size is close to zero.

Therefore, it can be concluded that the results of the analyses confirm the relations between intentions and attitudes and subjective norms postulated in the theoretical model. Although the correlations are not very high, they are in favour of the validity of their measurement. However, the same cannot be stated concerning the questions that were intended by the authors of the questionnaire to capture perceived behavioural control.

5. Summary and Discussion

Research on childbearing intentions is an important part of the search for answers to the question of why fewer and fewer children are being born. However, this research requires data that will provide reliable and valid information on the intentions and their determinants. An attempt to collect such data was made under the "Generations and Gender Programme", but it was not fully successful. One of the important objectives of the GGP was to measure variables relevant to childbearing intentions, based on the theory of planned behaviour (Ajzen, 1991). The analyses presented here clearly reveal many shortcomings in how these variables were operationalized and how the scales were constructed to measure them. Although, in general, the operationalization of intentions, attitudes and subjective norms was consistent with the theoretical model, and the total scores indicative of attitudes and subjective norms correlate positively with parental intentions, it is impossible to fully verify Ajzen's theoretical model. This is prevented by the very low validity of the perceived behavioural control scale. As a result, it is impossible to build a structural model that would cover all the components of the theory of planned behaviour in an attempt to predict childbearing intentions, which the "Generations and Gender Programme" was originally designed to do.

Of course, it is possible to use the constructed scales for some partial analyses. For example, it would be possible to examine the impact of attitudes or subjective norms on childbearing intentions, as well as on final reproductive decisions (when panel data is available). However, even in these analyses, one should keep in mind the limitations shown here. First of all, the validity of the proposed scales is problematic in case of people who are not in a relationship. It might be reasonable to exclude the questions concerning the partner, but this might negatively impact reliability of the scale. Alternatively, analyses should be limited to people in a relationship.

From a psychometric point of view, it is noteworthy that although all the three analysed scales are internally consistent, their validity is not satisfactory. This is particularly visible in the case of scale to measure perceived behavioural control. Yet, other scales (of attitudes and norms) also do have some shortcomings (e.g., the questions do not apply to all respondents, there is no empirical identification of "significant others" in the scale of norms).

It should be noted that the main problems related to validity of the scales were detected without any sophisticated statistical analyses. The very analysis of the theoretical model and the systematic reference to the content of the questionnaire items made it possible to identify the most important problems of the scales. These problems were confirmed by later empirical analyses (missing data, only a moderate correlation between attitudes and subjective norms, and childbearing intentions, close to zero correlation between the scale designed to measured perceived control and childbearing intentions).

The presented analyses show how important it is to have a very critical approach to the questions and scales as they get constructed. In their publication Dommermuth and col-

leagues (2011) used the data from the "Generations and Gender Programme", the scales of attitudes, norms and perceived control, to explain childbearing intentions in Norway. They verified the correctness of measurement of the analysed variables using factor analysis (checking if they obtain three independent dimensions) and calculated Cronbach's alpha coefficients for the scales. Satisfied with the results of these analyses, the authors computed several regression models in which the role of the perceived behavioural control turned out to be problematic and not in line with theoretical expectations. In the summary and discussion of their results, looking for an explanation for the result that was inconsistent with the theoretical assumptions, do the authors notice: "One possible explanation is that perceived behavioural control is measured imperfectly in the GGS. The items measured the perceived importance of different constraints to the respondent, but do not directly measure the extent to which the individual feels they have control over those constraints" (Dommermuth et al., 2011, p. 53). In such a situation, the question of whether it was at all reasonable to carry out all the analyses seems to be relevant. Should not one start with a critical analysis of the questions before estimating the models? Introduction of a variable that is not accurately operationalized and measured puts into question all the results obtained, and the weak association between perceived behavioural control and intentions is a spurious result.

In any psychological research, assessing the validity of the questions or scales should be the first step. Even standard questionnaires with approved psychometric properties should be verified for their usefulness in individual studies and to test specific research hypotheses. If there is a lack of certainty that the data provide reliable but also – and most of all – valid information on variables in question, even the most advanced and sophisticated statistical analyses will lead researcher astray.

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ANDRZEJ PANKALLA
KRZYSZTOF BAKALARZ, ROBERT BEZDZIECKI*
Institute of Psychology
Adam Mickiewicz University in Poznań

"OVER-SATURATED" CONSTRUCTIONIST KENNETH GERGEN AND HIS OFFER TENDERED TO (CULTURAL) PSYCHOLOGISTS[1]

"Who are you? A stranger asked.
– A pouring-out world of temporary opportunities."[2]

Abstract

The text is focused on a non-precisely known, or at least not widespread and fully accepted among psychologists, theory of a very well known (and controversial) researcher, Kenneth Gergen. It deals with his dialogue with mainstream psychology, his version of social constructionism offered to cultural psychologists and his attitude toward language, narrative and last but not least – research method of psychology.

1. Introduction

Kenneth Gergen is a Professor and the Head of the Psychology Department at Swarthmore College. His scientific output includes an impressive number of 437 articles and 33 books (Gergen, 2009a). He is an appreciated figure in the world of science, as evidenced by the numerous awards and distinctions he has received around the world: *honoris causa* doctorate of the University of Athens, Theodore Sarbin Award for the American Psychological Association, Alexander von Humboldt Prize in the Humanities, honoris causa doctorate of the Tilburg University in the Netherlands (Gergen, 2009a). Despite the recognition all over the world, he is still associated more with an exotic phenomenon than with a serious, important psychological concept in Polish psychology. So far, none of his larger works has been translated to Polish, and it was not until 2009 that the first Polish edition of his famous book titled *The Saturated Self* (*Nasycone Ja*) was planned.

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* Corresponding author: inkantacje@gmail.com
[2] Text based on Kenneth J. Gergen's statement in *The Saturated Self*, 1991.

Kenneth Gergen is a populariser and advocate of important and controversial thought in social and cultural psychology. To present his theoretical deliberations, we have to trace the dialogue that was established between the representatives of psychology as modern science, which has its roots in the famous Wundt's laboratory at Leipzig (1879),[3] and the scholars who started to question such modernist concepts as objectivity, truth or rationality. These are concepts that define the hard science since psychology, from the very beginning of its existence, like physics or chemistry, has had (with varying degrees of success) ambition to represent itself in such a way.

Gergen deals with, as he calls it, social constructionism. This is a very important remark, because many people, often too hastily, consider him as a constructivist. He presents himself as a scientist drawing on some of the assumptions of constructivism, but he points out his contrary view (Gergen, 1994). He emphasizes the ontological status of the world and mind, as well as the Western individualism rooted in it, against which his social constructionism stands in opposition (Gergen, 2001).

1. Kenneth Gergen's Social Constructionism

Gergen's constructionism presupposes that no person or social group can claim to have superior knowledge of what something "is". This is because there is no configuration of words or phrases that fits particularly well with what we call the world both *here* and *out there*. To quote Gergen: "We may wish to agree that 'something exists,' but whatever 'is' makes no demands on the configuration of phonemes used by people to communicate it" (Gergen & Gergen, 1997, p. 32). This implies that no science, religion, philosophy, political party or any other group is superior to the other. Importantly, by not falling into his own trap, Gergen points out that the constructionists do not try to prove that their rationales are final (Gergen, 2001). The assumptions of social constructionism are of a metatheoretical nature, which is to establish a dialogue and build a spectrum of research opportunities.

An illustration of the above-mentioned statement about the negative impact of hegemony and the superiority of one view over another, are examples of countries such as New Zealand and India (Gergen, Lock, Gulerce, & Misra, 1996). The history of these countries shows how, by imposing a different perspective on someone and creating conditions that prevent the realization of traditional assumptions and practices, people can be isolated from their culture. Both in India and New Zealand, the colonizers, having political and economic advantages, began to adapt the existing reality to their

[3] Most mainstream psychologists forget that Wundt himself, the father of modern psychology, in his mature creative period (1900–1920), wrote a 10-volume *Voelkerpsycholgie*, in which he clearly sees the future of psychology in historical (method) and cultural research (the object of interest – higher mental processes expressed through the products of culture), rather than experimental one, and the fact that therefore his, as well as the present (and future?) psychology, has at least bipartite nature! In addition to the above-mentioned, dominant perspective, in psychology, an alternative or, as some people want, complimentary vision (i.a. cultural psychoanalysis, humanistic psychology) has been developed since its beginnings (L. Wygotski, R. Shweder, E. Boesch, M. Cole, C. Ratner, & "later" J. S. Bruner).

own needs. This situation can be compared to the flood that destroys everything it encounters. The implication of these ego- and ethnocentric behaviours was to cut the indigenous people off from their culture, customs and tradition. In psychology, it resulted in the rejection of one's own local worldview in favour of methodology, theories and practices of Western culture. A distance was created between the academic (scientific) world and the cultural heritage, which as a consequence led to "pseudo-understanding" of people from another culture. It is like depriving a young human from the West of their iPod, jeans and Coca-Cola and forcing them to meditate on top of the mountain in a winter morning. Obviously, these behaviours would be accompanied by an assumption about their healing or health-promoting nature. For such constructionists as Gergen, this is a signal indicating the need to create knowledge that is well-established in a given culture and locally useful (Gergen et al., 1996), and to draw attention to the basic carrier of its meanings – language.

2. Language and Narrative

Kenneth's Gergen's concept is based primarily on language theories developed mainly in the 1950s and the 1960s. First of all, he reminds us that by using language we construct our reality. This happens in the processes of cultural relations. We do not create our constructions to describe the world "as it is". Language, as John Locke (1689) already thought, is not a carrier of truth nor rational thought. The construction is useful for us when communicating with other people, so pragmatism can already be emphasized here as the main function of language (Gergen, 2001). Citing J. L. Austin (Gergen, 1994), Gergen calls this *the performative nature of language*, the understanding of which requires us to focus less attention on the linguistic act as such and more on the patterns of interaction in which these acts occur. Each community based on its own laws and conventions gives meanings to concepts and statements that fulfil a specific function in the processes of that community, hence: ... when we say that a given statement is 'exact' or 'inaccurate', 'true' or 'false', we do not judge it in accordance with some abstract or idealised standards of compliance... . Rather, we point to its level of accuracy or mismatch in particular circumstances. (Gergen, 1994, p. 86).

Going further, the concept can only serve as a description or picture of reality using only the local research procedures in which we have given it this function (Gergen, 1994). Knowledge is also determined by language because our ability to construct depends on our vocabulary, that is, a resource of our concepts. Gergen's concept agrees with Wittgenstein's assumption that the boundaries of our cognition are those of our language – strong linguistic determinism. We are not able to get to know something that goes beyond the meaning of concepts – arising from the cultural process – which we use (Wittgenstein, 1953). People from different cultural backgrounds construct reality, try to understand it, or communicate with one another in as many different ways as the number of languages in the world.

Being aware of cultural narrative patterns, Gergen highlights the socio-cultural sources of individual stories and although we can create an infinite number of these quantitative patterns, we are limited by the need to be understood and the need to recognise the sense of that story by other people from a particular cultural context. Gergen, referring to the famous Wittgenstein's "boundaries of my language mean the

boundaries of my world", expresses his conviction that the boundaries of our narrative traditions also define the possible boundaries of our identities (cf. Gergen, 1998). Identity comes from the narrative and is conveyed (narrated) and received in language. Furthermore, the very life with narratives is necessary to have a sense of identity. Certain patterns and trends for certain types of personality and negation of others (e.g., a humanist, rational, inspired, a puritan, a rebel, etc.) are integrated into broader socio-cultural contexts, epochs, currents or counter systems, such as the French Revolution, Avant-garde, Be-In, Autumn of Nations, and many others. They are a determinant of our individual fascinations and outline the style and way to follow within the mother's narrative. Referring directly to Gergen once again, it is worth noting at the end that the narratives live in *the realm of relations*, that is, they arise in contact with another person and in this contact they change and create ever new narrative patterns. We are talking here about *contact*, which is a necessary factor for the existence of relation and, according to Gergen, should be identified with it. Moreover, as Gergen (2009b) writes: "... the individual, as a result of the process of the emergence of the relational self, reaches the third (and last) stage, ... in which self is replaced by relationality, in other words, in which the transformation of 'you' and 'I' to 'us'."

Bringing up the subject of main assumptions, it is impossible to forget that social constructionists are not interested in an entity itself. It is not longer an entity whose role in the Western tradition, as the main object of research, is firmly rooted in scientific thought. Gergen (1994) shifts our attention from individuality to the aforementioned relations that take place among people from specific communities (understood as a culture or even a subculture), as well as to the relation that takes place between culture–individual–culture. It is by investigating relations that we can learn how people give meanings and, consequently, how they construct reality. According to constructionists, "one cannot consider the issues of man as an individual or an element without cultural context, and the subject is a relational subject and always an element of a broader system" (Gergen, 1994, p. 81).

3. Dialogue with Mainstream Psychology

While mainstream psychology in an universalist, or even absolutist, manner, assumes the existence of objective truth (e.g., morality, values manifested in behaviours which supercultural laws attempt to formulate) and seeks to clarify these concepts, Gergen argues that it is pointless to deal with them outside the categories of local cultures. He points out, however, that, "… constructionism itself cannot be considered to be universal truth; it is also an idea (like modernism) that emerges from social processes" (Gergen, 2001, p. 807). As one can see, constructionism is not interested in the objective truth as such. Only local truths are important, as they uphold traditions. Doing science is not about describing how nature "mirrors", but it is about active participation in the life of particular cultures. In turn, imposing an "objective" truth on local communities is not only an expression of arrogance but also it creates a scope for conflict – "Declarations of truth beyond tradition are, … a step towards tyranny and … the end of communication" (Gergen & Gergen, 1997).

The very popular research by Ekman and his colleagues (Ekman, 1973; Ekman & Friesen, 1986) on the universality of facial expressions in various cultures is a clear

example of how cultural psychology was previously laconic – too laconic, according to Gergen, to question the universal metatheory and undermine the empirical tradition of investigating. Such psychology uncritically allowed the possibility of better recognition of a given culture by a scientist, who honours the Western traditions, than indigenous inhabitants themselves. The nonsense is the desire to learn about cultural diversity using only the methodology of 19th-century psychology. Studying of any culture within empirical traditions limits, translates and transforms reality into its terminology. The picture of this culture is distorted – determined by the methods used by the researcher – because "when universal psychological mechanisms and processes are rejected while drawing on universal metatheory, cultural psychology still remains the child of Western modernism" (Gergen & Gergen, 1997, p. 32). Too little attention, according to Gergen, is paid to these methods and concepts and how they interfere with the image of the investigated community. This method delineates the choice of procedures, as well as a perspective and ontology in psychology, determining and thus limiting the cognitive abilities of researchers (*garbage in – garbage out*) – we only see what we want to/can see.

The elements of constructionist stance, close to Gergen, will be presented now. This stance can be presented with the motto: *Think globally, act locally* (Gergen et al., 1996). It involves the transformation of existing Western psychological thought, taking into account the specific needs of a given socio-cultural context. This is an opportunity to modernise without abolishing a local culture. It is not difficult to note that the so-called American (Western) psychology is based on the reverse colonialist principle – think locally, act globally, which is cut-throat for microcultures, microtrends and local truths. Even *oriental studies* reflect an assumption about Western power (Gergen et al., 1996, p. 497). Gergen points out that culture transforms even in its own context, so even the most sensitive influence of a cultural psychologist makes minimal changes in it, which, based on the butterfly or domino effect, may cause ulterior, significant and unpredictable changes (Giilerce, 1995).

Gergen, above all, accuses the traditional psychology followers of insisting on placing psychology next to the natural sciences, taking over their terminology and relying on experimental methods, not accepting that this is the only one of many possible approaches. Unlike other scientific disciplines, including such humanities as anthropology, sociology or economics, psychology prefers former scientism directed towards "objective" knowledge. As a result, her cognitive "poverty" entails a process of intellectual stagnation and isolation from related scientific disciplines, and adopted methodolatry (a cult of the method) excludes many key human problems from its area of interest. Gergen tries to explain it by the fact that psychology after the "divorce" with philosophy is still experiencing a crisis of scientific "identity" and conceptual confusion accepting random ontologies or, what is worse, not realizing that we always "talk/analyse with some ontology"! The assumptions of natural science guarantee its prestige, as a relatively new science, at the expense of poverty of acquired knowledge (Gergen, 1996b).

The main postulates that distinguish Gergen's cultural psychology include:

1) The influence of culture, including a repeated emphasis on technological progress in Gergen's texts, on the life of the researcher and his research perspective – "New technologies arrive in elegant wrappings of promise. The new software promises greater processing speed, the latest television a sharper picture, the new car less engine noise, and so on. We are drawn to the pleasures of such promises" (Gergen, 2002, p. 103). The

problem of determining the object of research at a time of intense social change and blurring of cultural boundaries should be mentioned here. We live in a time of constant, aggressive technological development, which began four decades ago. The development of mass transport, media, communication possibilities (including the Internet) slowly, but significantly, has an impact on personal and cultural life (Gergen, 2002). The number, range and diversity of our relationships have expanded rapidly to such an extent that we are practically constantly flooded with opportunities and information from all over the world. The technologies available to us significantly affect the way we relate to other people or to our interaction with them. The intensity of human migration is increasing, and the speed of changing circumstances affects all traditions. There is an "invasion" of cultural enclaves. Information, products, entertainment and people (including psychologists and anthropologists) permeate from one culture to another and change its local landscape (Gergen, 2002). There is no doubt that we are dealing with the phenomenon of the blurring of boundaries between cultures, which is a real threat to each of them (Giilerce, 1995). The problem that this creates for the cultural psychologist is a growing difficulty in distinguishing the subject of research.

2) The micro-social and micro-cultural process as an object of interest for social constructionists – "Psychology should be practised within its cultural context" (Gergen et al., 1996).

3) *Self* as a "permeable being 'permeated' with culture is the basic subject of interest – 'Who am I?' The world is full of temporary possibilities" (Gergen, 1991, p. 139) and as a personal narrative (including the loss of credibility of the *self* due to the ongoing changes and polyphonic *self).*

4) The narrative methodology – "Constructive dialogue and the broader context of postmodern debates caused an explosion of methodological innovations" (Gergen, 1997) – Gergen's favourite methods are: autobiography, polyvocality, collaborative research; participatory action research.

4. Self

Let us think about the aforementioned individualism. By interacting with other people, an individual in George Herbert Meada's theory creates a sense of own *self* and sustains it through the opinion of others (see Giilerce, 1995). However, due to the development of technology, the role of other people in human life is increasingly growing. Gergen (2009b) mentions two aspects of this specific situation. The first is *preserving the past*. It is based on the fact that neither time nor distance is a threat to interpersonal relationships. After all, one can always call a friend from high school even if (s)he is thousands of miles away. In this way, the past is preserved, the circle of people important for us is constantly growing, and "old friendships die hard". The second aspect is the *acceleration of the future*. The pace of establishing and strengthening relations has significantly increased, for example, two people in love, living in distant places, a hundred years ago they were left to write occasional letters to each other, they could also see each other sporadically, due to the long travelling time, for example, by train. Now the situation is completely different – two lovers can not only hear each other every day (via phone) but they can also see each other and thus make face-to-face conversations, being thousands of kilometres away (Internet, video calls). The possibility of constant contact enables others to be present in our lives at

any time, which in turn intensifies our relationships.

An individual establishes a living, virtual or imaginary relationships with other people. Each situation requires the adoption of an appropriate, often different, face. Different ways of seeing oneself, sometimes fleeting and incidental, are created. This is how we create our polyphonic self. However, in this way, the *self* loses its credibility as a basic element of identity and becomes an illusion. According to him, the *self* is limited and at the same time "saturated" with culture. He defines *self* as a limited, but permeable, being "saturated" with culture, close to the old concepts of soul (Gergen, 1991). When talking about micro-social processes, he means how an individual (that is their *self)* in relation to themselves and through interactions with other people, permeates with culture, falls under the sociotechnical influence, takes certain attitudes from it and then reconstructs it. Further, Gergen believes that *self* as an independent and multidimensional entity is problematic and seems to perceive the *self* as a place where many relations or interactions intersect.

Gergen presents the thesis that the social change which took place in 1970s–1990s (it should be added that this concerns the society of the United States, where those changes took place, inaccessible for example, to countries from behind the Iron Curtain, including Poles) caused the human to dive into the social reality – the values, views and lifestyle of other people. The everydayness and intensification of communication favour the process of blurring the individual *self.* The greater the connection with the social environment, the greater its reflection by an individual – this is the so-called *populating the self* which "not only opens relations to a new range of possibilities but, at the same time, the subjective life also becomes more layered" (Gergen, 1991, p. 71). Another consequence of this process is multiphrenia – simultaneous sinking into multiple and conflicting directions (Gergen, 1991). This is nothing more than an "overflowing world of temporary opportunities" (Gergen, 1991), which the postmodernist human being had to face. Finally, it is easier to understand how Gergen defines the concept of culture, which is a complex process that takes place between its various elements (relations), as a result of which a specific reality is constructed based on local language conventions.

5. Method

To understand Gergen's position more fully, the broader context concerning the formation of his scientific identity, which he gave vent to in 1973 in the article, or should we say the manifesto, *Social Psychology as History* (*Journal of Personality and Social Psychology*, 1973, vol. 26, pp. 309–320), should be outlined. The imperfections of popular quantitative research methods in the social sciences, which could not be overlooked, pushed the scientists to search. In addition to Gergen, Strauss and Glaser, among others, presented their propositions. They were American sociologists, creators of the Grouned Theory. They proposed to "discover" the theory in data systematically obtained from social research (Glaser & Strauss, 1967, p. 2). By investigating a particular community (with the help of interviews, an analysis of local texts) and gathering information about it, it is possible to spot an emerging, theory that is rooted, "grounded", within it. As it will turn out later in the article, Gergen presented similar solutions in psychology.

One of the most common methods used by Gergen is the narrative one. It enables

the subjects to speak for themselves – to tell their own story. This story is mainly based on several elements. Above all, the narrative may suggest a metaphor describing the specificity of a given story. A person saying that they are sociable, outgoing, enjoy life and love fun can suggest a metaphor for their life as a *never-ending party*. Another person saying that they are aggressive, ambitious, love competition and work hard suggests *rat race* as a metaphor for their life. Creating a metaphor is the basic process in constructing meaning. The structure of the narrative based mainly on the evaluation of the past, present and future meaning of *self* and the function it performs (i.e., ensuring the coherence of its meaning over time) should be noted.

As far as specific examples of narrative methods are concerned, a form of autobiography is frequently adopted, although some psychologists also weave the voices of other people, for example, those participating in classes for support groups, which allows an even more diverse theoretical picture. Such a method was applied by, among others, Mary Gergen, Kenneth's wife, in her work concerning gender and popular autobiography, weaving the researchers' statements into the narrative of women and men. According to Gergen, against the background of intercultural research, narrative methods could replace statistical comparisons of the investigated trends with a more varied and richer description of human relations in a given culture, revealing the differences in the community perceived usually as homogeneous (Gergen & Gergen, 1997).

Patti Lather and Chris Smithies in their work *Troubling with Angels* (as cited in Gergen & Gergen, 1997) showed a first-hand report concerning the private lives of women with AIDS and what they wanted to share with the world – their health state. These statements, together with excerpts concerning the experiences of researchers from the perspective of the members of the support group, were given to research participants for their comment before publication. This is an example of another qualitative method – *polyvocality* some works integrate polyvocality with narrative psychology. In her research on maltreatment of children, Karen Fox included, in addition to the accounts of victims and her experiences from therapy sessions, the views of the victims themselves – a voice that is practically absent in this type of research. The published text is arranged in three columns, representing three perspectives. This form forces the reader to think about each voice separately, but also in relation. Before printing, the whole was also given to the research participants for their comment (as cited in Gergen & Gergen, 1997).

Another interesting view on methodological issues, often cited by Gergen, is the so-called *collaborative research*, especially one of its variants, that is, *participatory action research*. The project carried out by Jim Scheurich together with Gerardo and Miquel Lopez can be given here as an example. The theme was the life of Mexican-American immigrants. They created a performance that was made up of music, sounds, text, images and social artefacts, based on the script involving the audience to participate. The creators made no assumptions about the nature of experience, so the performance was not strongly structured, which encouraged the audience to an open discussion of the whole event. The research enabled the audience to be deeply involved in shaping the event and simultaneously left them free to interpret it in many ways (as cited in Gergen & Gergen, 1997).

6. Conclusions

Kenneth's Gergen's social constructionism seems to be an interesting proposition, but it is certainly not free from some inaccuracies. The aim of our text was neither to glorify nor to criticise Gergen's proposition, but only to circulate it and to subject it to the polemics of the psychology community. However, presenting its assumptions, we cannot overlook its weaknesses, which raise doubts or favour healthy criticism.

The objections regarding Gergen's proposition often concern the discernible relativism, not to say "relativistic abuse". It does not fully explain whether it is possible to agree on a dispute between two different cultures since both have the right to equal "local true". This question is extremely important in an era of such phenomena as terrorism. Gergen does not fully explain this issue either, that is, according to what criteria individual cultures can be juxtaposed if there are no universal processes and mechanisms and it is not possible to describe them in terms of rules or laws. He is also frequently suspected of a lack of attachment to any moral system, as he allows many perspectives that are true and equal in principle.

Obviously, Gergen does not avoid criticism, on the contrary – he responds to it. The majority of it he explains using ontological assumptions different from those of the postmodern current, which are cherished by mainstream psychology (positivism, scientism, modernism). He also explains that, as a social constructionist, he avoids creating final assumptions because he is aware of the existing inconsistencies and will try to eliminate them through openness to dialogue and transformations (Gergen, 2001).

It should also be added that Kenneth Gergen's social constructionism, in its practical dimension, seems to shape the portrait, that is, the model, of a psychologist as a practitioner and researcher. The psychologist, according to him, should be characterized by openness and respect for otherness. They should develop their ability to change perspectives and to accept tolerance for otherness as an equal entity. However, the psychologist does not have to agree with the "other", it is enough that (s)he will recognise their value as an alternative. This would, in his opinion, result in the creation of "alternative human concepts that would contribute to the development of new methods, institutions and new policies. As a result, the theory would become a practical contribution to the construction of the future" (Gergen et al., 1996, p. 503).[4]

[4] Finally, we would like to share some thoughts regarding the conference that was held in Poznań in 2008, where we had the opportunity to meet K. Gergen. What impressed us most in his speech was certainly the way he worked with his students. The tasks he proposed to his students did not impose any certain structure and he seemed to leave them a lot of room for manoeuvre. Gergen gave the example of a student who could not cope with their assignment. The professor decided that he would allow the student to present their subject of the project in the form chosen by the student. It turned out that his student was a DJ and presented the project in the form of a musical collage. Not only Gergen liked this idea, but also the majority of students. This example perfectly illustrates the specificity of the approach presented – a bit of extravagance and, above all, sensitivity to other perspectives.

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JAN CIECIUCH*
Faculty of Psychology, Higher School of Finance and Management in Warsaw in 2011
Institute of Psychology, Cardinal Stefan Wyszyński University in Warsaw in 2020

AGATA HULAK, MARIOLA KITAJ, JUSTYNA LESZCZYŃSKA, DOROTA BULKOWSKA
Institute of Psychology
Cardinal Stefan Wyszyński University in Warsaw

CIRCULAR STRUCTURE OF VALUES IN PRESCHOOL CHILDREN[1]

Abstract

The presented study is the first attempt to verify Schwartz's circular model of value structure in middle childhood. Previous studies have verified the model in adulthood and adolescence, and most recently – thanks to the method called Picture Based Value Survey by Döring (Döring, Blauensteiner, Aryus, Drogekamp, & Bilsky, 2010) – even in late childhood. However, to date, there has been a lack of adequate testing methods for younger children. To verify the hypothesis of the circular structure of value in middle childhood, we have developed a method called the Values Puppet Interview, inspired by the Berkeley Puppet Interview (Measelle, Ablow, Cowan, & Cowan, 1998). The study was conducted individually with 60 children aged from 4 to 6 years. Multidimensional scaling obtained from the results supported the hypothesis about the circular structure of values and the possibility of dividing the continuum into four higher-order values: self-transcendence, selfenhancement, openness to change and conservation.

Keywords: values, structure of values, middle childhood, multidimensional scaling

1. Shalom Schwartz's Theory of Values

Shalom Schwartz's theory of values has been present in psychology for a quarter of a century. The first article introducing the theory, written by Schwartz together with Bilsky, was published in 1987 in the *Journal of Personality and Social Psychology*. Initially, Schwartz's model was an attempt to organise values in the Rokeach tradition. Subsequent research, new ways of measuring and analysing, as well as theoretical work on

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* Corresponding author: j.cieciuch@uksw.edu.pl

the model led to the current situation where the circular value model is used in many fields of psychology: social, personality and intercultural psychology. Values together with personality traits are the most important and quite well described in psychology taxonomies of individual differences. McCrae (2009) compared the model of Big Five personality traits to physics of personality. Cieciuch (2012) in his polemics with McCrae (2009) postulated that in the face of a huge number of empirical reports verifying Schwartz's circular model, the first level of personality in the Costa and McCrae's Big Five Theory should be modified. The Schwartz values describe the basic motivational dimensions that are missing in the static description of personality in terms of traits.

Although the theory is already 25 years old, its heuristic possibilities have not only been exhausted but they have even been strengthened in recent years. A symptom of these possibilities is the publication of the current revision of the theory in the same *Journal of Personality and Social Psychology*, in which the first version of the theory was published (Schwartz et al., 2012). Values are defined by Schwartz as a cognitive representation (usually beliefs) of a motivational, desirable, and trans-situational goal. The key claim of the theory concerns the value structure and can be formulated as follows: Values form a circular continuum. The fact that values form a continuum results in, among other things, the possibility of dividing the circle into numerous wedges, that is, areas of the circle with a common centre. In the literature to date, it has generally been accepted that this continuum divides into 10 values or four higher-order values, describing the pools of the two dimensions that create the circle: self-transcendence *versus* self-enhancement and openness to changes *versus* conservation. Schwartz's model of values with this division into 10 and four wedges is shown in Figure 1, and short descriptions of these values are given in Table 1.

Figure 1. Schwartz's circle of values (source: Schwartz, 2006).

Table 1
Ten values in Schwartz's theory (1992)

Higher order value	Value	Characteristics
Self-transcendence	Universalism	Understanding, appreciation, tolerance, and protection for the welfare of all people and for nature.
	Benevolence	Caring for the welfare of the people with whom one is in frequent personal contact.
Conservation	Tradition	Respect, commitment, and acceptance of the customs and ideas that one's culture or religion provide.
	Conformity	Restraint of actions, inclinations, and impulses likely to upset or harm others and violate social expectations or norms.
	Security	Safety, harmony, and stability of society, of relationships, and of the self.
Self-enhancement	Power	Social status and prestige, control and dominance over people and resources.
	Achievement	Personal success through demonstrating competence in accordance with social standards.
	Hedonism	Pleasure, gratification of the senses.
Openness to change	Stimulation	Excitement, novelty, and challenge in life.
	Self-direction	Independent thought and action – choosing, creating, exploring.

The revised theory of values (Schwartz et al., 2012) emphasises the thesis about the continuum and shows the possibility of different divisions of the value circle – from the most precise division into 19 types to the most general divisions into half circles. The order of value in the circle is governed by the rules of similarity and conflict. The values placed close to each other are similar in terms of motivation. It is possible to realise them simultaneously, and it is also usually the case that they are treated as important to a similar extent. Values located on opposite sides of the circle are mutually exclusive in a single behaviour and are usually treated as not similarly important.

The structure of values of Poles has been empirically verified by Cieciuch and Zaleski (2011), who are the authors of the Polish adaptation of the Portrait Value Questionnaire (PVQ) of Schwartz (Schwartz et al., 2001) and of Cieciuch and Schwartz (2012), who have made their research in Poland a bridge between the classic and revised version of Schwartz's theory of values (Schwartz et al., 2012). Figure 2 shows the structure of the values of Poles obtained by Cieciuch and Schwartz (2012) in multidimensional scaling (MDS).

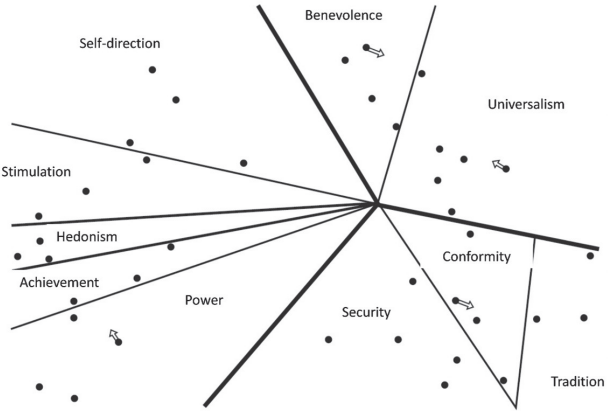

Figure 2. Multidimensional scaling of the Polish sample (N = 10,439; age 10–94); Stress-1 = .13; Method: PVQ (source: Cieciuch & Schwartz, 2012).

As can be seen in Figure 2, divisions into 10 types and four higher-order values are possible. Only a few items are located in wedges not dedicated to the respective value, and these have always been adjacent wedges (these items are marked with an arrow in the direction of their respective wedge). One item of achievement is located in the area dedicated for power, one item of tradition is located in the area of conformity, one item of benevolence is located in the area of universalism, and one item of values is located in the area of benevolence. The research by Cieciuch and Schwartz (2012) is another verification of the circular model, and at the same time, it proves that the model describes the structure of values of Poles well, which is an important finding for the purpose of this research, which aims to find the structure of values of Polish children during middle childhood.

2. Value Structure Development

One of the new areas in which Schwartz's theory of values has been used in recent years is developmental psychology. The universalism of the model led to the question about its development in ontogenesis. Cieciuch, Harasimczuk, and Döring (2010, p. 36) write: Despite the considerable amount of data that is still being updated, there is very little insight into the developmental origin of the value structure. The validity of seeking it out is based on the assumption that values are defined as cognitive representations of motivation (Schwartz, 1992, 2006). In the Rokeach tradition (1973), the emphasis was placed on the cognitive aspect, so meaningful considerations about values were only possible at the stage of development when the adolescents acquired the appropriate reasoning skills, usually associated with Piaget's formal operations. However, if the emphasis is put on motivation (with values are cognitive representation), then it becomes reasonable to seek these motivational values also in children. Moreover, based on Schwartz's theory, we are not only interested in the hierarchy of value preferences, but also in the emerging value structure that is only becoming the basis for shaping value preferences. The structure is understood here as: firstly, the number

of distinguishable value types and secondly, the arrangement of differentiated types according to the principles of similarities and opposites on the value circle. However, the developmental aspects of Schwartz's theory are still accompanied by more questions than empirical answers.

To make the empirical search for answers to these questions possible, a method of measuring the values in childhood was necessary. The method was developed by Döring and her co-workers (2010). She created a pictorial tool for measuring value preferences in late childhood – Picture Based Value Survey (PBVS-C), while the Polish version of the survey was prepared by the author together with Cieciuch and Harasimczuk (Cieciuch, Harasimczuk, & Döring, 2010, 2012). The child is presented with 20 images, which are indicators of 10 value types (each value type is represented by two images). The illustrations show the values present in everyday behaviour. After an appropriate introduction to the test, it is the child's task to choose the two images that they consider the most important, then the two images that are least important for them, then the four most and least important ones from the rest, and stick them on a special answer sheet. Based on analyses of MDS, Cieciuch, Harasimczuk, and Döring (2010, 2012) showed that the structure of values in late childhood takes on a circular shape with several types of values that can be distinguished – usually four higher-order values and the possibility of a more accurate division increasing with age. Thus, value measurement with PBVS-C is valid, taking into account the criterion of validity used in the value measurement with PVQ (Cieciuch, Döring, & Harasimczuk, 2012). Figure 3 shows the results of MDS in the youngest group they studied – children aged 7–9 years.

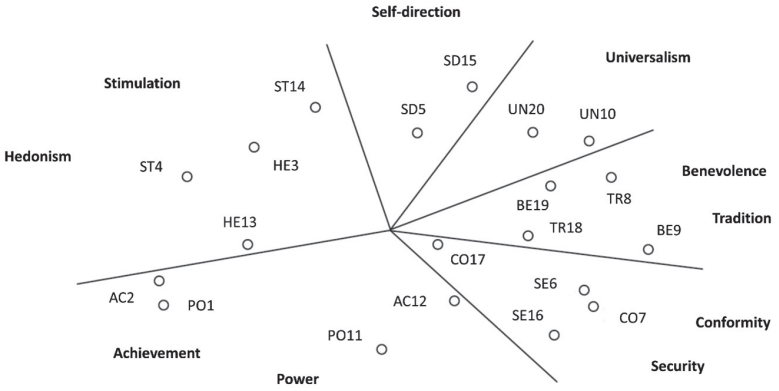

Figure 3. Multidimensional scaling of the children sample (N = 207, age: 9–7); Stress-l = .20; Method: PBVS-C (source: Cieciuch, Harasimczuk, et al., 2010).

It turned out that the following values were possible to differentiate: (1) self-enhancement (achievements and power), (2) self-direction (as a separate type), (3) stimulation and hedonism combined, (4) universalism, (5) benevolence combined with tradition and (6) the remaining values of conservation (conformity and security).

3. Current Study

The results obtained with the PBVS-C in Poland (Cieciuch, Harasimczuk, et al., 2010, 2012) and in Germany (Döring et al., 2010) raise the question – can the circular value structure be reproduced in even younger children? Only two years ago, the question about the structure of children's values seemed to have no chance of being empirically answered. Thanks to Döring's method such an answer has become possible. However, when this method allowed the question about the value structure of school children to be answered, the question about the value structure in an even earlier developmental period naturally arose. The problem, of course, is the method again. The PBVS-C, although adapted to the cognitive development of school children, is not suitable for testing pre-school children (middle childhood) who are still in the preoperative period or only at the threshold of the specific operations stage.

Searching for self-descriptive data of such young children is possible and has already been undertaken in other areas. Measelle, Ablow, Cowan, and Cowan (1998) used a puppet interview (Berkely Puppet Interview) to study the self-perception of children aged 4–7 years. Their method has also proved to be useful in examining the personality traits of children aged 5–7 years (Measelle, John, Ablow, Cowan, & Cowan, 2005). In the Berkeley Puppet Interview, a child is presented with two puppets, each saying something about itself. A child has to point out the puppet that behaves more similar to him or her. Measelle, John, Ablow, Covan, and Covan (2005) recorded the children's answers and the experts assessed the degree of certainty of the child answering. This construction of the method allowed for a Likert scale measurement. In our research, we used the idea of testing with puppets, but we simplified the procedure. We have created a set of items corresponding to the four higher-order values in the Schwartz circle model, and the child's task is to indicate a puppet that they consider the most similar to them. The presented research is the first attempt to find the structure of value in pre-school children (middle childhood).

The results obtained so far with PBVS-C have led us to the following hypothesis: The values of children in the pre-school period will take on a circular structure, in which it is possible to distinguish four higher order values, constituting two dimensions. Therefore, we expected that in MDS: (1) The value items can be divided into four groups: self-transcendence, self-enhancement, conservation and openness to change; (2) These groups take the form of wedges that have a common centre; (3) The order of the wedges follows the circular model, that is: self-transcendence, openness to change, self-enhancement and conservation. The hypothesis would be rejected if the obtained results were not in compliance with any of the three conditions above. An example of failure to meet the first condition would be a solution in which the items that are assumed indicators of a given higher-order value have been not grouped close together in such a way that four areas can be separated. An example of not fulfilling the second condition would be such an arrangement of items, in which the groups would not form wedges that connect at one point (if, e.g., lines dividing areas were parallel). An example of not meeting the third condition could be the location of the value of self-transcendence next to the value of self-enhancement.

4. Method

4.1 Measurement Instrument

To measure the values, we used the Values Puppet Interview. The interview consists of 23 items. Each item consists of a pair of statements. One of them is uttered by a puppet with a red ribbon (called Dyzio) and the other by a puppet with a green ribbon (called Zyzio). Except for the colour of the ribbons, the puppets are no different. Each time, one statement is an indicator of a given value of a higher order, and the other statement is an indicator of a value lying on the opposite side of the circle. The puppets utter statements alternately in such a way that each of the puppets utters the same number of statements related to one pole of a given dimension (e.g., self-enhancement), as to the second (in this example – self-transcendence). After conducting the analyses, we removed one item from each set of indicators of higher values due to the wrong location in MDS, which was an indicator of unfortunate wording or simply poor validity of the item. Table 2 includes the items on which the analyses presented below are carried out.

Table 2
Items of Values Puppet Interview

	Dyzio	Zyzio
OC1	I prefer to wear clothes I choose myself	I prefer to wear whatever my mummy or daddy choose for me
OC2	I run alone around the park while we are on a walk	I'd rather hold someone by the hand when we're on a walk
OC3	I like to draw something new that I imagine on my own	I like to draw pictures similar to those that are already there
OC4	I like playing new games even if they are a bit dangerous	I prefer not to play games in which something bad can happen to me
OC5	I'm going to grandma or auntie because she might give me a gift	I'm going to grandma or auntie just for a visit
CON1	I like to play at playgrounds I know	I like to play at playgrounds I haven't been to yet
CON2	I like listening to stories about how things used to be	I prefer when somebody tells strange stories that I haven't heard yet
CON3	I don't swing high if someone older won't let me	I like swinging high because it's very cool
CON4	I like it when someone picks a TV cartoon for me	I like to pick a TV cartoon to watch on my own
pray	I like to pray before bedtime	I don't like praying in the evening
SE1	I want to be able to do something better than other kids.	I prefer to help other kids so they can do something as well as I can.
SE2	I want to get most sweets, the most of all kids	I am satisfied when all kids get the same amount of sweets
SE3	When we play that we are on a ship I always want to be captain	When we play that we are on a ship I want to take turns to be captain
SE4	When I see a flower I like in the meadow or the lawn I pick it up	I don't pick flowers up unnecessarily, so I don't destroy nature

ST1	I am eager to share my toys with other kids	I don't like when others play with my toys, as they are only mine
ST2	When I race with other kids and my friend falls I help him to stand up	When I race with other kids and my friend falls I still run so I can be first to the finish
ST3	I like it when my kindergarten teacher praises the drawings of all the kids	I like it when my kindergarten teacher praises my drawings only
ST4	When someone laughs at my weaker friends – I defend them	When someone laughs at my weaker friends I don't defend them, but I am glad they are not laughing at me
ST5	When I grow up I want to help poor and needy people	When I grow up I want to be the boss of a big company and manage it

The presentation of two-statement items, written between Dyzio and Zyzio, was preceded by instructions explaining to the child what the task was. The measurement specificity of the Puppet Values Interview can be seen by comparing it with other Schwartz's value measurements – PVQ and PBVS-C. Schwartz's PVQ (Cieciuch & Zaleski, 2011) allows for the measurement of each type of value separately. MDS analyses show that the opposing values are indeed located on opposite sides of the circle. In Döring's Picture Based Value Survey (Cieciuch, Harasimczuk, et al., 2010), each of the values is also represented by its own proper pictures, although the measurement is ipsative. This means that the child can only choose the two most important pictures, two least important ones, four rather important and four rather unimportant. Consequently, for example, indicating two pictures as very important means that it is not possible to indicate others as very important, as only two images can be indicated as very important. This interdependence of choice, already present in the PBVS-C, was increased in the Values Puppet Interview. With one decision, a child: (1) chooses one pole of the dimension and (2) rejects the other (e.g., by choosing the values of self-transcendence, they also reject the values of self-enhancement). It is worth noting, however, that this relationship only applies to two poles of one dimension in one item only. A decision taken within one item does not force a specific decision in another item. Additionally, choices within one dimension (self-transcendence *versus* self-enhancement) are completely independent of choices within the other dimension (openness to experiences *versus* conservation).

The following arguments prompted us to opt for the interview construction discussed above (presenting a child with two statements, describing two poles of a given dimension of higher order value, to choose from). First, the choice of one of the two opposite statements is easier for the child due to the level of cognitive development. Second, since it would be difficult to find a behaviour that would be value-neutral, represented by one of the statements (in each pair), we consistently decided to develop items in which the statements express two opposing values. The reasons behind this decision are based on the results of numerous empirical studies, verifying the circular model and showing that the values in MDS are indeed distributed on the theoretically predicted opposite sides of the circle (Bilsky, Janik, & Schwartz, 2011; Cieciuch, Harasimczuk, et al., 2010, 2012; Cieciuch & Schwartz, 2012).

4.2 Respondents and the Procedure

The study involved 60 children aged 4 to 6 years ($M = 5.6$, $SD = 0.66$). Girls accounted for 53% of the study group. The research was conducted in two pre-schools – Catholic and public. In both pre-schools, parents agreed to their children participating in the study. The research was conducted individually and always by a pair of researchers (co-authors of this article). The study was preceded by a play with children and the Dyzio and Zyzio puppets. Then the children went individually to a separate room or a quiet place in a larger room, where one of the researchers acted as Dyzio and Zyzio, while the other noted the children's answers. All of the items are presented in Table 2.

Before the presentation of the diagnostic questions, the instructors explained the rules to the child, saying: "Look, there are two teddy bears here. They are similar to each other, but a little different. This one has a red bow and this one has a green bow. These teddy bears are siblings, but they like different things. Listen to what they say. Teddy bear A (red): I like winter more because you can play in the snow then. Teddy bear B (green): I like summer more because you can play in the sand then. You see? They like different things. Which of the bears is more similar to you? Show me." The researchers made sure that the child understood what he or she should do. If there were any doubts about that, it was further explained using another example. During the examination, attention was paid to whether the child showed similarity to a teddy bear regardless of previous indications. If a child had chosen one puppet and indicated it constantly, regardless of what it said, it was not classified for further analysis.

5. Results

We analysed the collected data using MDS (Borg & Groenenen, 2005), which is often used in the study of values of both adults (Schwartz, 1992, 2006; Cieciuch & Schwartz, 2012) and children (Döring et al., 2010; Cieciuch, Harasimczuk, et al., 2010, 2012; Cieciuch, Döring, et al., 2012). The items are entered in the MDS analysis and the program generates a graphical representation of the relationship between them. Items are represented as points and are distributed in such a way that the distances between them depend on the correlation – the higher the correlation, the closer the points are to each other. The programme performing MDS finds a specific configuration of the distance between the variables and then checks how well it reproduces the relationships observed inside. The Stress-1 index was used as a fit index (Borg & Groenen, 2005).

The set of points generated by the program is then interpreted by the researcher, who draws lines corresponding to those expected or obtained and can be meaningfully interpreted. In the case of the research presented here, we expected that the obtained point structure could be divided into four wedges of a circle, corresponding to four higher-order values. According to the circular model of values, we expected that the wedges lying closer to each other would focus values with a similar motivation base, and the motivational opposing values would be placed in wedges lying on opposite sides of the circle. In other words – conservation and openness are located on opposite sides of the circle, similarly to self-transcendence and self-enhancement. Also, we expected that all the items would be located in their respective wedges.

MDS allows both quantitative and binary data. In the case of data collected utilizing the Values Puppet Interview, this is binary data, but it is associated with a certain difficulty. As discussed and justified in the description of the tool, items describe the bipolar dimension, so the choice of one pole is at the same time a rejection of the other. Two analytical strategies are possible in this situation:

1) It is possible to recode the items that describe one of the poles of a given dimension and consider the items belonging to a given dimension together. In this way, it would be possible to calculate the value preference index on the dimension of, for example, openness-conservation. It is worth adding that the calculation of such an aggregated dimension index was also used in the literature for data collected with the PVQ. This strategy was applied by Berzonsky, Cieciuch, Duriez, and Soenens (2011). From the point of view that is of interest here, such an analysis makes a circular structure test impossible. In such a situation one could expect to divide the points generated in a MDS into two groups only, corresponding to two dimensions.

2) Another method of data analysis is to construct the indicators of each of the four higher-order values. In the following analyses we have applied this strategy. So we considered the statement of the first puppet as diagnostic for a given type of value. Therefore, if the first puppet's statement is an indicator of openness, this item is coded in Table 2 as an item of openness. If the child indicates this puppet as being more similar to themself, it receives a value of one (there is an indication of a given value), and the other puppet receives a value of zero (no indication of a given value).

In the PROXSCAL analysis (SPSS 20) a binary measure was chosen, and among the available options of this measure – the Euclidean distance with the definition of the size 1 as *occur* and 0 as *not occur*. The results of multidimensional scaling are presented in Figure 4. The measure of goodness of fit of Stress-1 is .23, which is an acceptable value (Spence & Ogilvie, 1973).

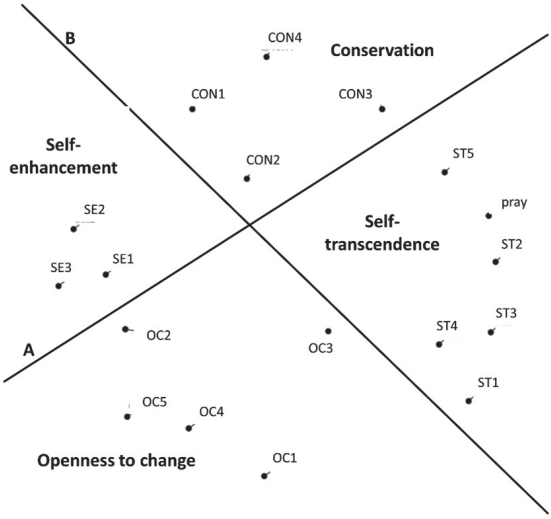

Figure 4. Multidimensional scaling of the results of children aged 4–6 years; Stress-1 = .23; Method: Values Puppet Interview.

It turned out, while using the analytical procedure described above, that the 19 items entered into the analysis were arranged in a circular structure, with four distinct higher-order values: self-transcendence, self-enhancement, openness to change and conservation. The only exception is the location of the prayer item – contrary to expectations, it appeared in the area of self-transcendence, not of conservation (in Figure 4 it is described with the abbreviation *pray)*.

6. Discussion

The measurement instrument we developed in the current study, suitable for the cognitive development of preschool children, allowed for verification of the value structure in the middle of childhood. It turned out that the value structure of children takes a circular shape already in this period. Four higher-order values are clearly distinguished: self-transcendence, self-enhancement, openness to change and conservation. The arrangement of these values follows the Schwartz circular model.

What is more, using the categories proposed in the modified Schwartz theory of value (Schwartz et al., 2012), two other distinct divisions of the value circle can be proposed. Line A in Figure 4 divides values into those motivated by anxiety (self-transcendence and conservation) and those free from anxiety (self-transcendence and openness). Line B, on the other hand, divides the circle into two halves: self-focused values (self-enhancement and openness) and values focused on the others (self-transcendence and conservation).

It turns out, therefore, that children's choices – however different and perhaps unstable over time – are arranged according to circular structure rules. The different behaviours of a child in everyday life, described by the puppets, representing the realisation of different types of values are chosen as preferred or not preferred according to a specific "universal grammar" of value structure. During this period, values are acquired both through the transmission from parents, peers, preschool, as well as through the influence of broadly understood culture (e.g., the media). However, this shaping takes place in line with the circular model – the values of self-enhancement and self-transcendence do not coexist together, similarly to conservation and openness.

The item concerning prayer deserves special attention. In Schwartz's model, religion is attributed to the value of tradition, that is, conservation (as a higher order value). In many studies, including those conducted in Poland (Cieciuch & Schwartz, 2012), one of the PVQ items on the importance of religion is located in one wedge together with other items of tradition. It seems, however, that assigning all religiousness to tradition is a kind of reduction of the importance of religiousness to only one of its dimensions.

Schwartz's circular model of values is – both in its assumptions and numerous empirical verifications – universal model. This means that it can be a kind of reference system on which the meaning of a given value can be explained. This is how the item on prayer in the presented study reveals the meaning of prayer for children. It turns out that this is not conservation, but self-transcendence. Thus, prayer in the cognitive system of preschool children is more about caring for others, willingness to help, kindness and goodness than obedience and adaptability (i.e., conservation). However, the shift of religion towards conservation is already visible among children in their late childhood, because the religiousness item is located there in the MDS of PBVS-C results (Cieciuch, Harasimczuk, et al., 2010, 2012).

The presented research provokes questions that are worth being answered in subsequent studies. First of all, it would be necessary to carry out an analysis of multi-traits and multi-methods in a group of the oldest preschool children or the youngest school children, using the already verified PBVS-C and Values Puppet Interview. Such an analysis would be a repetition of the research strategy used to verify the theoretical validity of the PBVS-C by Cieciuch, Döring, and Harasimczuk (2013), who examined the oldest school children with the help of PBVS-C and PVQ, and analysed the results of the matrix of multi-traits multi-methods in MDS. Two further directions of research are longitudinal (verifying structure stability) and intercultural (verifying its universality) studies.

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ANNA MATCZAK, KATARZYNA MARTOWSKA*
Institute of Psychology
Cardinal Stefan Wyszyński University in Warsaw

FROM RESEARCH ON DETERMINANTS OF EMOTIONAL COMPETENCIES[1]

Abstract

The paper presents the research on the relations between emotional competencies and selected intellectual abilities along with temperament traits postulated by Jan Strelau's Regulative Theory of Temperament. The subjects were adults at the age from 19 to 39. Emotional competencies was measured with the PKIE (Popular Questionnaire of Emotional Intelligence, by Jaworowska and Matczak, 2005), emotional ability – with the test TRE (Emotion Understanding Test, by Matczak & Piekarska, 2011), social and verbal abilities by tests selected from the APIS-Z battery (by Matczak, Jaworowska, Ciechanowicz, & Stańczak, 2006), and temperament traits by the FCZ-KT questionnaire (Formal Characteristics of Behaviour, by Zawadzki & Strelau, 1997). Weak connections of emotional competencies with social and emotional abilities were found. The relation between emotional competencies and temperament traits appeared to be stronger, especially those for activity and briskness (positive), and emotional reactivity (negative). Additionally, the interesting differences in the results, depending on the subjects' gender and the type of competencies (connected with experiential and strategic emotional intelligences) were also found.

Keywords: emotional competencies, emotional intelligence, temperament

1. Introduction

1.1 The Concept of Emotional Competencies

The view that the quality of people's adaptation to the requirements of life and the efficiency with which they perform their tasks are determined not only by the cognitive abilities but also by the ability to deal with other people and with themselves, i.e. with their own and other people's emotions, is now widely accepted. In the last two decades, the concept of emotional intelligence, introduced by Peter Salovey and John D. Mayer (1990)

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* Corresponding author: anna.matczak@uksw.edu.pl; k.martowska@uksw.edu.pl

and popularised by Daniel Goleman (see Goleman, 1997, 1999), has been used to explain individual differences in emotional competencies. Emotional intelligence can most generally be defined as the ability, or set of abilities, to process emotional information, and thus to read emotional meanings take them into account during reasoning and solving problems. These abilities form the basis for the development of competencies that enable effective emotional regulation and good coping with social and task-related situations. Salovey and Mayer (cf. Mayer & Salovey, 1997; Mayer, Salovey, & Caruso, 2000, 2004) distinguish four ability groups in the emotional intelligence structure. They include: the ability to perceive emotions (own and others') and to express them; the ability to emotionally support thinking, which means using emotions and the information they carry when solving problems; the ability to understand and analyse emotions; the ability to control and regulate emotions. The abilities belonging to the first two groups form the *experiential* emotional intelligence, while those belonging to the third and fourth groups – the *strategic* emotional intelligence. The first of these types of intelligence determines the effectiveness of receiving, using and transmitting emotional information, while the second – the efficiency of meta-cognitive control of these processes.

Research on the nature of emotional intelligence and its relation to the traditionally understood academic intelligence on the one hand, and personality on the other, as well as research on the role of emotional intelligence in human functioning in various areas of activity, led in a short time to the emergence of many controversies. One of them concerns the fact whether the "emotional intelligence" term exclusively refers to the *cognitive ability* to process emotional information, *measured by tests*, or whether the *skills to deal with emotions* arising *in real situations* should also, or perhaps most importantly, be included within the scope of this concept, assessed based on observation or self-description. It is worth noting that only the latter case can be fully referred to using the "hot intelligence" term which is sometimes used (cf. Mayer et al., 2004; Peterson & Seligman, 2004, p. 338) for the emotional intelligence (as opposed to "cold" abstract-logical intelligence, measured by traditional tests and captured in the form of IQ).

The latter approach is reflected in the so-called mixed models of emotional intelligence treating it as a collection of various "non-cognitive" abilities, socio-emotional skills, as well as personality traits, enabling effective coping with environmental demands and pressures (cf. Bar-On, 1997, 2000, 2001). On the other hand, Salovey and Mayer (1990), who emphasise the cognitive, "ability" nature of emotional intelligence, promote the first approach (cf. Mayer et al., 2000; Śmieja & Orzechowski, 2008). The above mentioned authors put the main emphasis on distinguishing between: abilities – personality, paying much less attention to the opposition: abilities–skills. Even when describing components of emotional intelligence (see e.g., Mayer & Salovey, 1997), they often replace the term *abilities* with *skills*. Others do the same, either by interchangeably using the terms *emotional abilities* and *emotional skills* as well as *emotional intelligence* and *emotional competence* (see e.g., Ciarrochi, Deane, Wilson, & Rickwood, 2002), or by using one term to describe what other authors describe using other terms. For example, Klaus R. Scherer (2007) proposes to replace the term *emotional intelligence* with the term *emotional competence.* The concept of emotional competence, like that of Carolyn Saarni (1997, 1999, 2000), could also be seen as a concept of emotional intelligence; this author, although she generally describes the components of emotional competence as *skills*, when describing them in more detail uses the terms *ability* and *capability*.

While in some contexts, for example, in common thinking or practical undertakings, the differentiation between emotional intelligence and emotional competence may seem like an unnecessary "hair-splitting", here, for research purposes, we advocate its legitimacy. Other authors also share this view (cf. Jasielska & Leopold, 2000; Nęcka, 2003). Thus, by using the "emotional intelligence" term to refer to the cognitive abilities to process emotional information, emotional competencies will be understood as specific skills to deal with real-life situations in which such information occurs. The multiplicity and variety of such situations justify the use of the term *competence* in a plural form.

These competencies include, among other things, the skills to perceive the importance of emotions and appreciate their informative value (Gohm & Clore, 2002), the skills to communicate one's emotions to others in a way that is consistent with both personal goals and social standards, the skills to manage emotions – to evoke certain states and moods that facilitate functioning, for example, performing tasks and maintaining social relations, and extinguishing or silencing unfavourable emotions, the skills to raise one's mood, and also the skills to influence the emotional states of other people – motivating them, putting them in a good mood, comforting them, etc. The above examples allow us to note the basic difference between skills (components of competence) and abilities (components of intelligence); it is that the former ones serve not to solve test tasks, but real emotional problems arising from social and task-related situations in which a person is personally involved.

The distinctiveness of the concepts of *emotional intelligence* and *emotional competencies* does not, of course, reveal the independence of the dispositions described by them. Both of them are instrumental dispositions, that is decisive for the *possibilities* of effective activity, which are in mutual relation. It consists in the fact that emotional intelligence is one of the factors conditioning the acquisition of emotional competencies. This thought is well reflected in the words of Goleman (1999, p. 46), who defines the emotional competence as "a measurable ability derived from emotional intelligence", as "practical skills" shaped in the course of learning based on "potential abilities" (which make up emotional intelligence). More specifically, emotional intelligence can be regarded as a cognitive determinant of competence. This will be discussed further.

At the same time, emotional competencies – as they arise based on emotional intelligence – can be treated as its manifestations and indicators. Although these indicators are not completely perfect (as abilities are not the only factors influencing skills development), they can be used to assess emotional intelligence. This means that it is legitimate to infer about its level based on emotional competencies measured using a questionnaire or observational techniques. Still, tests remain the optimal way to measure emotional intelligence (Mayer, Caruso, & Salovey, 1999).

1.2 The Development of Emotional Competencies

All competencies can only be developed by experience. Just as one cannot learn to drive a car just by reading the Highway Code and driver's guide, social competencies cannot be acquired just by reading a savoir-vivre handbook, emotional competencies also arises from emotional experience. These experiences are the source of problems that require emotional skills that enable dealing with them.

Although experiences are an indispensable basis for the development of skills, a key role in shaping them is also cognitive reflection – it generates solutions to problems, assesses the effectiveness of these solutions, and finally generalises them to other, relatively new situations. Finally, training is essential – the solutions found and accepted must be properly trained. Only such proven and established behaviour can be defined as competent.

The model presented above shows that the formation of emotional competencies is influenced by both the environment, which is a source of experiences, and individual features, on which the intensity of these experiences and the way of using them depend. We will be here interested in the factors of the latter group.

In the light of the above considerations, the temperamental traits and intelligence should be regarded as subjective determinants of the process of formation of emotional competencies, and thus the determinants of their level.

In Jan Strelau's Regulatory Temperament Theory (Strelau, 2006; Zawadzki & Strelau, 1997), there are six characteristics in the temperament structure; they include: briskness (tendency to react quickly, maintain a high rate of activity and easily change from one behaviour to another), perseverance (tendency to continue and repeat behaviours after the cessation of the stimulus, which triggered them), sensory sensitivity (the ability to react to low-intensity sense stimuli), emotional reactivity (high sensitivity and low emotional resistance), endurance (the ability to react adequately in situations requiring long-term or highly stimulating activity and/or under conditions of strong external stimulation), activity (tendency to engage in behaviours of high stimulating value or providing strong external stimulation). According to the theory discussed, temperamental traits determine the size of an individual need for stimulation and the possibilities of processing it, and thus affect preferences regarding the type of situations in which a person gets involved and the type of activity that he or she undertakes. When analysing the process of forming emotional competencies, situations requiring contacts with other people and task-related situations should be considered as particularly important, because they generate strong emotions (cf. Matczak, 2004). At the same time, these are highly stimulating situations, which means that people with different temperaments may have a different tendency to participate in them – seek them or, on the contrary, avoid them. And so, the high intensity and a wealth of emotional experiences may be the result of high demand for stimulation (high intensity of activity and briskness). On the other hand, however, the magnitude of the emotional response and the persistence of the reaction depends on the temperamental traits that characterize the low capacity of stimulation processing (high sensory sensitivity, emotional reactivity and perseverance). Thus, temperamental traits may influence emotional experiences and consequently the level of emotional competencies, but these dependencies are not simple or unambiguous, as they may be expected to have a beneficial effect both on characteristics indicating small processing capacity and small demand for stimulation and on characteristics indicating high processing capacity and high demand for stimulation.

The second group of subjective determinants are the various abilities that create intelligence. They allow for cognitive reflection on experiences – for assessing the importance of emotional information and the effectiveness of previously used and planned behaviours, for predicting the consequences of actions and the possibility of transfer-

ring acquired skills to new situations. The abilities that make up social and emotional intelligence, as well as verbal abilities, seem to be of particular importance here – important for building meta-knowledge and for social contacts.

1.3 Problem and Hypotheses

In the research presented below, the hypotheses concerning the relationship between emotional competencies and temperament and abilities: emotional, social and verbal, resulting from the above considerations, were tested. It was supposed that these relations could develop differently, depending on the type of competence.

The following hypotheses were made:

(1) Emotional competencies are positively related to emotional (emotional intelligence), social and verbal abilities. This relation is more evident in the case of competencies related to strategic emotional intelligence. Emotional experiences are a necessary but not a sufficient condition for the emergence of competencies. As indicated earlier, these experiences must be subject to cognitive reflection, made possible thanks to emotional intelligence. The rules of emotional behaviour resulting from this reflection should be consistent with the expectations and standards represented in social knowledge. Processing experiences and building emotional and social knowledge, especially that of meta-knowledge, support verbal skills.

(2) Emotional competencies are positively related to the temperamental traits that determine the high capacity of stimulation processing and the high demand for it, especially with activity and briskness. These features encourage people to enter into emotional situations and thus help them to acquire emotional experiences and train the competencies that arise from the use of these experiences. No hypotheses have been formulated regarding the relation between emotional competencies and features that indicate a low demand for stimulation, because in the light of theoretical considerations and previous research, their role is not unambiguous. And so, high intensity of emotional reactivity, on the one hand, means low resistance, which may lead an individual to avoid emotional experiences and training, and, on the other hand, means greater emotional sensitivity, which makes it predestined to concentrate more on the world of emotions. Similarly, perseverance – causing stagnation of emotions and emotional tension, may hinder emotional regulation, but at the same time, increasing the sustainability of the reaction, may favour reflection on experiences and thus building emotional knowledge.

(3) The positive relation to activity and briskness expected in the second hypothesis is more clearly revealed in the case of competencies related to strategic emotional intelligence than in the case of competencies related to experiential emotional intelligence. It seems that the competencies related to experiential emotional intelligence, allowing for "listening to the voice of emotions and following it", primarily depend on emotional sensitivity and less on the ability to process stimulation. Competencies related to strategic emotional intelligence, allowing for cognitive control and regulation, are created through constructive reflection on experiences; this is facilitated by the great capacity to cope with stimulation, which prevents its excess.

2. Method

The research was correlative in nature. Emotional competencies, temperamental traits and selected abilities were measured.

2.1 Respondents

140 people were tested – 66 women and 74 men, aged 19 to 39 years (M = 24.26, SD = 3.43). Twenty seven people had secondary education, 87 were students and 26 had higher education. Students represented a variety of fields of study.

2.2 Research Tools

The Popular Questionnaire of Emotional Intelligence (PKIE) by Anna Matczak and her colleagues (Jaworowska & Matczak, 2005) was used to measure emotional competencies. Although this tool, as the name suggests, was created for the research on emotional intelligence, the questionnaire character of this tool entitles it to be treated as a method for assessing emotional competencies (see The Concept of Emotional Competencies). The PKIE contains 94 items and provides, in addition to the overall result, four specific competencies. They are measured by four scales: AKC – on the skills to accept, express and use emotions in action, EMP – on empathy, KON – on the skills to control emotions and ROZ – on the skills to understand emotions. The first two scales measure competencies related to experiential intelligence, the next two scales measure competencies related to strategic intelligence. Questionnaire items are first-person singular statements; the respondents determine on a scale from 1 to 5 the degree to which they relate to them.

The Emotion Understanding Test (TRE) by Anna Matczak and Joanna Piekarska (Matczak & Piekarska, 2011) was used to measure of the emotional abilities. It contains 30 tasks grouped into 5 subtests, 6 tasks each. In the first subtest, the respondent is asked to arrange the words describing emotional states of the same type in the order from the word meaning the weakest emotion to the word denoting the strongest emotion. The second task is to find a word meaning emotion or a state opposite to the one indicated. In the third subtest, it is required to find simple emotions that make up a complex emotion. In the fourth, situations are listed for which names of feelings or states should be chosen that are most likely to appear in them. On the other hand, in the fifth subtest, the tested person is asked to indicate the conditions that make it probable that certain emotional reactions appear in certain situations. The score in the TRE is calculated by adding up the points obtained for the answers in five subtests.

The following tests (15 tasks each) included in the APIS-Z Battery (Matczak et al., 2006) were used to measure social and verbal abilities: Behaviours and Stories – to measure social abilities, and Synonyms and New Words – to measure verbal abilities. The Behaviour test measures the knowledge of social rules, the Stories test measures the ability to accurately perceive relationships between people and understand social situations. The Synonyms test examines the knowledge of words, while the New Words test – verbal fluency.

Temperamental traits were measured using the Temperament Questionnaire Formal Characteristics of Behaviour (FCZ-KT) by Jan Strelau and Bogdan Zawadzki (Zawadzki & Strelau, 1997), based on Strelau's Regulatory Temperament Theory (Strelau, 2006).

The questionnaire consists of 120 items, which form six scales: Briskness, Perseverance, Sensory sensitivity, Emotional reactivity, Endurance and Activity; these scales measure the previously described (see: The Development of Emotional Competencies) temperamental traits. The items are self-describing statements, whose truthfulness towards own self is examined on a scale: yes–no.

3. Results

In the beginning, correlations between individual emotional skills measured by the appropriate PKIE scales were examined. This data is represented in Table 1. In the obtained data set, attention is drawn to the high correlation coefficient between the scores on the KON and ROZ scales, that is competencies related to strategic emotional intelligence. The correlation between the AKC and EMP scales related to experiential intelligence is also relatively high. At the same time, the correlation coefficients between the two types of competencies are mostly much lower. These data speak for the separation of the strategic and experiential components, as measured by the PKIE questionnaire.

Table 1
Correlations between PKIE scales (N = 140)

Scales	AKC	EMP	KON	ROZ
AKC	1.00	.47*	.26*	.39*
EMP		1.00		.18*
KON			1.00	.64*
ROZ				1.00

* $p < .05$.

Table 2 shows the correlations between emotional competences and abilities that are part of crystallized intelligence: social, verbal and emotional. As one can observe, relations only concern social and emotional abilities. The former was revealed only in the Behaviour test, measuring the knowledge of social rules and based on verbal material; In the case of the Stories test, measuring the ability to perceive social relations and understand situations based on pictorial material, no statistically significant relationships were found. Correlations with the Behaviour test relate both to the overall PKIE outcome and to three out of the four specific scales (no correlation for the KON scale); the coefficients are rather low, although statistically significant. Correlation coefficients between emotional competencies and emotional abilities, regarding the overall result and scale of empathy, measured by the TRE test, are also low.

The data presented above provide some confirmation of hypothesis 1, proving a positive relationship between emotional competencies and social and emotional (but not verbal) abilities. The expectation that relations were to be stronger in the case of competencies related to strategic emotional intelligence, that is the skills to understand and control emotions, was not confirmed; on the contrary, in the case of the latter, no correlation was found and the skills to understand emotions were only correlated with the results of the Behaviour test (and not, as one would expect, the TRE test measuring the ability to understand emotions).

Table 2
Emotional competencies and abilities (N = 140)

	Abilities	AKC	EMP	KON	ROZ	WO-PKIE
Social	APIS-Z Behaviour	.18*	.26*		.24*	.31*
	APIS-Z Stories					
Verbal	APIS-Z New words					
	APIS-Z Synonyms					
Emotional	TRE		.17*			.20*

* $p < .05$

The correlations between emotional competencies and temperamental traits are shown in Table 3. Activity as a feature turned out to be positively related to all competencies, as well as to the overall result of PKIE. Also, the briskness correlates positively with the overall score and all competencies, except with empathy. Endurance proved to be correlated, also positively, with overall score and strategic competencies, while sensory sensitivity – with competencies related to experiential emotional intelligence.

This data is consistent with hypothesis 2, which predicted a relationship between emotional competencies and temperamental traits determining high capacity of stimulation processing and high demand for it, especially activity and briskness. The expectation of a stronger relation between temperamental traits and strategic competencies was confirmed to a small extent in the case of briskness (not related to empathy), but above all, which was not provided for by the hypothesis, in the case of endurance, which turned out to be related only to the skills to understand and control emotions. Interestingly, sensory sensivity, that is the feature characterizing low capacity of stimulation processing, correlates positively with emotional competencies; however, these correlations concern skills related to experiential intelligence only.

Emotional reactivity correlates negatively with emotional competencies except, and this is worth emphasizing, empathy skill. Correlations of competencies, this time only strategic ones, with perseverance, are also negative.

Table 3
Emotional competencies versus temperamental traits (N = 140)

Scales	AKC	EMP	KON	ROZ	WO-PKIE
Briskness	.20*		.30*	.23*	.32*
Perseverance			–.35*	–.17*	
Senosory sensivity	.25*	.18*			
Emotional reactivity	–.30*		–.47*	–.31*	–.33*
Endurance			.33*	.21*	.27*
Activity	.44*	.22*	.20*	.18*	.43*

* $p < .05$.

Analyses were also carried out taking into account both groups of variables treated as predictors of emotional competencies, including them in the regression model.

The method of stepwise regression analysis was used, in which the dependent variable was the overall result of the PKIE questionnaire (thus all types of competencies were treated together here). Only those temperamental traits and abilities that were correlated with emotional competencies were included in the analysis. The analysis was carried out both for all the respondents together and separately for women and men. The results are presented in Tables 4–6.

Table 4

Determinants of the general level of emotional competencies measured with PKIE (results of regression analysis)

Predictors	Values of regression coefficients		*t*	Change R^2
	B	Beta		
Constant	163.980			
Activity (FCZ-KT)	3.651	.366	5.20*	.18
Behaviour (APIS-Z)	5.471	.201	2.80*	.07
Briskness (FCZ-KT)	4.153	.258	3.69*	.06
Understanding of emotions (TRE)	2.276	.187	2.62*	.03
R^2 = .34; Corrected R^2 = .32; $F(4.145) = 18.01$*				

* $p < .05$.

In the analysis of all the respondents together, two temperamental traits turned out to be important predictors of emotional competencies: activity and briskness, and knowledge of social rules (Behaviour) and ability to understand emotions (TRE). These variables explain 32% of the variability of results obtained by persons surveyed in the PKIE. The strongest of these predictors is activity.

Table 5

Determinants of the general level of emotional competencies of women measured with PKIE (results of regression analysis)

Predictors	Values of regression coefficients		*t*	Change R^2
	B	Beta		
Constant	207.06			
Activity (FCZ-KT)	3.81	0.39	3.79*	0.20
Briskness (FCZ-KT)	5.72	0.35	3.40*	0.12
R^2 = .32; Corrected R^2 = .29; $F(2.68) = 15.19$*				

* $p < .05$

In women (Table 5), the only significant predictors of emotional competencies turned out to be temperamental traits – activity and briskness, explaining 29% of the variability of results in PKIE. In men (Table 6), the significant predictors included (as in women) activity, but they also included emotional reactivity (with a negative sign for the respective beta weight) and (with a positive sign) knowledge of social rules (Behaviour). These three predictors explain 36% of the variability of results in the PKIE.

Table 6

Determinants of the general level of emotional competencies of men measured with PKIE (results of regression analysis)

Predictors	Values of regression coefficients		*t*	Change R^2
	B	Beta		
Constant	280.63			
Activity (FCZ-KT)	3.08	.30	3.09*	.16
Behaviour (APIS-Z)	10.34	.36	3.81*	.12
Reactivity (FCZ-KT)	-2.93	-.30	3.10*	.08
R^2 = .36; Corrected R^2 = .33; $F(3.76) = 13.71$*				

* $p < .05$.

4. Summary and Discussion

The conducted research has brought full confirmation of hypothesis 2 and partial confirmation of hypothesis 1 – in the part concerning the relations of competencies to social and emotional abilities.

The obtained data are in line with the expectations regarding the relation between emotional competencies and abilities but do not fully confirm these expectations. Thus, there was no link between competencies and verbal skills, although this could be expected given the importance of verbal communication in interpersonal relations and the role of the verbal system in emotional reflection. Perhaps the failure to confirm these expectations results from the fact that in the studied group the vast majority were students and people with higher education, and there were no people with lower than secondary education. The level of the respondents' verbal abilities, although varied, could therefore be sufficient for the effective course of the above-mentioned regulatory speech functions related to the development of social and emotional competencies.

However, data was obtained that proves the relation between emotional competencies and emotional (understanding of emotions) and social (knowledge of social rules) abilities. The found relations are not high, but they were revealed both in simple correlations and in regression analysis that also took into account potential temperamental predictors. Again, it can be assumed that the abilities measured by the applied tests were sufficiently high so that the obtained correlation coefficients could not reach the level that they would be likely to assume in a group of people with more diverse levels of ability.

There were no statistically significant correlations between the emotional competencies and social abilities measured by the Stories test. This may be related to the overload of this test with the ability to analyse perceptive material, which actually is not a behavioural (i.e., social) material, as the authors say (Matczak et al., 2006).

Generally speaking, the relation found are in line with the model stating that the basic condition for the formation of competencies is socio-emotional knowledge (including both knowledge of the "world of emotions" and the rules governing social relations). At the same time, however, it is not a sufficient factor, which also explains the small share of these variables in explaining individual differences in terms of emotional competencies. For them to emerge, knowledge alone is not enough; also necessary is motivation to use this knowledge and train the practical skills associated with it (as well as favourable external factors, which we do not deal with here). For this reason, when examining the determinants of emotional competencies, it is worthwhile to take into account personality-temperamental factors.

In the analyses (also in regression models) relations between emotional competencies and activity and briskness (positive) as well as emotional reactivity (negative) revealed most clearly. This data is in line with the above-mentioned supposition on the importance of temperamental traits in the formation of the competencies. A high level of activity and briskness, which means a high capacity to process stimulation and a tendency to seek it, induce an individual to engage in situations wealth of emotional stimuli and to train emotional skills. Strong emotional reactivity, as a factor intensifying the subjective emotional value of stimuli, may limit the readiness for this type of action. As it turned out, this applies in a similar way to competencies related to strategic as well as experiential emotional intelligence.

The data obtained show that also endurance – a feature that means great possibilities of stimulation processing – is positively connected with competencies, but this time only with the ability to control and understand emotions. This result, although unexpected in the hypothesis, is in line with the general idea that the high capacity of stimulation processing favours the formation of emotional competencies, especially those related to strategic emotional intelligence.

It is interesting to note that the correlates of experiential and strategic competencies found for perseverance and sensory sensitivity are different. The first of these features turned out to be negatively connected with the skills to control and understand emotions. This contradicts the assumption that the persistence of the reaction, which is characteristic for perseverance, may, by fostering reflection on emotions, contribute to the development of these skills. On the contrary, it seems to be causing the accumulation of emotions and excessive tension (cf. Zawadzki & Strelau, 1997) – it may hinder this development. However, no data has been found that suggests that this also applies to the skills to accept emotions and empathy, which form part of the competencies of experiential emotional intelligence; it seems that perseverance harms not the perception of emotions, but their control, also cognitive.

Sensory sensitivity, on the other hand, correlates positively only with competencies related to experiential intelligence. This outcome is understandable; sensory sensitivity means (cf. Zawadzki & Strelau, 1997), apart from sensitivity to weak sensual stimuli, also "emotional refinement" and vigilance and openness to the surroundings. It is therefore obvious that it is linked to the skills of perceiving and appreciating the importance of emotional information.

Finally, the differences in the results obtained in analyses conducted separately for men and women deserve attention. In women, the important predictors for the competencies turned out to be only temperamental traits, and only those (activity and briskness) that

can be considered as factors conducive to the development of emotional skills. In men, a role has emerged – besides the "conducive" feature (activity) a feature that is supposed to limit training and hinder the development of competencies that is emotional reactivity. Social abilities (knowledge of social rules), the role of which was not revealed in women, also turned out to be a predictor. Perhaps women, who are emotionally more sensitive and more than men led in the process of socialization towards the "world of emotions", are also more resistant to factors that are not conducive to the development of emotional competencies. Also, the social skills that were represented in our study by knowledge of social rules are more stimulated in the course of socialization in women than in men. So it is in men that differences in this regard may be more critical to the development of emotional competencies. However, gender differences identified need to be confirmed in further studies.

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ELŻBIETA STOJANOWSKA*
Institute of Psychology, Cardinal Stefan Wyszyński University in Warsaw

THE ATTRACTIVENESS OF SELF-PRESENTATION IN THE SOCIAL AND INSTRUMENTAL SPHERE IN SITUATIONS OF THREAT TO THE SELF IN WOMEN AND MEN WITH DIFFERENT SELF-ESTEEM[1]

Abstract

The purpose of experimental research was to establish the role of self-esteem and type of threat in the attractiveness of self-presentation in women and men in the social and instrumental sphere. Research carried out in a group of 120 persons showed that self-esteem differentiated self-presentation attractiveness differently among women and men. In the female group, independently on the situation and declared effort to express particular features, subjects with low self-esteem were more attractive in the social sphere than persons with high self-esteem, however, they did not differ in the attractiveness of the instrumental sphere. And in the group of men, independently of the situation, high self-esteem persons were more attractive in the instrumental sphere than low self-esteem persons, but in the social sphere, in a neutral situation equal as well as social threats, low-self-esteem people were estimated higher than high self-esteem people. Research has shown small sex differences in the range of motivation and attractiveness of self-presentation.

Keywords: attractiveness of self-presentation, self-esteem, threat to the Self, sex differences

1. Introduction

In a situation of threat to the Self persons with high and low self-esteem make a different impression on their audiences: persons with low self-esteem arouse more positive feelings than persons with high self-esteem who are attributed with unfavourable – antagonising – interpersonal characteristics, such as arrogance, hostility, inability to cooperate, etc. (Vohs & Heatherton, 2001). The variable explaining the above relationships is the threat-induced activation of the independent Self in persons with high self-esteem

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* Correspondence address: elasto@autograf.pl

and of the interdependent Self in persons with low self-esteem. As demonstrated by Vohs and Heatherton (2001), the situational activation of the independent Self, regardless of an individual's self-esteem, leads to concentration on own competencies, triggers competition, boastfulness and a tendency to depreciate the environment. The activation of the interdependent Self, on the other hand, evokes interpersonal orientation: Openness to the needs of others, readiness to cooperate and compromise.

In a neutral situation, there is no observed difference in the attractiveness of people with different self-esteem because, as Vohs and Heatherton claim (2001), self-esteem is not permanently related to the dominance of a particular type of the Self. However, studies in this field are inconsistent - some of them demonstrate a lack of relationship between self-esteem and how the Self is construed (Vohs & Heatherton, 2001), and in other studies, a positive relationship between self-esteem and the independent Self was shown (Hannover, Birkner, & Pöhlman, 2006; Kwan, Bond, & Singelis, 1997; Reid, 2004; Stojanowska, 2009; Stojanowska & Toć, 2010).

Depending on the type of the activated Self, an individual presents himself or herself differently. When the independent Self is active, self-promotion dominates, emphasising the efficiency and independence of an individual in action; when the interdependent Self is active, self-presentation is defensive, creating the image of a "socially accepted" person (Lalvani & Shavitt, 2009). As demonstrated by the study by Lalvani and Shavitt (2009), this difference of desired images is reflected in the behaviour of an individual only under certain conditions – the lack of previous opportunity of self-affirmation, concentration on oneself and a belief in the effectiveness of own behaviour. In a situation of failure, the subjects did not necessarily want to prove themselves in a field which was significant for their identity and were choosing tasks which were not important for the Self, for example, individuals with an independent Self more often decided to test their knowledge in the field of social correctness than the ability to act independently, and individuals in an interdependent self after a failure were more often choosing tasks which tested the ability of self-reliance. This means that the activation of a particular type of the Self can be a variable insufficient to evoke self-presentation goals which are compatible with it because a threat can not only motivate to the direct defence of an important sphere of an individual's functioning but it can also cause avoidance behaviours concentrated on a less important sphere of life. The findings of research conducted by Vohs and Heatherton (2001, study I) are inconsistent with the above rule and demonstrate that in a situation of threat to the intellectual sphere, persons with high self-esteem were searching for information about themselves in the area of characteristics pertaining to their efficiency, and thus corresponding to the nature of the threat. None of the described studies, that is neither those conducted by Vohs and Heatherton (2001) nor Lalvani and Shavitt (2009), introduced a social threat, it is therefore not known whether the content of the threat differentiates between the self-presentation behaviours of persons with low self-esteem and those of persons with high self-esteem.

2. Current Study

The subject of the presented research are self-presentation behaviors of people with low self-esteem and high self-esteem in situations of threat to the Self in the intellectual and interpersonal sphere, considered both in terms of subjective motivation to present

a particular image (declared effort towards the expression of social and efficiency features) as well as social perception – of the attractiveness of self-presentation in the assessment of a partner in interaction.

Motivation to create a certain image does not have to translate to an actual result – the attractiveness of self-presentation - because strong motivation with a low assessment of the efficiency of one's own self-presentation increases social anxiety, which in turn can impair behaviour (Arkin, Appelman, & Burger,1980; Leary & Atherton, 1986; Pontari & Schlenker, 2001). Therefore, individuals with low self-esteem who chronically experience an increased level of social anxiety and are convinced about the low efficiency of their own behaviours can present themselves in a less attractive way than individuals with high self-esteem who assess their abilities as good enough and, due to their self-confidence are able to present themselves in a conquering and successful manner.

A threat to the Self in a particular sphere of life can have different motivational value for individuals who define their identity in different ways. For individuals with high self-esteem, focused on the independent Self in a situation of threat (Vohs&Heatherton, 2001), a threat to the efficiency sphere is more important than a threat to the social sphere, contrary to individuals with low self-esteem who in situations of any kind of threat to the Self think about themselves mainly in terms of social relationships. It should also be assumed that individuals with high self-esteem, convinced about unconditional acceptance by others (cf. Leary&Baumeister, 2000; Leary, Tambor, Terdal, & Downs, 1995; Murray, Holmes, & Griffin, 2000), better endure threats in the interpersonal than in the instrumental sphere. On the other hand, individuals with low self-esteem who are convinced about the permanent necessity to deserve acceptance can react with stronger anxiety to threats to the interpersonal sphere which are well-aimed at the most sensitive sphere of their life: a chronically unsatisfied need to belong (Leary et al., 1995). Differences between the two sexes can also be expected: for women, a threat to the Self in the social sphere which is stereotypically associated with the female sex can generate more anxiety than for men, for whom a threat to the instrumental sphere – stereotypically the domain of men - can cause more discomfort than for women (cf. Josephs, Markus, & Tafarodi, 1992).

The following research questions were formulated:

1. Do individuals with low and high self-esteem in a situation of social and instrumental threat to the Self make self-presentation that is diverse in terms of attractiveness in these spheres?

2. What role is played in self-presentation by the motivation to present oneself attractively?

3. Are there gender differences in the attractiveness of self-presentation in the social and efficiency sphere?

3. Method

3.1 Participants

The research involved 120 women and 120 men aged 19-28 years. They were students of the University of Finance and Management in Warsaw majoring in a variety of fields, except for psychology. Sixty women and 60 men (those who met the condition of low or

high self-esteem) were assigned the task to make self-presentation. The remaining 120 people (with average self-esteem) participated in the research as interviewers (they were always of the same sex as the participant) assessing the attractiveness of the participants.

3.2 Research Variables

Independent variables:
Type of threat (social, intellectual, control group)
Level of self-esteem
Level of anxiety before and after manipulation with the threat
Dependent variables:
The declared effort made to present oneself attractively in the social sphere
The declared effort made to present oneself attractively in the instrumental sphere
The attractiveness of self-presentation in the social sphere
The attractiveness of self-presentation in the instrumental sphere

3.3 Manipulation with the Threat and the Measurement of the Efficacy of Manipulation

Individuals who met the condition of low or high self-esteem were randomly assigned to one of three groups: with an intellectual threat, with a social threat, or to the control group. The subjects from the group with intellectual threat were informed that they were taking a test on intellectual skills and then they were solving selected spatial orientation tasks from the APIS-Z method for surveying general intelligence (Matczak, Jaworowska, Szustrowa, & Ciechanowicz, 1995), in a limited time of 5 minutes, which did not allow the subjects to perform the task correctly. A moment after the task was completed, they were informed that they had scored below the average, while 75% of participants of their age score above the average. In the group with a social threat, participants responded to questions about social functioning based on the social competency questionnaire (KKS) developed by Matczak (2001). After the task was completed, they were informed that their score was below the average, and that it indicated that they could have problems maintaining successful social contacts in the future. In the control group, the participants were informed that the test is aimed at verifying the diagnostic value of methods (and therefore they would not receive any feedback), and then half of them were solving an intelligence test, and the other half – a social test.

The level of anxiety was checked before and after manipulation with the threat (or before and after the task was performed in the control group) in the subgroups distinguished according to sex, self-esteem and type of threat (social – intellectual – control group). Before manipulation for the level of situational anxiety, two main effects were obtained: of sex [F(I, 119) = 4.97, $p < 0.05$; eta^2 = 0.04] and of self-esteem [F(I, 119) = 14.l; $p < 0.001$; eta^2 = 0.12]. Women had a higher level of anxiety (M = 15.96, SD = 3.32) than men (M = 14.7, SD = 3.18), similarly, people with lower self-esteem declared a higher level of anxiety (M = 16.4; SD = 3.27) than people with higher self-esteem (M = 14.26; SD = 3.00). After the manipulation (providing information posing a threat to the Self), two main effects were obtained: of self-esteem [F(l, 119) = 15.86; $p < 0.01$; eta^2 = 0.13] and of threat [F(2, 118) = 7.07; $p < 0.01$; eta^2= 0.12]. As before the manipulation, people

with lower self-esteem experienced higher levels of anxiety (M = 19.97, SD = 4.83) than people with higher self-esteem (M = 17.17, SD = 3.07). People who have experienced a threat, regardless of its type, experienced a higher level of anxiety ($M_{\text{intellectual var.}}$ = 19.00, SD = 4.18, $M_{\text{social var.}}$ = 19.93, SD = 4.76) than people from the control roup (M = 16.77, SD = 3.17). The last result proves the efficacy of manipulation with the threat. There were no significant gender differences in terms of the level of anxiety caused by different types of threats (social/intellectual). Similarly, the type of threat did not differentiate the level of anxiety in people with different self-esteem.

3.4 Research Procedure

Participation in the research was voluntary. The subjects were informed that the research concerns establishing contacts with new people and is carried out as part of Master degree theses. Research in the group of women was carried out by Beata Kołaczyńska (2008), and in the group of men by Maciej Gocałek (2008).

Participants started by filling out a Self-Esteem Scale (SES) and a State-Trait Anxiety Inventory STAI-XI (half of the statements in this inventory). Persons meeting the condition of low or high self-esteem were then randomly assigned to one of three groups: with an intellectual threat, with a social threat, or to the control group. In the intellectual threat group, the participants performed tasks which allegedly tested their intellectual skills, and, shortly after their completion, were informed that they obtained poor results. In the social threat group, the participants solved a test which allegedly tested their social skills, and then were informed that they obtained poor results. The control group which did not obtain any feedback, on the other hand, was informed that the tasks they had been performing were aimed at checking the diagnostic value of the methods used. Half of the participants in this group solved an intelligence test, and the other half a social competency test. After being given feedback (or taking a test in the control group) the participants filled out the STAI-XI inventory (second half of the inventory). The next information was that establishing contacts with new people is an important social skill and that to this end, they were going to take part in a short interview during which they should be trying to make a positive impression on the interaction partner. The interview was carried out by people who did not know the research procedure and did not take any tests except for those surveying self-esteem and anxiety. They were given a sheet of paper with questions they were supposed to ask the participants. They were also asked not to comment on the participants' answers and that the interview should last no longer than 5 minutes. The questions asked were typical for a job interview and pertained to the psycho-social functioning (strengths and weaknesses of the participants, how they feel they are assessed by others etc.). After the completion of the interview, the participants assessed their effort made to demonstrate particular (social and efficiency) features on a 7-point scale, and the interviewers assessed the impression that the interviewee had made on them in the scope of the same features. At the end, participants from the threat-manipulated groups were informed about the manipulation and an explanation of the real purpose of the research was provided, and all questions were answered. The scheme of the research is presented in Table 1.

Table 1
Research scheme

Individuals with low self-esteem						Individuals with high self-esteem					
Social threat group		Intellectual threat group		Control group		Social threat group		Intellectual threat group		Control group	
F*	M**	F	M	F	M	F	M	F	M	F	M
10^	10	10	10	10	10	10	10	10	10	10	10

* F = females; **M = males; ^ = number of participants in subgroups

3.5 Measures and Variable Indicators

Self-esteem. Self-esteem was assessed with the use of the Rosenberg SES scale as adapted to Polish by Łaguna, Lachowicz-Tabaczek, and Dzwonkowska (2007). The scale pertains to the global self-evaluation of an individual and consists of 10 statements assessed on 4-point scales. In adaptive tests, the mean value of self-esteem was 29.49 with a standard deviation of 4.29. In the presented research, individuals were qualified to the low or high self-esteem group when their results were lower or higher from the mean value at least by half of the standard deviation. Thus, individuals whose results were between 10 and 27 points (M = 24.4, SD = 3.5) were qualified for the low self-esteem group, and individuals whose results were between 33 and 40 points (M = 34.8, SD = 2.35), were qualified for the high self-esteem group. Individuals with average results were asked to participate in the research as interviewers.

Situational Anxiety. Spielberger's STAI-XI self-evaluation Inventory in its Polish adaptation by Wrześniewski, Sosnowski, and Matusik (2002) was used to survey situational anxiety. The STAI-XI scale is used for surveying the current wellbeing and consists of 20 statements, half of them describing positive, and the other half – negative emotional states. Due to the necessity of surveying twice (before and after manipulation), the scale was divided into two parts. Each of them contained a list of five positive and five negative emotional states assessed on a four-point scale. A higher global score means a higher level of currently experienced anxiety.

The Declared Effort Towards an Attractive Self-Presentation. Based on a pilot study carried out on a group of 50 people, features were selected from the ACL scale that were most frequently selected as necessary for interpersonal (five features) and intellectual (five features) functioning (achieving success in education and professional life). For the interpersonal sphere, they were: friendly, nice, open, tolerant and trustworthy. For the intellectual sphere - hard-working, ambitious, active, reflective, pursuing his or her goals.

After the self-presentation, the participant assessed to what extent he or she was trying to demonstrate each trait. Features were assessed on a scale from 1 to 7, where 1 meant *I did not try at all*", and 7 – "*I tried hard*. The sums of points, separate for interpersonal and efficiency features, were indicators of the declared effort.

Attractiveness of Self–presentation. In the scope of the same features that were used for assessing effort, the interviewer assessed the interviewee by answering the question what impression they made on him or her. Each feature was evaluated on a 1–7 point scale, where 1 meant the absence of this feature, and 7 – the maximum

intensity of this feature. The sums of points, calculated separately for interpersonal and efficiency features were indicators of the attractiveness of self-presentation in these spheres.

4. Results

4.1. Correlations Between Variables

In the group of women, self-esteem correlated positively with motivation to express both social and instrumental features, and negatively with the attractiveness of self-presentation in the social sphere (Table 2). The motivation to express social features was not associated with the attractiveness of self-presentation in this sphere, while the motivation to express instrumental features positively correlated with the attractiveness of self-presentation in the efficiency sphere. The attractiveness of self-presentation weakly correlated with the attractiveness of presentation of instrumental features. Although a low level of self-esteem was associated with a higher intensity of anxiety, individuals with low self-esteem presented themselves more attractively in the social sphere than individuals with high self-esteem.

Table 2

Correlations between the variables: above the diagonal in the group of women, below the diagonal in the group of men

	Self-esteem	Anxiety (Study1)	Anxiety (Study 2)	Motivation instr.	Motivation soc.	Attractiveness instr.	Attractiveness soc.
Self-esteem	x	-.46*	-.35*	.70**	.62**	n.s.	-.37*
Anxiety (Measurement 1)	-.41*	x	.74**	-.39*	-.37*	n.s.	n.s.
Anxiety (Measurement 2)	-.40*	.79**	x	-.44*	-.43*	n.s.	n.s.
Motivation instr.	.68**	-.35*	-.27*	x	.86**	.39*	-.24^
Motivation soc.	.47**	-.24*	-.33*	.56**	x	.35*	n.s.
Attractiveness instr.	.49**	-.29*	-.27*	.47**	n.s.	x	.27*
Attractiveness soc.	n.s.	n.s.	n.s.	n.s.	n.s.	n.s.	x

** $p < .01$; * $p < .05$; ^ $p < .10$

Note. Instr = instrumental features; soc = social features.

In the group of men, self-esteem correlated positively with the motivation to present features in both spheres and with the attractiveness of self-presentation in the instrumental sphere, and negatively with situational anxiety. Moreover, the motivation to express instrumental features was positively related, and situational anxiety was negatively related with the attractiveness of self-presentation in this sphere. In order to verify the role of self-esteem, motivation and anxiety in the self-presentation of

men, a regression analysis was carried out, in which all the variables mentioned were the potential predictors of attractive self-presentation in the instrumental sphere. A statistically significant model was obtained [$F(3, 56) = 7.33$; $p < .01$, adjusted $R^2 = 0.24$] in which self-esteem turned out to be the only significant predictor of attractive self-presentation in the instrumental sphere (beta = 0.32, $t(60) = 2.10$, $p < .05$) and situational anxiety (beta = –0.035, $t(60) < 1$) and motivation to express instrumental features (beta = 0.24, $t(60) = 1.5$, $p > .1$) turned out to be irrelevant factors. The result shows that men with high self-esteem make more attractive self-presentation in the instrumental sphere than men with low self-esteem for other reasons than weaker anxiety or a stronger current motivation to express these features.

4.2 The Role of Self-Esteem and Type of Threat in the Attractiveness of Self-Presentation in the Social and Instrumental Sphere

To avoid multivariable interactive effects, the problem was considered separately in different sex subgroups.

In the group of women, in the variance analysis scheme: level of self-esteem x type of threat x type of assessed features (instrumental – social), the interaction effect of self-esteem and type of features was obtained: $F(I, 54) = 15.84$; $p < .01$, $eta^2 = 0.23$. Regardless of the situation (the presence of threat), women with low self-esteem presented themselves more attractively in the social sphere ($M = 30.30$, $SD = 3.15$) than women with high self-esteem ($M = 26.5$, $SD = 4.63$), and in the intellectual sphere there were no differences in the attractiveness of both groups ($M_{\text{low self-esteem}} = 25.27$, $SD = 4.90$; $M_{\text{high self-esteem}} = 26.67$; $SD = 5.20$). Women with low self-esteem presented themselves more attractively in the social than in the intellectual sphere, and women with high self-esteem presented themselves at a similar level of attractiveness in both spheres. The regularities are presented in Figure 1

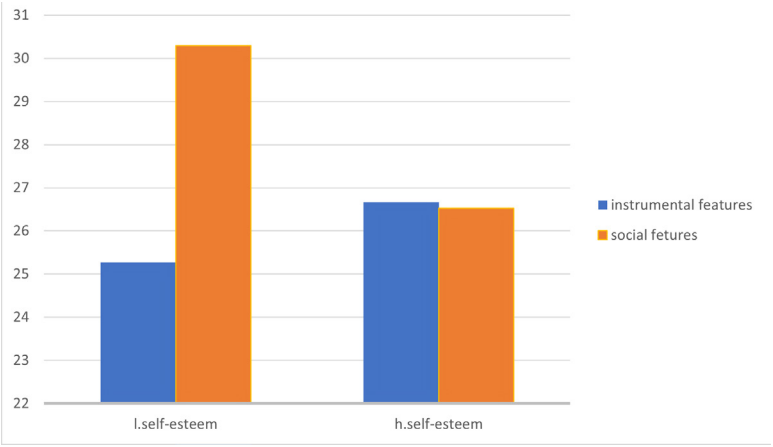

Figure 1. The attractiveness of self-presentation in the instrumental and social sphere in women with different self-esteem.

In the group of men, a three-way interaction effect of self-esteem, type of threat and type of features: $F(1, 54) = 8.78$, $p < .01$, $\text{eta}^2 = 0.25$ was obtained for the attractiveness of self-presentation. To interpret this complex interaction, the analyses were first performed separately for individuals with different self-esteem. In the group of men with low self-esteem, the interactive effect of the type of threat and the type of characteristics was obtained: $F(5, 24) = 17.49$, $p < .001$, $\text{eta}^2 = 0.56$. Men with low self-esteem in a neutral situation (control group) and social threat made more attractive self-presentation in the social than in the instrumental sphere: the control group: $M_{social} = 30.30$ ($SD = 3.50$); $M_{instrumental} = 28.l0$ ($SD = 4.40$); the group with social threat: $M_{social} = 29.60$ ($SD = 2.70$); $M_{instrumental} = 24.30$ ($SD = 2.50$). When the instrumental sphere was at risk, the instrumental self-presentation ($M = 28.8$, $SD = 3.40$) was more attractive than the social ($M = 25.40$, $SD = 3.90$). The result is shown in Figure 2.

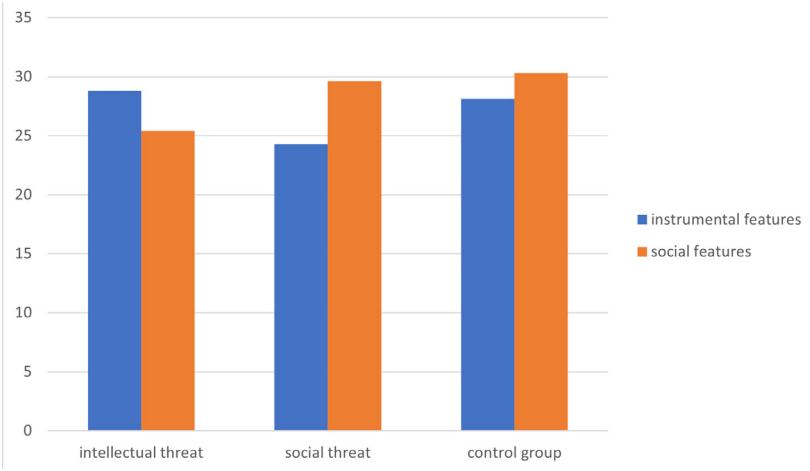

Figure 2. The attractiveness of self-presentation in the instrumental and social sphere in men with low self-esteem depending on the type of threat

In the group of men with high self-esteem, on the other hand, the following main effect of the type of features was obtained $F(I, 27) = 42.75$; $p < .001$, $\text{eta}^2 = 0.60$. Men with high self-esteem, regardless of situation (type of threat) presented themselves more attractively in the instrumental sphere ($M = 30.60$, $SD = 2.50$) than in the social sphere ($M = 26.10$, $SD = 3.50$).

Subsequent analyses in the group of men were conducted separately for each type of features.

In the scope of social features, the following interaction effect of self-esteem and type of threat was obtained: $F(5, 54) = 6.86$; $p < .01$, $\text{eta}^2 = 0.20$. Men with low self-esteem did not present themselves in the social sphere more attractively than men with low self-esteem in both control conditions [$M_{low self-esteem} = 30.30$ ($SD = 3.50$); $M_{high self-esteem} = 27.60$ ($SD = 4.00$) and in a situation of social threat [$M_{low\ self-esteem} = 29.00$ ($SD = 2.50$); $M_{high\ self-esteem} = 23.60$ ($SD = 2.50$)], and in the situation of intellectual threat their social attractiveness was similar to that of men with high self-esteem [$M_{low\ self-esteem} = 25.40$ ($SD = 3.90$); $M_{high\ self-esteem} = 27.00$ ($SD = 2.70$)].The obtained regularity in presented in Figure 3.

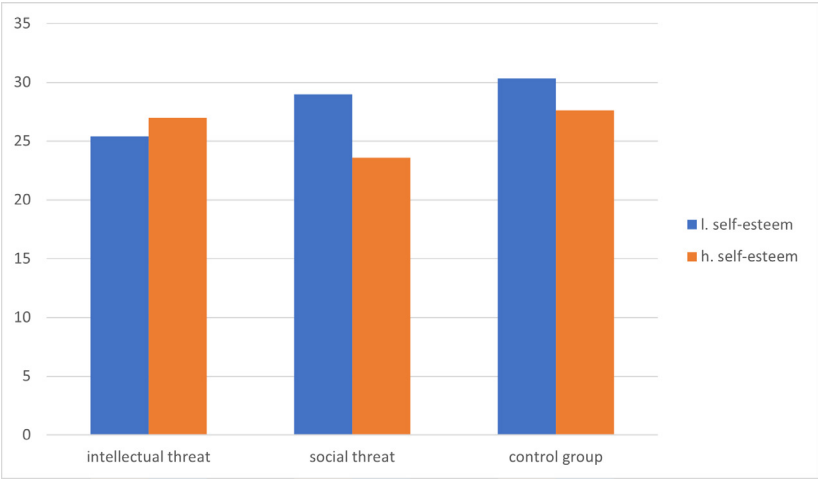

Figure 3. The attractiveness of self-presentation in the social sphere depending on the type of threat in men with different self-esteem

In the scope of instrumental features, two main effects were obtained: of self-esteem [F(I, 59) = 20.92; $p < .001$, eta^2 = 0.28] and the type of threat [F(2, 58) = 7.83; $p < .01$, eta^2 = 0.23]. Men with high self-esteem, regardless of the situation, presented themselves in this sphere more attractively (M = 30.60, SD = 2.54) than men with low self-esteem (M = 27.10, SD = 3.98). Moreover, regardless of self-esteem, both in a situation of intellectual threat and a neutral situation (control group) men presented themselves more attractively in the scope of instrumental features than in the conditions of social threat: $M_{\text{intellectual threat}}$ = 30.25 (SD = 3.20); $M_{\text{control group}}$ = 29.60 (SD = 3.60); $M_{\text{social threat}}$ = 26.70 (SD = 3.70).

4.3 Gender Differences in the Attractiveness of Self-PresentationIn the Instrumental Sphere.

An interaction effect was obtained between sex and the type of threat F(3, 114) = 3.90; $p < .05$, eta^2 = 0.07. Only in a situation of intellectual threat did men make more attractive self-presentation in the instrumental sphere than women: M_{M} = 30.25 (SD = 3.20), M_{F} = 24.50 (SD = 6.50). In the remaining conditions, sex differences were statistically insignificant.

In the Social Sphere. For the attractiveness of self-presentation in the social sphere, a three-way interaction effect of gender, self-esteem and type of threat was obtained: F(11, 108) = 4.73; $p < .05$, eta^2 = 0.08. To interpret it, two-way analyses of the gender x self-esteem variance were conducted, separately for each of the three survey conditions (intellectual threat, social threat, neutral conditions). The analyses showed that only in the conditions of intellectual threat in individuals with low self-esteem statistically significant gender differences were obtained. The interaction effect gender x self-esteem was: F(3, 36) = 7.20; $p < .05$, eta^2 = 0.17. In individuals with low self-esteem in a situation of intellectual threat, women presented themselves more attractively in

the social sphere (M = 30.40; SD= 3.20) than men (M = 25.40; SD = 3.90). In people with high self-esteem, on the other hand, gender differences turned out to be insignificant. In the remaining conditions - of social threat and in neutral conditions, no differences were obtained for the attractiveness of self-presentation in the social sphere.

4.4 Motivation to Express Social and Instrumental Features in People with Different Self-Esteem

In the Group of Women. The interaction effect was obtained: self-esteem and type of motivation: $F(1, 59) = 52.00$; $p < .01$, $eta^2 = 0.20$. Regardless of the situation (the occurrence of the threat and its type), women with high self-esteem declared a similar intensity of motivation to present both types of features [$M_{instrumental\ features}$ = 31.26 (SD = 2.90), $M_{social\ features}$ = 31.00 (SD = 2.90)] and in both cases significantly higher than women with low self-esteem, who declared a higher motivation in the scope of social than instrumental features [$M_{social\ features}$ = 25.96 (SD = 5.40), $M_{instrumental\ features}$ = 23.60 (SD = 6.50)].

In the Group of Men. A three-way interaction effect was obtained at the level of statistical trend: self-esteem x type of threat x type of motivation: $F(2, 54) = 3.07$; $p < .06$, $eta^2 = 0.10$, which is explained by the average values of simple effects in Table 3. In the group of men with low self-esteem, the participants declared higher motivation to express social than instrumental features in a neutral situation and a situation of social threat, unlike in a situation of intellectual threat when they declared higher motivation to present instrumental features. Men with high self-esteem declared higher motivation to express instrumental than social features in a situation of threat – regardless of its type, while in neutral conditions – they declared a similar intensity of both types of motivation. Generally speaking, it can be said that men with low self-esteem were more likely to care about more attractive self-presentation in the social than the instrumental sphere, opposite than men with high self-esteem.

Table 3

Motivation to Express Instrumental and Social features in a Situation of Threat and a Neutral Situation in Men with Low and High Self-Esteem

Men with low self-esteem						Men with high self-esteem					
Intellectual threat		Social threat		Control group		Intellectual threat		Social threat		Control group	
Instr.	Soc.	Instr.	Soc.	Instr.	Soc.	Instr.	Soc.	Instr.	Soc.	Instr.	Soc.
27.20	24.40	23.80	26.90	26.60	29.20	32.20	29.10	31.90	29.40	30.20	29.50
4.04	4.37	5.51	2.60	4.40	3.40	3.12	2.51	2.33	3.43	3.70	4.76

Note. Instr = Instrumental features; Soc. = Social features. Mean scores are given in the upper row and the standard deviations are given in the lower row.

4.4 Gender Differences in the Motivation to Express Social and Instrumental Features

Differences between the sexes were analysed separately for each type of features and survey conditions in the two-way analysis of variance scheme: sex x self-esteem. There was only one result indicating significant differences between the sexes: the interaction effect of self-esteem and the sex of the subjects in a situation of intellectual threat: $F(3, 36) = 5.22$; $p < .05$, $\text{eta}^2 = 0.13$. In the conditions of intellectual threat, men with low self-esteem declared a greater effort to express instrumental features ($M = 27.20$, $SD = 4.10$) than women with low self-esteem ($M = 20.40$, $SD = 6.90$). Apart from this result, no significant differences between the sexes were found in the motivation to present instrumental or social features.

5. Discussion

Different relationships between self-esteem and attractiveness of self-presentation across between gender were obtained. In the social sphere, low self-esteem in women was more evidently conducive to attractive self-presentation than in men because women with low self-esteem in each survey situation were more attractive to their audience in this sphere than women with high self-esteem, and men with low self-esteem were assessed higher in the social sphere than men with high self-esteem only in two situations: in a neutral situation and a situation of social threat. In the instrumental sphere, on the other hand, only in men was high self-esteem related to a more attractive self-presentation. This result indicates greater importance of the intellectual sphere for men than for women among people with high self-esteem and greater concern for social correctness in women than men among people with low self-esteem. Although participants with high self-esteem of both sexes declared greater effort in the presentation of both social and instrumental features (compared to individuals with low self-esteem), the declared motivation, assessed ex-post, did not necessarily have to reflect the real motivation, but the participants' convictions about the effectiveness of their self-presentation. Stronger situational anxiety in participants with low self-esteem probably led to a lower assessment of the attractiveness of their self-presentation, to the level of which they could match the declared amount of effort. The described psychological mechanism, although it concerns ex-post assessments, is analogical to a mechanism observed in self-handicapping self-presentation occurring in a situation of anticipated failure when an individual deliberately underrates their effort to protect their positive image in the eyes of others in the case of failure (Kolditz &Arkin, 1982; Szmajke, 1996).

In the group of women, individuals with high self-esteem, although they declared a higher level of motivation to present both types of features, did not gain an advantage over individuals with low self-esteem in any of the spheres. This result shows how groundless the beliefs and fears of people with low self-esteem can be and how beneficial can be the illusions of individuals with high self-esteem for their mental comfort. The positive aspect of this result is that the increased level of anxiety in individuals with low self-esteem does not prevent them from the effective creation of the image of an attractive person, especially in the social sphere.

On the other hand, in the group of men, stronger motivation to present instrumental features, although it correlated with greater attractiveness in this sphere, was not its

determinant. This means that the attractiveness of self-presentation is hardly related to the conscious motivation in a particular situation, and it probably results from the skills that are practiced every day due to the chronic motivation to create one's image of either a trustworthy person having social attributes, or an independent, effective and competent person. This result may also suggest that in the group of men, not only in a situation of intellectual threat but also in neutral situations, individuals with high self-esteem concentrate more on the independent Self than individuals with low self-esteem. However, the presented studies did not control the intensity of the independent Self and the interdependent Self of the participants, which is why the significance of kind of self-construal for the obtained diverse attractiveness of self-presentation is hypothetical.

The type of threat had little impact on the attractiveness of self-presentation in the intellectual and social sphere in individuals with different self-esteem: only men with low self-esteem presented themselves more attractively in the threatened than in the non-threatened sphere when the threat concerned both intellectual and social functioning. In the remaining subgroups, the occurrence and type of threat did not affect self-presentation: women with low self-esteem always presented themselves more attractively in the social sphere than in the efficiency sphere, and no less attractively than in neutral conditions; similarly, men with high self-esteem were more attractive in the efficiency sphere than in the social sphere, and women with high self-esteem were assessed at a similar level in both spheres. This result suggests that self-presentation is to a greater extent controlled by relatively constant skills of an individual than by the current situation or the experienced anxiety, provided that it does not reach a very high level.

The interpretation of the obtained regularities is limited to the specific situation of the survey: the threat to the Self was known only to the participant, and not to their partner to whom they presented themselves, which is why there were probably no compensatory behaviours favouring the sphere which was not at risk (cf. Baumeister & Jones, 1978).

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WŁODZIMIERZ STRUS*
Institute of Psychology, Cardinal Stefan Wyszyński University in Warsaw

JAN CIECIUCH
Faculty of Psychology, University of Finance and Management in Warsaw in 2011
Institute of Psychology, Cardinal Stefan Wyszyński University in Warsaw in 2020

TOMASZ ROWIŃSKI
Institute of Psychology, Cardinal Stefan Wyszyński University in Warsaw

THE CIRCULAR MODEL OF PERSONALITY TRAITS STRUCTURE IN LEWIS GOLDBERG'S PROPOSAL[1]

Abstract

The Five-Factor Model (FFM) of personality (Digman, 1990) is one of the most prominent taxonomies of traits. Many empirical studies supporting FFM led McCrae (2009) to the comparison of FFM to the physics of personality. However, researchers have faced some problems in relation to FFM, both theoretical and methodological. The main reason of those problems could refer to the organization of lower-level personality traits. FFM assumes the hierarchical structure of traits. It means that all five basic personality dimensions have their own facets, independent from each other. The Abridged Big Five-Dimensional Circumplex (AB5C) proposed by Hofstee, de Raad, and Goldberg (1992) is a competitive model describing the personality traits structure as circularly organized. Lower-level traits are characterized by loadings on a subset of two from five factors in AB5C model. Each pair of the Big Five factors shape a circumplex that incorporates facets (lower-level traits). In this way, AB5C model consists of 10 twodimensional circumplexes that could be treated – in a metaphoric language – as a kind of "periodic table" of personality traits (Hofstee, de Raad, & Goldberg, 1992). The article presents the main assumptions of AB5C model operationalized by IPIP-45AB5C questionnaire, with the emphasis on differences between hierarchical and circular models of personality traits structure.

Keywords: hierarchical and circular organization of facets

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* Corresponding author: w.strus@uksw.edu.pl

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1. Big Five Personality Traits

The Five-Factor Model (FFM) of personality is currently the dominant recognition of basic dimensions of personality. The number of studies verifying FFM led McCrae (2009) to compare this model to universal physics of personality. Despite its universality, however, FFM raises many doubts among many personality researchers. Criticism is formulated from various theoretical and methodological positions (cf. Borsboom, 2006; Jarmuż, 1994; Oleś, 2000; Strelau, 2002b, 2006; Szarota, 2008; Zawadzki, 2008; Zawadzki, Strelau, Szczepaniak, & Śliwińska, 1998). One of the main areas of dispute is the number and structure of distinguished personality factors. While in the 1990s the discussion between the supporters of the Big Five and the Eysenck's Giant Three (Costa & McCrae, 1992a, 1992b; Eysenck, 1991, 1992) was the loudest one, in recent years proposals have been formulated to increase the number of dimensions to six (HEXACO model, Ashton & Lee, 2007; cf. Szarota, 2008; Szarota, Ashton, & Lee, 2007), or, on the contrary, to reduce them to two higher-order traits (Alpha and Beta, Digman, 1997; or Stability and Plasticity, DeYoung, 2006) or even to one general personality factors (GFP – General Factor of Personality; Musek, 2007; Rushton, Bons, & Hur, 2008; Rushton & Irving, 2009). This article is a presentation of the personality model, which is competitive in relation to Costa and McCrae's FFM in a different way. This model accepts the assumption about five basic traits and does not offer to reduce them, however, it differently understood the lower-order organisation of personality traits, i.e., the structure of facets that constitute or are manifestations of these five basic dimensions. This model is the Abridged Big Five-Dimensional Circumplex (AB5C) of Hofstee et al. (1992). The AB5C model has several variants, as discussed below. In our presentation of the model we focus on Goldberg's version (1999).

Even though the terms *Big Five* and *Five Factor Model* are used interchangeably today, they stem from two different research traditions. The former refers to lexical traction, the latter to the psychometric approach (de Raad & Perugini, 2002; John & Srivastava, 1999; cf. Siuta, 2006; Siuta & Beauvale, 2008; Strelau, 2002b, 2006; Zawadzki et al., 1998). From both these traditions emerges a relatively consistent picture – these five basic dimensions of personality are: Extraversion, Agreeableness, Conscientiousness, Emotional stability (vs. Neuroticism), Intellect or Openness to experience (cf. de Raad & Perugini, 2002; Digman, 1990; Goldberg, 1990; John, 1990; McCrae & Costa, 2005). At present, the term Big Five is usually used in a more general sense and refers to the above-mentioned basic personality traits. It is worth adding that the term Big Five was introduced by Goldberg (1981; cf. Strelau, 2002b; 2006; Szarota, 1995) within a lexical approach. In turn, the concept of Five Factor Model of personality is a term that implies a construct of lower-order traits. Usually, in a specific mental shortcut, FFM means a hierarchical (or simple) organization of lower-order traits (Barbaranelli & Caprara, 2002; DeYoung, Quilty, & Peterson, 2007; McCrae & Costa, 2005; Siuta, 2006).

The five above-mentioned traits will be called *basic traits* or *basic dimensions of personality.* The concept of a *trait* is juxtaposed with an additional term to increase precision and distinguish it from traits at other levels of personality structure – lower and higher. A descriptive term *higher-order trait* will be used to determine a higher level of personality structure. Traits with a lower personality level will be called *lower-order traits* or *facets.* Table 1 shows the concepts we offer and use.

Table 1
Terms used to describe different orders of organisation for personality traits

Lower-order traits	Basic traits	Higher-order traits
aspects (facets);	basic dimensions;	meta-dimensions;
lower-order factors; (e.g., gregariousness, dutifulness)	basic factors; (Big Five, e.g., extraversion)	higher-order factors (e.g., alpha, beta)

We have decided to introduce the term *aspekt* in Polish version, although in Polish literature the English word *facet* was also translated as *składnik* (eng. 'Component'; Siuta, 2006, 2009; Zawadzki et al., 1998). Although in Costa and McCrae's hierarchical model both the term *component* and *facet* seem to be equally appropriate, the term *component* is not appropriate in a circumplex model. As the word *facet* is used in the English literature to describe both models, we decided consistently to translate it as *aspekt* when describing both models.

The word *component* is synonymous with the word *fragment*. It implies some sort of additive structure, in which the subsequent, separate *components* make up a larger whole. The word *facet*, on the other hand, suggests that a given object should be presented from different perspectives, in different variants. In addition, the term *facet* can also be understood as a *manifestation*, and this in turn corresponds well with the understanding of lower-order traits as manifestations of the basic ones. In empirical verification of the theoretical model, the component model is a rather *formative* model, while the aspective model is closer to the *reflective* one according to the distinction made by Bollen and Lennox (1991), which is a generally accepted measurement model in psychology.

The term *factor* will appear as a synonym for the word *trait*. It is a term related to the context (inherent for the Big Five model) of empirical verifications carried out by means of factor analysis (exploratory and then confirmatory). We will therefore use it primarily when the analyses concern the context of statistical verification of personality trait models or when this context is particularly relevant. The *confirmatory factor analysis* (CFA) also uses the term *second-order factor*, which is a technical term for the level of latent variables created by other latent variables. The term *second-order factor* may therefore refer to the level of basic factors (where latent variables are lower-order factors) or higher-order factors (where latent variables are basic factors).

2. Hierarchical Model of Personality Traits Structure

In accordance with the hierarchical Five Factor Model, each of five basic personality factors has its own lower-order factors, independent of other basic factors. These relations are presented in Figure 1.

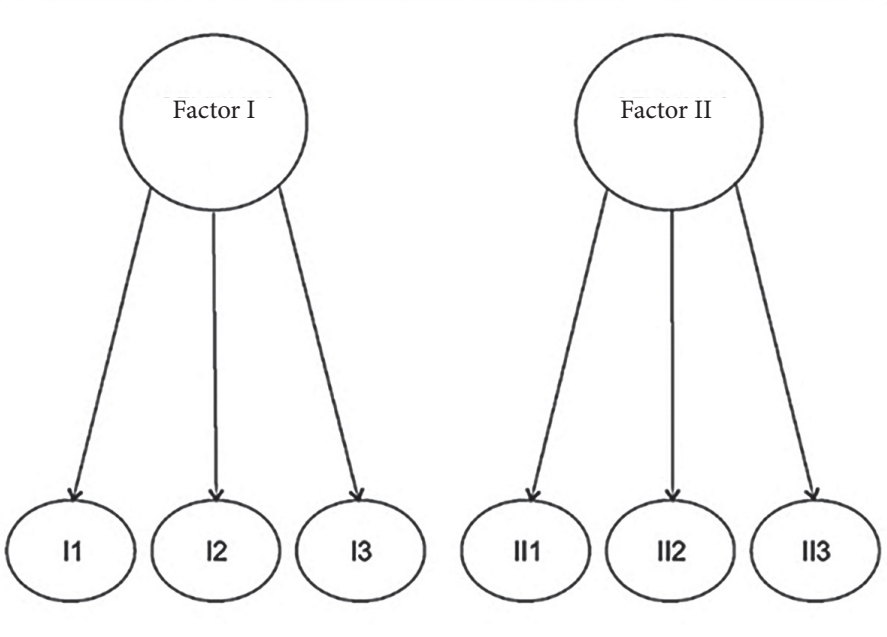

Figure 1. Diagram of a hierarchical model of organisation of personality traits.

The most popular version of FFM today is McCrae and Costa's one (2005). They assume the existence of 30 *facets*, six for each basic factor. The NEO Personality Inventory Revised (NEO-PI-R) is used to measure them. The test of Costa and McCrae's FFM hierarchical model is therefore a test of the NEO-PI-R measurement model. The basic traits and their constituent lower-order traits are listed in Table 2.

Table 2
Facets of the five basic personality factors in the FFM model by Costa and McCrae (2005)

Factor	Symbol	Lower-order traits
Neuroticism	N1	Anxiety
	N2	Angry Hostility
	N3	Depression
	N4	Self-Consciousness
	N5	Impulsiveness
	N6	Vulnerability
Extraversion	E1	Warmth
	E2	Gregariousness
	E3	Assertiveness
	E4	Activity
	E5	Excitement-Seeking
	E6	Positive Emotion

Factor	Symbol	Lower-order traits
Openness to experience	O1	Fantasy
	O2	Aesthetics
	O3	Feelings
	O4	Actions
	O5	Ideas
	O6	Values
Agreeableness	A1	Trust
	A2	Straightforwardness
	A3	Altruism
	A4	Compliance
	A5	Modesty
	A6	Tender-Mindedness
Conscientiousness	C1	Competence
	C2	Order
	C3	Dutifulness
	C4	Achievement Striving
	C5	Self-Discipline
	C6	Deliberation

Note. Polish translation of the facets' names according to Zawadzki et al., 1998; Siuta, 2006.

In this view, each of the basic traits, i.e., Neuroticism, Extraversion, Openness to experience, Agreeableness and Conscientiousness is specific averaging of *their* six lower-order traits. Such a structure would be extremely elegant in its simplicity if it were confirmed empirically.

The hierarchical model is a model that can be tested by a second-order confirmatory factor analysis. In this analysis: (1) NEO-PI-R items are observable variables; (2) 30 lower-order traits are latent variables; (3) five basic factors are latent variables – second-order factors formed by 30 latent variables (lower-order factors). Figure 2 presents a fragment of the NEO-PI-R measurement model.

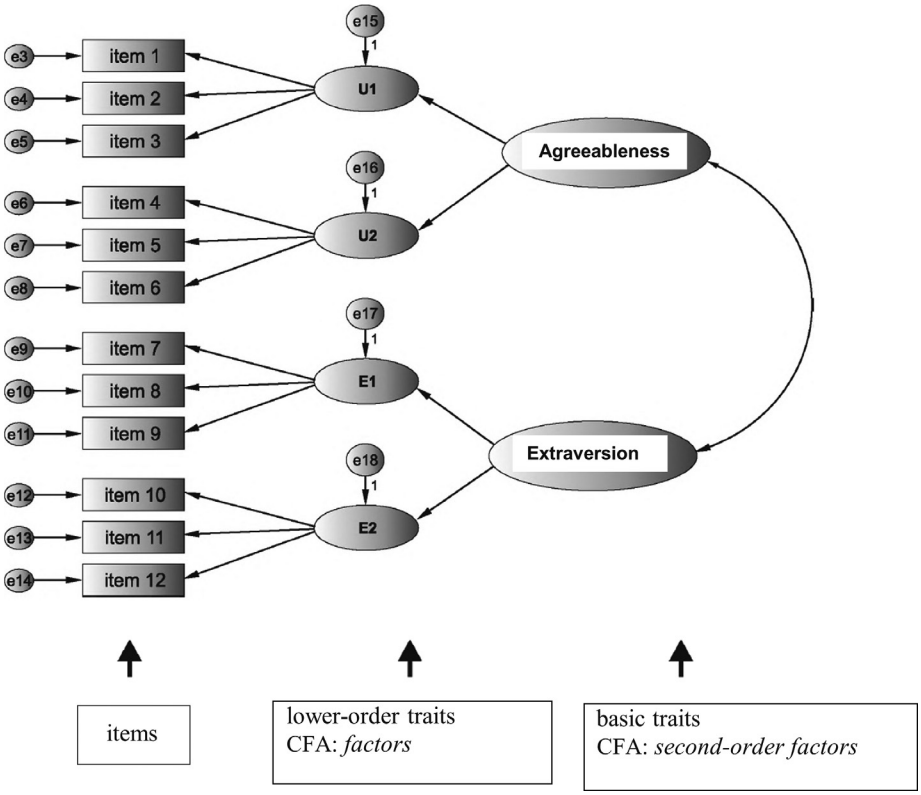

Figure 2. Fragment of a measurement and hierarchical model of personality traits (a second-order confirmatory factor analysis).

Figure 2 includes only: (1) two basic factors (there are five in the FFM); (2) each of them is made up of two lower-order factors (in the FFM, each factor is made up of six lower-order factors); (3) each of the lower-order factors is made up of three items (in NEO-PI-R, it is made up of eight items).

The research shows that the assumption of hierarchy of the structure of traits can rarely be considered as satisfactorily fulfilled. The main problem are cross-loadings of *lower-order traits*. Many of them have high loadings in more than one (own) basic factor. This leads to significant correlations of certain basic factors (cf. e.g., de Raad, 1998; DeYoung et al., 2007; McCrae & Costa, 2005; McCrae, Zonderman, Costa, Bond, & Paunonen, 1996; Siuta, 2006).

Cross-loadings in the FFM factor analysis are a problem because they contradict the hierarchical structure of the model. However, different conceptualisation of lower--order traits in a different model of their structure treats cross-loadings as one of theoretically justified rules that precisely describe the organisation of traits at a lower level of personality structure.

3. Circumplex Model of Personality Traits Structure

Cross-loadings are treated as a principle of circular organization of personality traits (cf. Peabody & Goldberg, 1989; Wiggins, 1979), provided, obviously, that their arrangement is precisely defined by the theoretical model. In the Abridged Big Five-Dimensional Circumplex (AB5C) model by Hofstee et al. (1992), the lower-order traits are characterised as being dependent on two out of five basic factors. Basically, however, it could be assumed that they depend on all five factors. Nevertheless, this model would be extremely complicated, which is why Hofstee et al. (1992) proposed an *abridged* model of the dependences of lower-order traits on only two basic dimensions. The authors call their model using the abbreviation AB5C, in which the first letter A means that it is an *abridged* model; B5 means a Big Five model; C means a *circumplex* model.

Faithful to the original, Polish translation of the AB5C model name is quite troublesome. In the Polish literature, Strelau (2002b, 2006) used the phrase *skrócona, pięciowymiarowo-kołowa taksonomia osobowości* to translate *Abridged Big Five-Dimensional Circumplex*. However, we finally decided to use a different term, less literal, but reflecting the essence of the model – *Kołowy Model Wielkiej Piątki* (Big Five Circumplex Model), or use the abbreviation proposed by the authors – AB5C.

The dependence of the lower-order traits on two basic factors is shown in Figure 3.

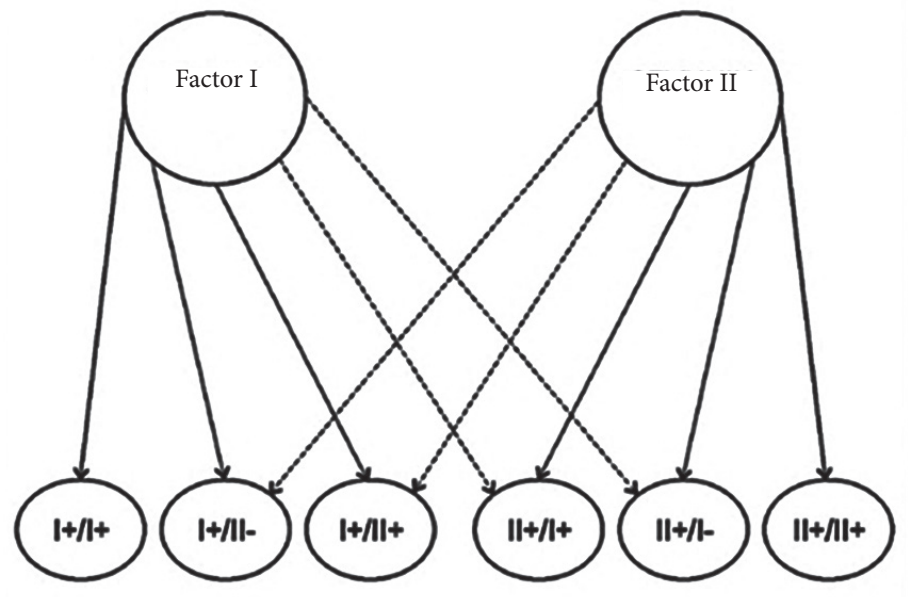

Figure 3. Diagram of a circumplex model of organisation of personality traits.

This approach to the relationships between the lower-order factors, as well as between lower-order factors and basic ones, makes it possible to distinguish the titular circumplexes, each of which is a two-dimensional space determined by two orthogonal Big Five factors, as shown in Figure 4.

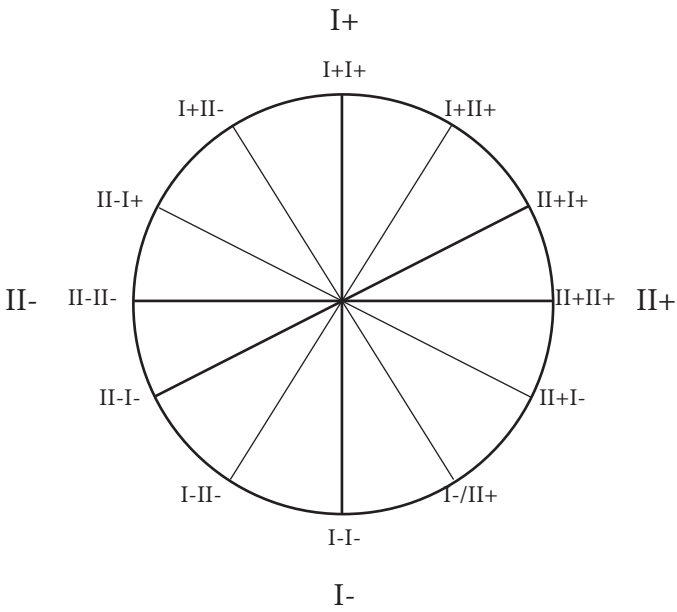

Figure 4. Circular organization of lower-order traits – the example of the circumplex formed by basic factors: I and II.

Thus, the AB5C model assumes that at the lower level of the trait organization there are systematic links both between the facets and between them and the basic five factors. Hence, Hofstee et al. (1992) integrated the five-factor model and the circumplex model (Wiggins, 1979) of personality traits.

The AB5C model derives from the lexical tradition, and the main assumption concerning the circularity of the lower-order traits structure is a fundamental difference in relation to the competitive hierarchical FFM. In the AB5C model, each of the five basic factors has nine facets. In each of the nine facets of a given factor, one is independent from other factors (the so-called *core facet*), while the remaining eight ones are dependent on a positive or negative pole of another factor. There are 45 facets in total, including five *core* ones and 40 linked simultaneously to two basic factors – so called *blend* facets. However, it should be remembered that the given numbers are valid under the assumption that facets have the nature of bipolar traits. There would be twice as many unipolar facets.

The AB5C model is detailed in 10 circumplexes, which covers the number of possible combinations of trait pairs out of the five basic ones. Each of the two basic factors in a given circumplex is represented by:

1) its core facet (in Figure 4 these are traits marked I+I+ vs. I-I- and II+II+ vs. II-II-). The core facet can be described either as one bipolar dimension or as two unipolar traits (in Figure 4, the facet I+I+ vs. I-I- can be described as two facets: I+I+ and I-I-; the facet II+II+ vs. II-II- can be described in analogous way);

2) two facets resulting from the relationship with the other factor (of this two). In Figure 4 these are therefore the lower-order traits: I+II+ vs. I-II- (facet of factor I dependent on the positive pole of factor II) and I+II- vs. I-II+ (facet of factor I related to the negative

pole of factor II). Analogously, for the second basic factor these include II+I+ vs. II-I- and II+I- vs. II-I+. If these four lower-order traits are treated as unipolar dimensions, the number of lower-order traits increases twice, as each pole of the bipolar facet can be described as a separate lower-order trait. The facet I+II+ vs. I-II- falls into two facets: I+II+ and I-II-.

A similar procedure can be performed for each facet. It should be added that facets were treated traditionally in the AB5C model as unipolar traits. In turn, the recognition of personality traits as bipolar dimensions is in line with the tradition of the trait theory in personality psychology (cf. e.g., Cattell, 1957; Eysenck, 1990); this approach was also proposed by Goldberg, whose version of the AB5C model is presented below. A fragment of a circumplex model of personality traits is presented in Figure 5.

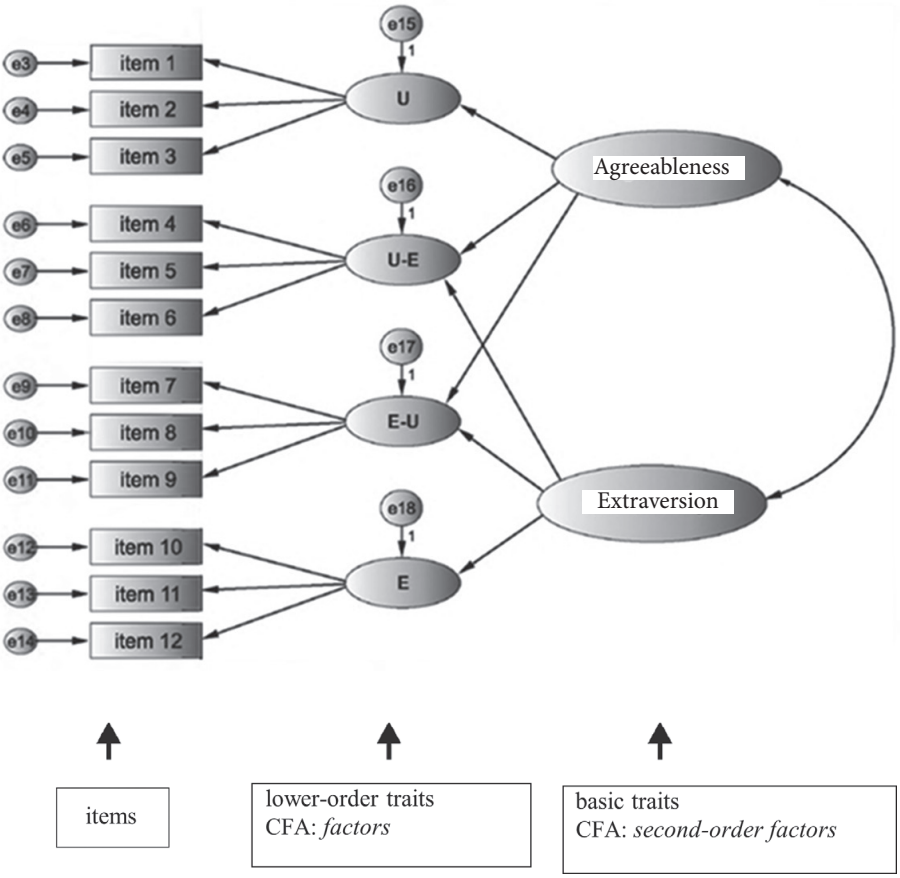

Figure 5. Fragment of a circumplex model of personality traits (a second-order confirmatory factor analysis).

In the measurement model of confirmatory factor analysis (CFA), U and E facets are core ones. The U-E facet is Agreeableness trait with a blend of Extraversion, while the E-U facet is Extraversion trait with a blend of Agreeableness. Two issues should be noted: (1) cross-loadings are not random, but precisely defined by a system of theoretical relations;

(2) cross-loadings are introduced at the level of the relationship between lower-order factors and second-order ones (basic factors). The relations between the observable variables (items) and first (lower) order factors do not change.

The assumptions presented above are immanent properties of the AB5C model. Another situation is in case of the names of particular facets and their psychological meaning. There are at least a few different versions here.

The AB5C model is not a new proposal. It was published in the early 1990s (Hofstee et al., 1992). A verification of the model at the time used lexical material (adjectives). Other research conducted in the early 1990s used the model in terms of a specific interpretation framework for the discrepancies among various versions of the five-factor models and their measurement instruments (Johnson, 1994a, 1994b; Johnson & Ostendorf, 1993). Such clarifying analyses provided empirical support for the AB5C model itself. There were also empirical premises for naming particular facets (cf. also de Raad & Hofstee, 1993). However, the establishment of the facets names was not objective of any research then. As the lexical material (mainly adjectives) still played a key role in these studies, the function of the facet label was then usually fulfilled by adjectives with the highest loading. As a result, the psychological meaning of particular facets changed in various researchers (cf. Backstrom, Larsson, & Maddux, 2009).

Nevertheless, there was still no instrument specifically designed to measure the traits assumed by the AB5C model. It was not until the end of the last century when, together with creation of the International Personality Item Pool (www.ipip.ori.org, Goldberg, 1999; cf. Saucier & Goldberg, 2002; Polish version: www.ipip.uksw.edu.pl), such a tool – IPIP-45AB5C questionnaire – was created (Goldberg, 1999; Goldberg et al., 2006). In a certain sense, this tool integrates psycholexical and questionnaire (psychometric) approaches in the study of basic dimensions of personality and, most importantly, opens new possibilities for verification of the AB5C model (Backstrom et al., 2009), also in Poland. The IPIP-45AB5C questionnaire has recently been adapted to Polish conditions as well (Strus, Cieciuch, & Rowiński, 2011).

In connection with development of the IPIP-45AB5C, Goldberg formulated names for all 45 bipolar facets in the AB5C model, giving them psychological meaning. Thus, he created his own version of the AB5C model. It should be also noted that even before the AB5C model was published, Goldberg had proposed both a hierarchical structure of traits (Goldberg, 1990, 1993) as well as a three-dimensional, *double circumplex* model created by Extraversion, Agreeableness and Conscientiousness (Peabody & Goldberg, 1989).

4. Personality Traits in the Goldberg's AB5C Model

In the lexical approach, the basic Big Five traits are attributed to the following symbols of Roman numbering:

I – Extraversion
II – Agreeableness
III – Conscientiousness
IV – Emotional stability
V – Intellect.

As mentioned above, in AB5C model, each of the five big factors has nine bipolar facets: one core and eight blends. Table 3 presents these facets in Goldberg's proposal (1999).

Table 3
Facets of the five basic personality factors in the Goldberg's version of AB5C model

Factor	Symbol	Lower-order traits
	I+/I+ vs I-/I-	Gregariousness
	I+/II+ vs I-/II-	Friendliness
	I+/III+ vs I-/III-	Assertiveness
	I+/IV+ vs I-/IV-	Poise
FACTOR I	I+/V+ vs I-/V-	Leadership
Extraversion	I+/II- vs I-/II+	Provocativeness
	I+/III- vs I-/III+	Self-Disclosure
	I+/IV- vs I-/IV+	Talkativeness
	I+/V- vs I-/V+	Sociability
	II+/II+ vs II-/II-	Understanding
	II+/I+ vs II-/I-	Warmth
	II+/III+ vs II-/III-	Morality
	II+/IV+ vs II-/IV-	Pleasantness
FACTOR II	II+/V+ vs II-/V-	Empathy
Agreeableness	II+/I- vs II-/I+	Cooperation
	II+/III- vs II-/III+	Sympathy
	II+/IV- vs II-/IV+	Tenderness
	II+/V- vs II-/V+	Nurturance
	III+/III+ vs III-/III-	Conscientiousness
	III+/I+ vs III-/I-	Efficiency
	III+/II+ vs III-/II-	Dutifulness
	III+/IV+ vs III-/IV-	Purposefulness
FACTOR III	III+/V+ vs III-/V-	Organization
Conscientiousness	III+/I- vs III-/I+	Cautiousness
	III+/II- vs III-/II+	Rationality
	III+/IV- vs III-/IV+	Perfectionism
	III+/V- vs III-/V+	Orderliness
	IV+/IV+ vs IV-/IV-	Stability
	IV+/I+ vs IV-/I-	Happiness
	IV+/II+ vs IV-/II-	Calmness
	IV+/III+ vs IV-/III-	Moderation
FACTOR IV	IV+/V+ vs IV-/V-	Toughness
Emotional stability	IV+/I- vs IV-/I+	Impulse Control
	IV+/II- vs IV-/II+	Imperturbability
	IV+/III- vs IV-/III+	Cool-Headedness
	IV+/V- vs IV-/V+	Tranquillity

	V+/V+ vs V-/V-	Intellect
	V+/I+ vs V-/I-	Ingenuity
	V+/II+ vs V-/II-	Reflection
	V+/III+ vs V-/III-	Competence
FACTOR V	V+/IV+ vs V-/IV-	Quickness
Intellect	V+/I- vs V-/I+	Introspection
	V+/II- vs V-/II+	Creativity
	V+/III- vs V-/III+	Imagination
	V+/IV- vs V-/IV+	Depth

The symbols of facets in AB5C model traditionally denote the affiliation to a given basic factor (first Roman numeral) and the contribution of a trait described by the specific pole of the second basic factor (second Roman numeral). For example: Friendliness (I+/II+ vs I-/II-) is a facet of Extraversion (I) that depends on the positive pole of Agreeableness (II), while Provocativeness (I+/II- vs I-/II+) is a facet of Extraversion (I) with a low level of Agreeableness (II). Self-Discipline (III+/IV+ vs III-/IV-) and Perfectionism (III+/IV- vs III-/IV+) are facets of Conscientiousness (III), while the former is related to Emotional Stability

(IV) and the latter with Neuroticism. Intellect (V+/V+ vs. V-/V-) is a core facet of its factor, as is suggested by the name itself. Other core facets include Gregariousness (I+/I+ vs I-/I-), Understanding (II+/II+ vs II-/II-), Conscientiousness (III+/III+ vs III-/III-) and Stability (IV+/IV+ vs IV-/IV-).

The number of facets for each of the basic dimensions is not arbitrary, as in a hierarchical structure, but is directly derived from the assumptions of the AB5C model. The meanings of particular facets of the Big Five traits, expressed by their labels, are theoretically justified.

As mentioned above, Goldberg (1999) includes facets as bipolar traits, but each of the lower-order traits (as well as each of the five basic dimensions) can be considered both as a bipolar trait, or two unipolar ones. In the first case only the positive pole of a given trait is usually described, in the second one both poles of this dimension must be described. An example of such possibility is shown in Table 4 – our proposal to describe the negative poles of Emotional stability facets.

Table 4

Facets of neuroticism in the AB5C model – author's proposal of names for negative poles of emotional stability facets (factor IV) in Goldberg's version of AB5C model

Symbol	Author's proposal of a name for the negative pole	Symbol	Name of the positive pole
IV-/IV-	Imbalance	IV+/IV+	Stability
IV-/I-	Worrying	IV+/I+	Happiness
IV-/II-	Angry Hostility	IV+/II+	Calmness
IV-/III-	Uncontrollability	IV+/III+	Moderation
IV-/V-	Vulnerability	IV+/V+	Toughness
IV-/I+	Impulsiveness	IV+/I-	Impulse Control

IV-/II+	Tearfulness	IV+/II-	Imperturbability
IV-/III+	Compulsiveness	IV+/III-	Cool-Headedness
IV-/V-	Emotional differentiation	IV+/V-	Tranquillity

In lexical studies (Goldberg, 1992), also those conducted in Poland (Szarota, 1995), there is a significant imbalance in the number of terms describing the positive and negative poles of Emotional stability. The large number of words describing Neuroticism is accompanied by a small number of terms referring to Emotional stability. Therefore, the names of the facets relating to the positive pole of Factor IV do not always accurately reflect their meaning. This is the most evident with Imperturbability (IV+/II- vs IV-/II+), Cool-Headedness (IV+/III- vs IV-/III+) and Happiness (IV+/I+ vs IV-/I-).

By proposing translations of Goldberg's names as well as our own names of the negative pole of dimensions, we took equal care of the precision of the translation as well as its theoretical validity. Our goal was to create such a label that would convey the meaning of a given lower-order trait, resulting from a circular arrangement of relationships. Some of our proposals may come as a surprise at first reading. However, they are always theoretically grounded. For example, let us consider the name *Równowaga* (balance) as the equivalent of the English noun *happiness* that we have adopted. In psychology, there is quite an established the viewpoint that positive emotionality and negative emotionality (Watson, Clark, & Tellegen, 1988) are independent personality dimensions and that the former one depends on Extraversion/Introversion and the latter one on Neuroticism/Emotional Stability (cf. McCrae & Costa, 2005). Happiness (IV+/I+ vs. Worrying IV-/I-) in the AB5C model is an aspect of Emotional stability (vs. Neuroticism) and refers to negative emotionality. Moreover, the literature points out to a mislabelling of this aspect (DeYoung et al., 2007), and the analysis of the items of the scale measuring it in the IPIP-45AB5C questionnaire, as well as the scale of the adjacent facet in the circumplex of factors I and IV (i.e., facet I+/IV+; see Figure 8), prompted us to propose such a name.

5. Circumplexes of Personality Traits

The structure of the Big Five facets, presented in Table 3, is a circular structure. Figures 6–15 present those facets in the arrangement of 10 circumplexes. Each circumplex is formed by two basic factors. In a given circumplex a factor is represented by its core facet and two other (blend) facets related to the positive and negative pole of the second basic factor. Thus, there are six facets in each circumplex (two core and four blends). It is noteworthy that particular circumplexes concern different spheres of human personality (cf. Costa & McCrae, 2000). The following presentation will be complemented by an interpretation indicating possible links between the given circumplexes of the AB5C model and different areas of the personality functioning.

5.1 Circumplex no. 1: Extraversion and Agreeableness

In the circumplex formed by factors I and II, there are three aspects of Extraversion: Gregariousness (core aspect), Provocativeness and Friendliness; and the three aspects of Agreeableness are Understanding (core), Warmth and Cooperation. The first circumplex, discussed now, is shown in Figure 6.

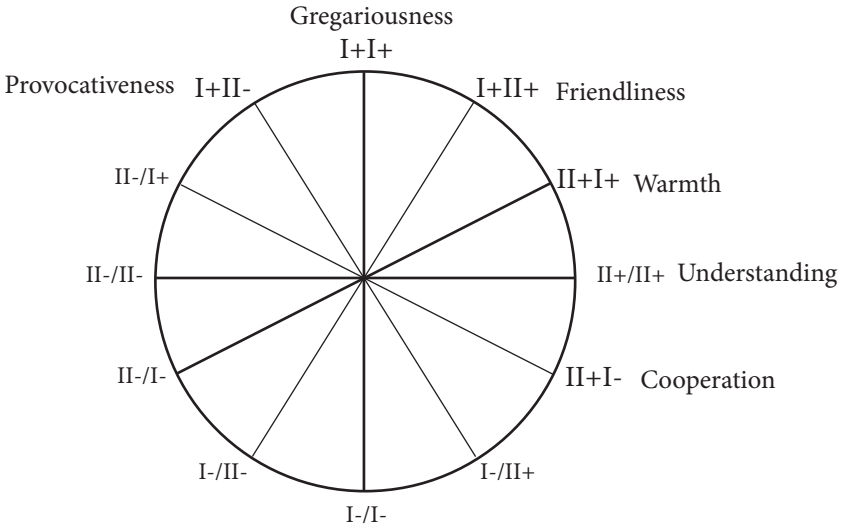

Figure 6. A circumplex of personality traits created by basic factors: I (Extraversion) and II (Agreeableness).

This circumplex describes the sphere of interpersonal relations (Wiggins, 1979, 1995) or styles of interactions with other people (Costa & McCrae, 2000). It is also a central element of the best-known circumplex model of personality traits – a concept of interpersonal traits (behaviours) by Wiggins. Although the Interpersonal Circumplex of Wiggins has an octant structure, and its basic dimensions are Dominance and Love (orthogonal axes rotated by 45 degrees in relation to Extraversion and Agreeableness), it creates a space very similar to that of the circumplex created by factors I and II of the AB5C model (Trapnell & Wiggins, 1990; cf. Klinkosz, 2004). Thus, Extraversion combined with a high level of Agreeableness appears to be a kind of friendliness, open-heartedness, and interpersonal warmth. In turn, Extraversion, together with low Agreeableness is dominance, rivalry, and expansiveness. Introversion plus high Agreeableness is manifested by modesty and willingness to cooperate and even submissiveness, while Introversion combined with low Agreeableness is cold and secretive.

5.2 Circumplex no. 2: Extraversion and Conscientiousness

Figure 7 presents a circumplex created by factors I (Extraversion) and III (Conscientiousness).

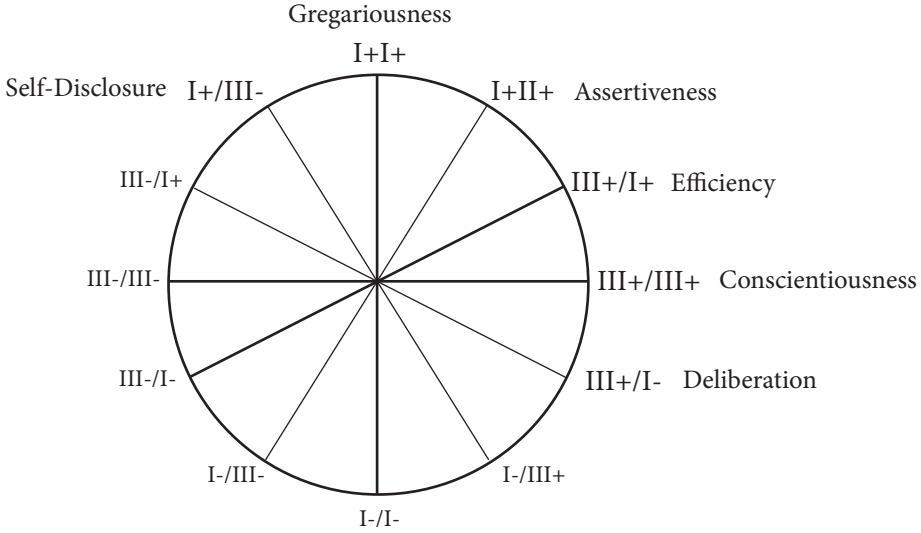

Figure 7. A circumplex of personality traits created by basic factors: I (Extraversion) and III (Conscientiousness).

Self-Disclosure (I+/III- vs I-/III+) is a facet of Extraversion with a blend of low Conscientiousness. It is related to easiness of expressing information about self. Then, moving clockwise in the circle, there is Gregariousness (I+/I+ vs I-/I-) and Assertiveness (I+/III+ vs I-/III-) – an aspect of Extraversion with the participation of high Conscientiousness. In turn, Efficiency (III+/I+ vs III-/I-) is an aspect of Conscientiousness with a mixture of high Extraversion. Then, there is the core aspect of Conscientiousness (III+/III+ vs III-/III-) as well as Deliberation (III+/I- vs III-/I+), which is an aspect of Conscientiousness with a blend of Introversion. This circumplex seems to be related to the preferred style of action or activity (Costa & McCrae, 2000). Extraversion determines the level of energy, while Conscientiousness determines the level of organization of individual activity (cf. Peabody & Goldberg, 1989).

5.2 Circumplex no. 3: Extraversion and Emotional Stability

The third circumplex, constituted by Extraversion (I) and Emotional stability (IV) is shown in Figure 8.

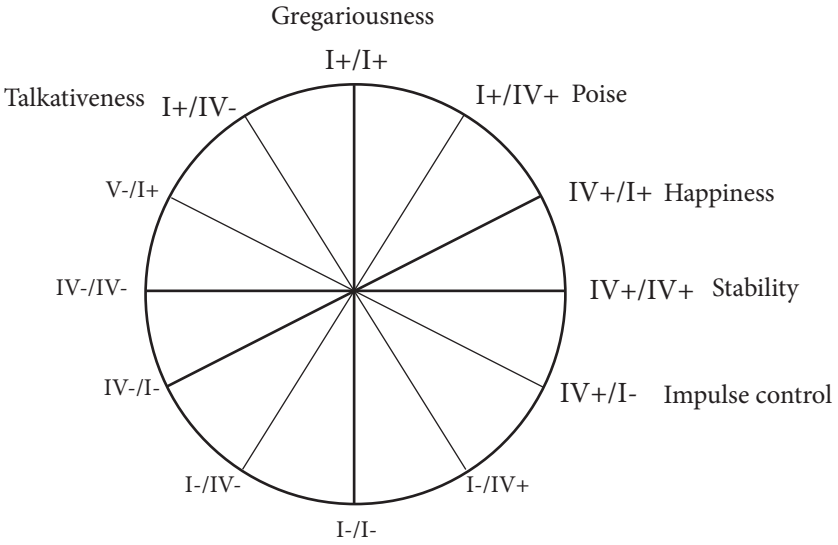

Figure 8. A circumplex of personality traits created by basic factors: I (Extraversion) and IV (Emotional stability).

The facets presented in this circumplex can be considered as temperamental properties, while the circumplex itself seems to be mostly related to the sphere of temperament out of all of AB5C circumplexes. Extraversion and Neuroticism (the negative pole of Emotional stability) are often considered to be exactly those Big Five factors that can be considered as temperamental traits (Eysenck, 1990; Grey, 1987; Hofstee, 1991; Strelau, 2002a, 2002b; Zawadzki & Strelau, 2010; Zawadzki et al., 1998). They are usually assumed to be orthogonal dimensions. It is worth noting that Eysenck who compared them with the ancient typology of temperament by Hippocrates–Galen, suggested at the same time a circular structure of lower-order traits (Eysenck & Eysenck, 1985). Moreover, the orthogonal dimensions of Extraversion and Neuroticism by Eysenck (1990) can be placed on the 30 degrees rotated orthogonal axes of impulsiveness and anxiety – two basic dimensions of temperament in the BIS/BAS theory (Behavioural Inhibition System and Behavioural Activation System) by Gray (1987, 1999). Then we get a space very close to the circumplex I/IV in the AB5C model. It may be added that the dispositions in the discussed circumplex refer particularly clearly to emotional functioning (negative and positive emotionality; Watson et al., 1988; cf. Costa & McCrae, 2000; Russell, 1980; Yik, 2010; Yik, Russell, & Barrett, 1999). However, all this becomes clear only after taking into account the negative poles of the facets included within the circumplex I/IV (see Table 4).

As shown in Table 4, the negative pole of the facet IV+/I+ vs. IV-/I- (Happiness) is called Worrying (another possibility is simply Anxiety), while in the case of the aspect

IV+/I- vs IV-/I+ (Impulse Control), the negative pole was called Impulsiveness. On the other hand, based on theoretical premises and an analysis of the content of the items of appropriate scales of the IPIP-45AB5C questionnaire, we can state that the negative pole of the aspect I+/IV+ vs I-/IV- (Poise) could be called Shyness, while the negative pole of the aspect I+/IV- vs I-/IV+ (Talkativeness) – Reserve.

5.3 Circumplex no. 4: Extraversion and Intellect

The last circumplex with factor I (Extraversion) is a combination of Extraversion and Intellect. The circumplex is shown in Figure 9.

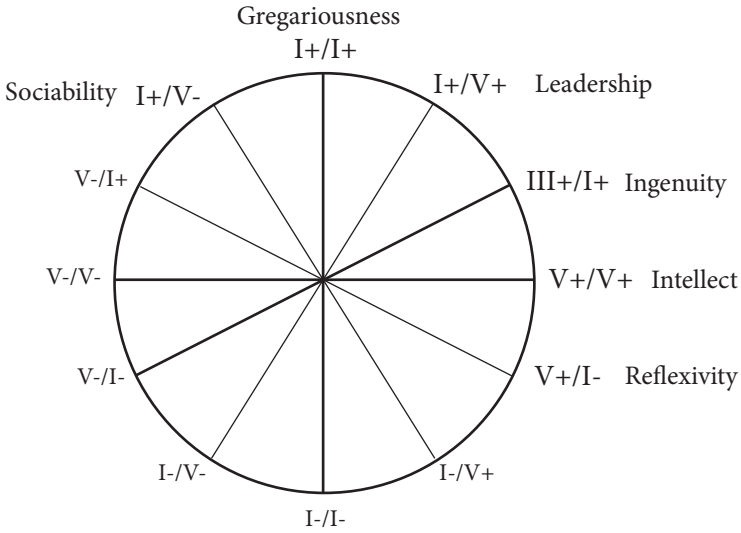

Figure 9. A circumplex of personality traits created by basic factors: I (Extraversion) and V (Intellect).

Depending on the level of Intellect, Extraversion takes the form of Sociability (I+/V- vs. I-/V+) or a tendency to Leadership (I+/V+ vs. I-/V-). The extravert intellect, on the other hand, manifests itself in Ingenuity (V+/I+ vs. V-/I-), while the introvert in Reflexivity (V+/I- vs. V-/I+) or a tendency to introspection. Therefore, the circumplex I/V refers to ways of cognitive functioning among people or styles of interest (cf. Costa & McCrae, 2000).

5.4 Circumplex no. 5: Agreeableness and Conscientiousness

The next circumplex is the space determined by the dimensions of Agreeableness (II) and Conscientiousness (III). It is shown in Figure 10.

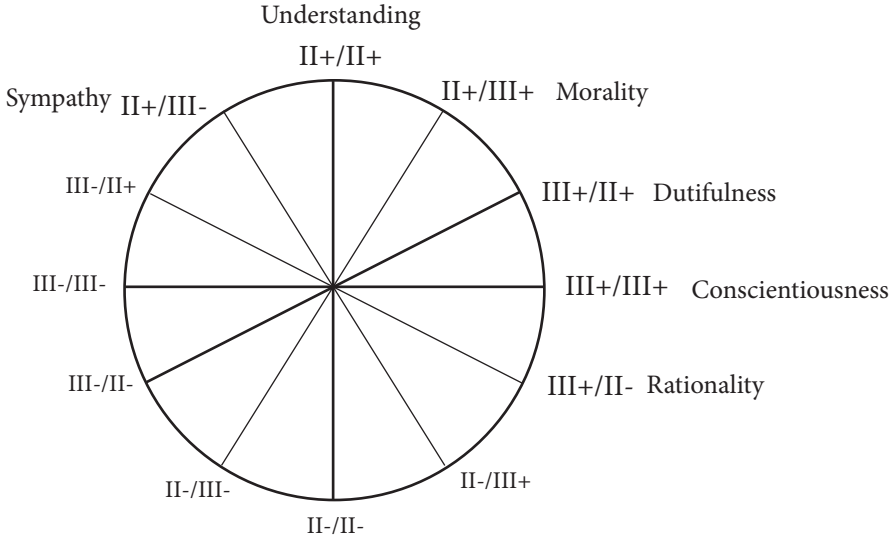

Figure 10. The circumplex of personality traits created by basic factors: II (Agreeableness) and III (Conscientiousness).

As we can see, Morality (II+/III+ vs II-/III-) is an facet of Agreeableness with a blend of a high degree of Conscientiousness, while Dutifulness (III+/II+ vs III-/II-) is an aspect of Conscientiousness with a blend of a high degree of Agreeableness. The circular structure predicts, of course, a high positive correlation between those two facets. There is an equally high but a negative relationship in the model between Sympathy (II+/III- vs II-/III+) and Rationality (III+/II- vs III-/II+). The core facets of Understanding (II+/II+ vs II-/II-) and Conscientiousness (III+/III+ vs III-/III-) are unrelated in the model.

The circumplex II/III seems to refer to the sphere of morality; on the one hand, to the attitude to social norms and altruistic behaviour, and on the other hand through indifferent pragmatism to anti-social tendencies. This domain can also be called styles of character (Costa & McCrae, 2000; cf. Peabody & Goldberg, 1989).

5.5 Circumplex no. 6: Agreeableness and Emotional Stability

The circle formed by factors II (Agreeableness) and IV (Emotional stability) is shown in Figure 11.

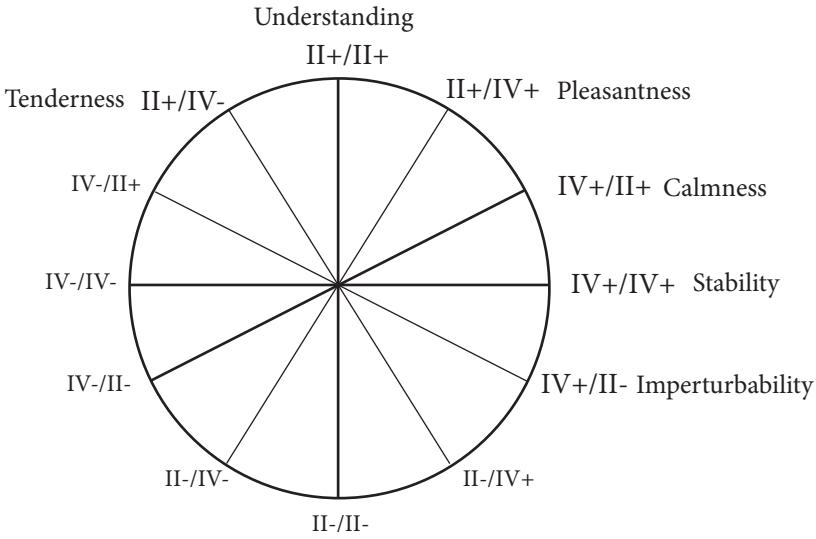

Figure 11. The circumplex of personality traits created by basic factors: II (Agreeableness) and IV (Emotional stability).

It describes emotional sensitivity towards other people, trust in them, and control of anger. In the interaction of Agreeableness and Emotional stability (Neuroticism), there are lower-level features revealed such as Tenderness (II+/IV- vs II-/IV+) or Imperturbability (IV+/II- vs IV-/II+), Pleasantness (II+/IV+ vs II-/IV-), and Calmness versus Angry Hostility (IV+/II+ vs IV-/II-).

5.6 Circumplex no. 7: Agreeableness and Intellect

Figure 12 presents a circumplex created with factors II (Agreeableness) and V (Intellect).

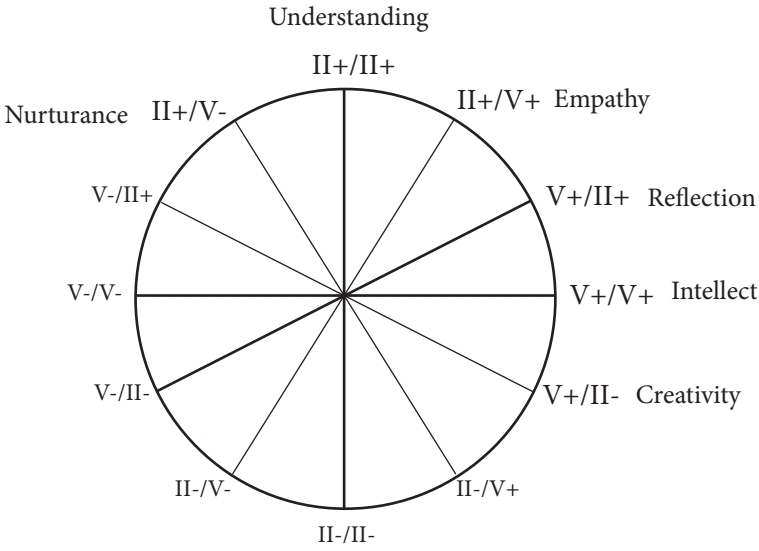

Figure 12. A circle of personality traits created by basic factors: II (Agreeableness) and V (Intellect).

The circumplex refers to the sphere of believes and attitudes, world-view orientations, or general attitude in terms of values. Openness to beauty as well as the needs and arguments of others vs. closure in the world of own believes and interests; critical originality and independence vs. strong socialization and conventionality – those are the main orientations that we obtain in the interaction of Agreeableness and Intellect.

5.7 Circumplex no. 8: Conscientiousness and Emotional Stability

The combination of Conscientiousness (III) and Emotional Stability (IV) forms the circumplex shown in Figure 13.

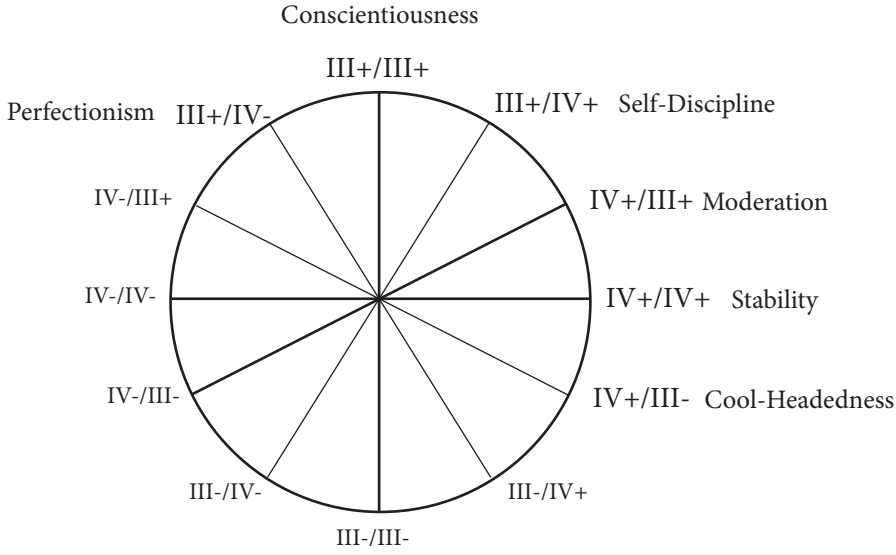

Figure 13. A circumplex of personality traits created by basic factors: III (Conscientiousness) and IV (Emotional stability).

This circumplex describes self-regulation – its level and various aspects. On the one hand, self-control, control of one's emotions and behaviour (IV+/III+ vs. IV-/III-), tolerance to frustration, perseverance in pursuing one's goal and self-motivation skills (III+/IV+ vs. III-/IV). On the other hand, perfectionism, excessive control and rigidity (III+/IV- vs III-/IV+) or even proneness to obsessive-compulsive behaviour (negative pole of aspect IV+/III- vs IV-/III+). Of course, on the opposite poles of these personality traits lie the uncontrollability, lack of regulation of one's own emotions and desires, distractibility, or Cool-Headedness (IV+/III- vs IV-/III+), relaxation and leniency towards oneself.

5.8 Circumplex no. 9: Conscientiousness and Intellect

Figure 14 presents a circumplex formed by factor III (Conscientiousness) and factor V (Intellect).

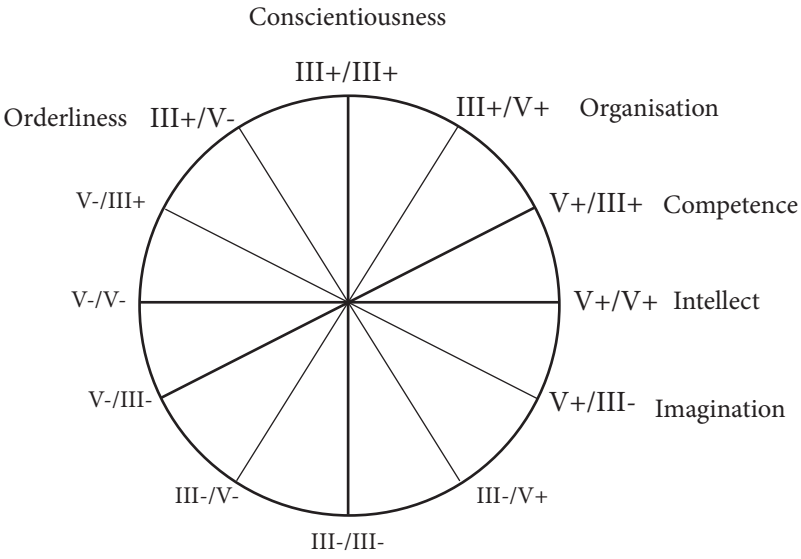

Figure 14. A circumplex of personality traits created by basic factors: III (Conscientiousness) and V (Intellect).

The interaction of Conscientiousness (III) with Intellect (V) seems to include an attitude toward the tasks performed and the acquisition of new knowledge and skills (cf. Costa & McCrae, 2000). Imagination (V+/III- vs V-/III+) is an facet of Intellect involving low Conscientiousness, whereas Orderliness (III+/V- vs III-/V+) is a trait that is the result of reverse configuration. In turn, the combination of high Conscientiousness with intellectual openness manifests itself in such closely related aspects as Organisation (III+/V+ vs III-/V-) and Competence (V+/III+ vs V-/III-).

5.9 Circumplex no. 10: Emotional Stability and Intellect

Figure 15 presents the last, 10th circumplex constituted by factors IV (Emotional stability) and V (Intellect).

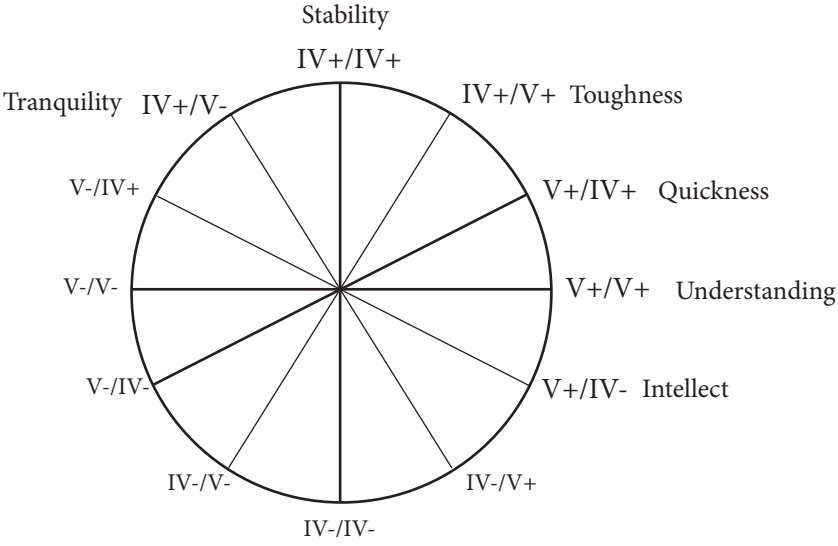

Figure 15. A circumplex of personality traits created by basic factors: IV (Emotional stability) and V (Intellect).

This circumplex describes functioning under the conditions of stimulus and information overload. From the combination of Emotional Stability (IV) and Intellect (V) factors, such properties emerge as e.g. effectiveness of cognitive functioning despite stressful conditions (V+/IV+ vs. V-/IV- Quickness), and efficacy of coping with stress (IV+/V+ vs. IV-/V- Toughness). But the IV/V circumplex refers not only to the functioning under stress and defensive styles (Costa & McCrae, 2000), but also to a kind of cognitive insight (V+/IV- vs V-/IV+) and the richness of emotional experiences (negative pole of IV+/V- vs IV-/V+).

6. The AB5C Circumplexes as the Mendeleev's Periodic Table in Personality Psychology

Hofstee et al. (1992) suggested that the AB5C model could be treated as the periodic table of elements in personality psychology. This metaphor seems to be interesting if we take into account the system of particular circumplexes – assumed in the AB5C model – that capture different spheres of human personality. It should be stressed out that the above interpretations of the meanings of particular AB5C circumplexes referred, among others, to the proposal of Costa and McCrae (2000; see Jankowski, Oleś, Bąk, & Oleś, 2009; Klinkosz & Sękowski, 2009), who also presented ten schemes of pairs of basic personality factors, as defining different areas (and, within them, styles) of

functioning. However, these schemes did not contain any facets and are only intended to help with the interpretation of the results in individual diagnosis, since the idea of mutual relations between the basic factors and between their facets contradicts the hierarchic model of the personality traits organisation.

The proposal of ten circumplexes covering separate areas of personality manifestation also provides opportunities to integrate multiple, more specific concepts of personality and temperament into one model of basic dimensions of human personality. The most obvious examples include the aforementioned concept of the Interpersonal Circumplex of Wiggins as well as Eysenck concept of Neuroticism and Extraversion, together with Gray's BIS/BAS theory. On the other hand, the AB5C model also includes circumplexes whose content range has not yet been the focus of any theory or concept and which can be treated as interesting areas of future personality research.

The Abridged Big Five-Dimensional Circumplex model is an interesting counterproposal in terms of the structure of personality traits in relation to the Five Factor Model. However, the superiority of the AB5C model must be determined by an empirical test, concerning both structural and external validity (e.g., predicting specific behaviours, cf. Grucza & Goldberg, 2007). Goldberg's proposal (a version of the AB5C model with an operationalising instrument) is an important step for the empirical verification of the model. The studies conducted so far using IPIP-45AB5C are very promising (Backstrom et al., 2009; Strus et al., 2011), although they also indicate the need to modify the meaning of some facets in Goldberg's version of the AB5C model.

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ELŻBIETA ARANOWSKA
JOLANTA RYTEL*
Institute of Psychology,
Cardinal Stefan Wyszyński University in Warsaw

FACTORIAL STRUCTURE OF THE BUSS-PERRY AGGRESSION QUESTIONNAIRE (BPQA) IN POLISH POPULATION[1]

Abstract

Aggression can be evaluated in a variety of ways. Among the self-reported measures, the Buss-Durkee Hostility Inventory (Buss & Durkee, 1957) has been one of the most popular questionnaires. Based on this previous work, Buss and Perry proposed a psychometrically improved and updated measure of aggression: The Aggression Questionnaire (Buss & Perry, 1992). The Buss-Perry Aggression Questionnaire (BPQA) has quickly become the gold-standard for the measurement of aggression. The original version of the BPAQ contains 29 items and is designed to assess four dispositional components of aggression: Physical Aggression, Verbal Aggression, Anger, and Hostility. However, the BPAQ scale has been extensively validated, and the validation mainly focused on samples of college students. In this study, exploratory and confirmatory models were evaluated among a sample of 3990 Polish participants (aged from 10 to 79 years). A 5-factor structure resulted in the exploratory analysis and 5-factor structure showed acceptable fits in confirmatory analyses. Implications and limitations of these solutions are discussed.

Keywords: Buss-Perry Aggression Questionnaire (BPQA), aggression

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* Corresponding author: j.rytel@uksw.edu.pl

1. Arnold H. Buss and Mark Perry Aggression Questionnaire

Arnold H. Buss and Mark Perry Aggression Questionnaire (1992) has been a popular diagnostic tool used in the research on aggression for over twenty years. It is characterised by a clear theoretical model and excellent psychometric properties (cf. Eckhardt, Norlander, & Deffenbacher, 2004). It was created based on an earlier questionnaire designed by Arnold H. Buss and Ann Durkee (1957), which included seven scales constructed *a priori* by the authors: Assault, Indirect Aggression, Irritability, Negativism, Resentment, Suspicion and Verbal Aggression. The Polish version of the questionnaire entitled Nastroje i Humory (Moods and Humours), adapted by Choynowski, was published in 1971.

As Buss and Durkee (1957) indicate, the popularity of their instrument probably stems from the fact that it enables the diagnosis not only of overall aggressiveness but also of its manifestations. However, the questionnaire used a binary format of answers (true vs. false), the construction of its scales was not preceded by factor analysis, and some of the questionnaire items – which due to their content fit more than one scale – were arbitrarily assigned to individual scales. While retaining the basic advantage of the instrument, which is the ability to diagnose the components of aggression, the authors have begun to design a new version that meets modern psychometric standards.

The new version of the questionnaire (Buss & Perry, 1992) was developed based on an initial pool of 52 items, containing both the items of the previous questionnaire and the new items, which were evaluated on a five-point scale (from 1 – *extremely uncharacteristic* to 5 – *extremely characteristic*) by 1253 students (641 women and 612 men). Majority of the respondents was between 18 and 20 years old. The whole sample consisted of three samples with respective sizes of 406, 448, and 399 subjects. The correlation matrix of data received from the first sample was subjected to Exploratory Factor Analysis (EFA), which was conducted using the Principal Axis Factoring (PAF) method with Oblimin rotation because the several components of aggression were expected to be correlated. The authors have created items for six components of aggression (physical aggression, verbal aggression, anger, indirect aggression, trauma, and suspicion), planned *a priori*, however, four factors have been distinguished, defined as Physical Aggression and Verbal Aggression, representing the behavioural components of the aggression construct, Anger as an affective component and Hostility as a cognitive component of aggression. The results of exploratory factor analyses carried out for the other two samples confirmed the stability of the factor structure. The final version of the questionnaire – taking into account the factor loading matrices of all three analyses carried out – consistently included only those items in which the factor loadings were at least .35 on its own factor, but less than .35 on any other factor.

It was established that 29 items are satisfying that criterion: nine for the scale of Physical Aggression, five for the scale of Verbal Aggression, seven for the scale of Anger, and eight for the scale of Hostility.

Confirmatory factor analysis (CFA) was conducted on the from the second sample. The authors have formulated three models explaining the four-factor solution obtained in the exploratory analysis. According to the first model, all test items form one overall dimension of aggressiveness. The second model assumed the existence of four dimensions of aggressiveness correlated with each other, while the third – four dimensions

correlated with each other so strongly that they form one dimension of overall aggressiveness of higher order. The results of the analysis showed the worst fit of the first of the models (the goodness of fit index determined as the chi-squared test value divided by the number of degrees of freedom was equal to 2.27 and exceeded the value of 2, which means a poor fit), while the other two models adequately reflected the collected data (the goodness of fit index values for them were 1.94 and 1.95 respectively). The authors have chosen a model of four components of aggression linked by the factor of a higher level of overall aggressiveness.

The analysis of the tool's validity was supplemented by determining its correlations with different personality scales and obtaining, among other things, positive correlations between all scales of the questionnaire and the measures of impulsivity (from .28 to .46), assertiveness (from .18 to .49) and competition (from .30 to .46), as well as the peer grades that were most strongly related to the Physical Aggression scale.

The reliability of the individual scales (Physical Aggression – .85, Verbal Aggression – .72, Anger – .83, Hostility – .77) and the entire questionnaire (.89) was determined as internal consistency by using Cronbach's alpha coefficient. The stability was estimated on a sample of 372 people, tested twice in the interval of nine weeks, obtaining satisfactory correlation coefficients, both for individual scales (Physical Aggression – .80, Verbal Aggression – .76, Anger – .72, Hostility – .72) and the whole questionnaire (.80).

Sex differences in aggression were also revealed. For the general level of aggressiveness, the effect of sex was moderate (.57). Men scored higher than woman on Physical and Verbal Aggression, and Hostility. The largest effect size was obtained for Physical Aggression (.89), for Verbal Aggression it was moderate (.44), and for Hostility – the smallest (.19). The difference was non-significant with respect to anger.

It is worth noting that the next version of the questionnaire (Buss & Warren, 2000) has been created with 34 items. However, it has not gained the same popularity as its predecessor. The Aggression Questionnaire, consisting of 29 items, remains the most widely used version of the instrument.

2. Research on the Factor Structure of the Aggression Questionnaire

The results of research on the psychometric properties of the Aggression Questionnaire conducted in various countries and cultures generally confirm the four-factor structure of the questionnaire. This structure was obtained in a study on the Italian adaptation of the tool, carried out on samples of high school and university students (Fossati, Maffei, Acquarini, & Di Ceglie, 2003), and in a study on the Greek (Tsorbatzoudis, 2006; Tsorbatzoudis, Travlos, & Rodafinos, 2012) and Arabic (Abd-El-Fattah, 2007) versions of the questionnaire, which covered secondary school students. However, the results of some research reveal that there are some discrepancies in the items included in individual scales and their factor loadings. Harris' (1995) confirmatory factor analysis of the scores obtained by Canadian students revealed that a better fit of the model can be achieved by removing two items from the Hostility scale that are more related to suspicion than hostility. Meesters, Muris, Bosma, Schouten, and Beuving (1996), using a sample of Dutch students, also achieved a better fit of the model after the removal of the two items indicated by Harris (1995) and, additionally,

one more item from the scale of Verbal Aggression. A study on the Spanish version of the questionnaire (Santisteban, Alvarado, & Recio, 2007) carried out on samples of young people aged 9–11 and 14–17 also identified three items with low factor loadings, including the one, already indicated, for both Canadian and Dutch tool adaptations. Japanese (Nakano, 2001), as well as Hungarian (Gerevich, Bácskai, & Czobor, 2007) version of the tool had better psychometric properties after the removal of two – the only two in the questionnaire – reversed items. In a study on the Turkish version, which was carried out on a sample of adult males addicted to psychoactive substances, one of the reversed items was removed (Evren, Çınar, Güleç, Çelik, & Evren, 2011).

In a study on the congruence of the factor structure of the questionnaire (Vigil-Colet, Lorenzo-Sewa, Codorniu-Raga, & Morales, 2005), in which the factor loading matrices from the original Buss and Perry studies and from studies carried out in Japan and Spain, were used, a high similarity of all compared loading matrices was obtained and correlation patterns between the factors similar to those of the construction test were obtained. However, to maintain the consistency of the structure in linguistically and culturally diverse populations, it was recommended to reduce the items of the questionnaire to twenty.

Bryant and Smith (2001), pointing out that the four frequently identified factors in the validation studies explain too little common variance, developed a shortened form of the Aggression Questionnaire, consisting of twelve items evaluated on a 6-point scale. In a study on a Chinese adaptation of the questionnaire (Maxwell, 2007), with a sample of 1219 students and graduates living in Hong Kong, in which both versions full and abbreviated were used, a more adequate fit of the four-factor model to the data was obtained for the abbreviated version of the questionnaire. Similar results were also obtained in the factor structure studies of the Greek version of the questionnaire, which included three samples: adults with an average age of about 50, recruits aged 19–24, and psychoactive substance addicts aged 24–55 (Vitoratou, Ntzoufras, Smyrnis, & Stefanis, 2009).

An attempt to replicate the four-factor model in the criminal population has failed (Williams, Boyd, Cascardi, & Poythress, 1996). The results of the confirmatory factor analysis showed a better fit of the model of two factors, the first of which included physical aggression and anger, while the second consisted of verbal aggression and hostility. For the Malaysian version of the questionnaire, validated on a sample of female prisoners, a four-factor structure was obtained, however, the item distribution for the created factors, inconsistent with the original one, made it impossible to identify three of them, except for the verbal aggression factor (Mazlan & Ahmad, 2012). Studies on the German adaptation (von Collani & Werner, 2005) also made it possible to separate four factors, however, for two of them it was difficult to obtain an unambiguous interpretation, and the assignment of items to scales only partially corresponded to the original. In the study on the Turkish version of the tool, conducted on adolescents, after removing seven items from the questionnaire, a three-factor solution was obtained, consisting of anger, hostility, and psychological aggression (Önen, 2009). Whereas, in the research conducted on Spanish adaptation of the questionnaire (Garcia-León, Reyes, Vila, Pérez, Robles, & Ramos, 2002), two subscales – linked to resentment and suspiciousness – for the scale of Anger were obtained. In the case of the Argentinean version of the tool (Reyna, Lello, Sanchez,

& Brussino, 2011), validated on an adolescent sample, the four-factor solution could not be replicated using exploratory factor analysis. A two-factor model proved to be a more adequate model: the first factor was formed from the items of the Physical Aggression, Verbal Aggression, and Anger scales, while the second one from the items of the scales of Hostility, Verbal Aggression, and Anger. The results of the confirmatory factor analysis carried out by the authors revealed that three of the models included in the analysis were satisfactory: the two-factor solution (for 27 items – two were removed due to low factor loadings), the original four-factor solution, and a shortened version of the Aggression Questionnaire.

Courtesy of the Amity Institute, which shared the scores of the Aggression Questionnaire conducted on a sample of 4116 people aged between 9 and 90 years with the authors, an effort was made to estimate the structure of aggressiveness in the Polish population. The data obtained constitute one of the largest databases collected using the Aggression Questionnaire, even though its representativeness for the general population has not been specified. It can be assumed that it is representative of Internet users who undertake self-diagnosis.

3. Method

After ruling out people whose results have led to the assumption of a schematic or random response (perhaps due to an incomplete understanding of the items), the validation sample consisted of 3990 people aged 10 to 79 years, with an average age of 26 years ($M = 26.03$, $SD = 11.66$). This sample can be treated as a representative sample for the population of Polish women by analysing the share of women's age fractions, similarly for men – taking into account men's age fractions. At the same time, the respondents represent all regions of Poland. In general, young people and women are predominant in the whole group of respondents. The study sample consisted of 2495 women (mean age of women 27.82, $SD = 11.74$) and 1495 men (mean age of men 23.05, $SD = 10.91$).

To estimate the structure of aggressiveness in the Polish population, an Exploratory Factor Analysis (EFA), using the Principal Axis Factoring (PAF) method with Oblimin rotation was conducted on the collected data. Then – based on the obtained solution and the content analysis of the items – the model of identified factors was developed, which was verified utilizing confirmatory factor analysis (CFA). Based on both solutions obtained, an attempt was made to create and verify a semi- the cause-and-effect model of the relationship between the identified dimensions of aggressiveness. The Structural Equation Modeling (SEM) method was used for this purpose.

3.1 Factor Structure of the Aggression Questionnaire: Results of Exploratory Factor Analysis

The authors of the test used exploratory factor analysis (PAF) with the Oblimin rotation (cf. Aranowska, 1996) due to strong subscale relationships with the overall test result (cf. the last column of Table 1). With such relationships, a solution in which the factors are allowed to be correlated, in line with the theoretical conclusions of Buss and Perry (1992), can be considered a sensible solution.

Table 1
Correlation between the Aggression Questionnaire (AQ) scales (n = 3990)

Scale	Physical Aggression	Verb. Aggression	Anger	Hostility	AQ
Physical Aggression	(.76)	.491	.515	.428	.820
Verb. Aggression		(.62)	.545	.446	.728
Anger			(.60)	.527	.808
Hostility				(.76)	.773
Gen. Result					(.87)

All correlations significant for $p < .001$ (one tailed).
Cronbach's alpha are reported along the diagonal (numbers in brackets).

Solutions were sought with the assumption of high correlation between factors, i.e., with the delta parameter value of – 40. At lower values of this parameter, both the standardised item coordinates values on the reproduced dimensions (in Pattern matrix) and the correlations of items and dimensions (in Structure matrix) were small and average numbers that differed significantly in both matrices, i.e. they did not reproduce the same order of strength of the relationship of items and factors (the same pattern of similarity), and therefore did not give the possibility of accepting the obtained solution.

Table 2 presents factor loadings, while the correlation between the generated factors are presented in Table 3. In interpreting the solution, the factor loadings of not less than the absolute value of .30 were taken into account, but for illustration, Table 2 shows the loadings higher or equal to .20.

Table 2
The factor pattern matrix (n = 3990)

Item	Factor					
	1 Anger	2 Physical Aggression	3	4 Verb. Ag.	5 Hostility 1	6 Hostility 2
P.1	.530					
P.2		–.446		.252		
P.3						–.743
P.4				.514		
P.5	.307	–.340				
P.6	.545					
P.7	.408					
P.8	.217	–.553		–.204		
P.9	–.430					
P.10						–.703

Table 2 (continued)

P.11	.273	–.253			.240	–.313
P.12	.439					
P.13		–.831				
P.14	.209	–.255		.436		
P.15					–.367	
P.16		.463				
P.17					–.740	
P.18	.510				–.238	
P.19	.255				–.453	
P.20					–.654	
P.21				.225	–.308	
P.22	–.200	–.748		.231		
P.23	.373				–.384	
P.24					–.736	
P.25		–.744	–.219			
P.26			–.335		–.399	
P.27	.542		–.396			
P.28	.545				–.269	
P.29		–.569	–.324			

The first conclusion seems to be the different order of the reproduced dimensions of aggressiveness against many of the solutions cited above. The strongest dimension is Anger ($\lambda = 5.5$), the second is Physical Aggression ($\lambda = 5.3$), followed by Type 1 Hostility ($\lambda = 5.0$), Type 2 Hostility ($\lambda = 3.8$), and Verbal Aggression spread over the very weak two dimensions ($\lambda = 1.1$). The Anger Factor is strongly associated with six (items: 1, 9, 12, 18, 23, and 28) of the seven items constituting – according to the authors of the test – this scale, while one item (19) is related to the Type 1 Hostility Factor (cf. the correlations presented in Table 2 for the first factor). Physical aggression is strongly associated with eight out of nine items (items: 2, 5, 8, 13, 16, 22, 25, and 29), one position (11) correlates with the weaker dimension of Hostility 2. Type 2 Hostility – interpreted as resentment and jealousy – is strongly related to five items (15, 17, 20, 24, and 26) out of eight. In turn, type 2 Hostility – interpreted as the suspicion of kindness shown by others – strongly correlates with two items (3 and 10) out of eight. The remaining the seventh item of the Aggression Scale correlates on average with the first factor, namely, Anger. The fourth factor strongly correlates with only two (4 and 14) items from the five scales of Verbal Aggression. The third factor – uninterpretable: $\lambda < 1$ – would be related to one item (27) from the Verbal Aggression scale, however, this item is more strongly associated with the Anger factor.

All dimensions account for 40.1% of the variability of the items and this is a result comparable to the results of factor analyses for other populations, e.g., in German studies (von Collani & Werner, 2005), a similar percentage of variability was obtained (44.5%), and anger was reproduced as the first, strongest dimension.

Table 3
Factor inter-correlations (n = 3990)

FACTOR	1	2	3	4	5	6
1	1.000	–.631	–.127		–.601	–.456
2		1.000	.154		.448	.462
3			1.000	.111	.231	.313
4				1.000		–.169
5					1.000	.673
6						1.000

The table shows correlation coefficient ≥ .10.

Observing the values of correlation coefficients in Table 3, one can see that relatively strong relationships are formed by factors: Anger (factor 1), Physical Aggression on (2), type 1 Hostility (6), and type 2 Hostility (5) with correlation values of 0.60 and above. Verbal Aggression (4) is essentially unrelated to other factors. Due to the weakness of the solution, this factor is not interpreted substantively. It is to be assumed that Verbal Aggression has not been satisfactorily reproduced. An important implication of the study seems to be the disclosure of a richer, more detailed than the original factor structure of the questionnaire for the Polish population. Two types of aspects have been reproduced for the Hostility construct: the hostility aspect interpreted as resentment and jealousy, and the aspect defined as suspicion of the kindness of others. In the case of verbal aggression, it is difficult to talk about the desired identification of the construct.

3.2 Factor Structure of the Aggression Questionnaire: Results of Confirmatory Factor Analysis

Further analyses were carried out for the model resulting from the solution obtained from the application of exploratory factor analysis (presented above). This solution differs from the four-factor aggressiveness structure. Figure 1 illustrates a graphical layout of relations for the introduced latent variables and the corresponding observable variables and the values of the related measures obtained after the application of confirmatory factor analysis (CFA) have been assigned to individual paths. Results of CFA were analysed using several indices. Altogether, five fit indices were used: chi-square (χ^2), chi-square divided by degrees of freedom in the model (χ^2/df), Root Mean Square Error of Approximation (RMSEA), Comparative Fit Index (CFI), and Normed Fit Index (NFI). The fit indices showed that the proposed model was an acceptable explanation of the sample data. Thus, although χ^2 (314) = 4668.4, $p < .0005$ and $\chi^2/df = 14.87$ are far too high to accept the model fit as sufficient, RMSEA = .059 (less than .07) is satisfactory, while CFI = .858 and NFI = .849 are slightly below the minimum "acceptable" threshold.

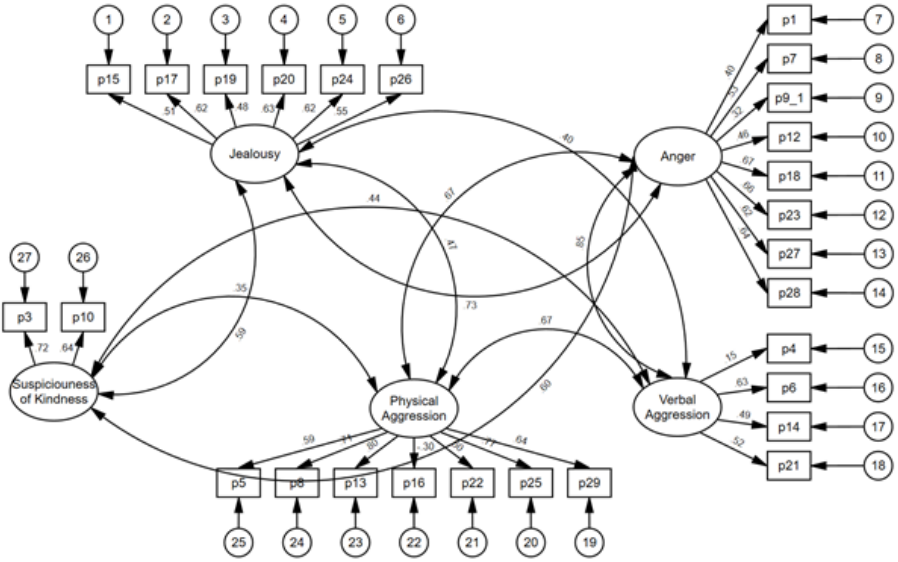

Figure 1. Confirmatory Factor Analysis (CFA) – A matrix of interrelationships of factors identified by Exploratory Factor Analysis (EFA) with 27 items (excluding items 2 and 11 eliminated due to their unsatisfactory relationship to the structures under analysis). Resentment and jealousy structure is marked in the figure as jealousy.

3.3 Factor Structure of the Aggression Questionnaire: Results of the Analysis of the Structural Equations System

Another model, verified by using the SEM created based on the content analysis of both solutions presented above (EFA and CFA), is the model illustrated in Figure 2. Exploratory Factor Analysis (EFA) was mainly used to check whether the items in the scales are correlated and what dimensions they form, as "the underlying purpose of EFA is to reveal hidden sources of covariance (correlation) between test items" (Konarski, 2009, p. 187). The aim of Confirmatory Factor Analysis (CFA) was to verify the validity of the *a priori* predicted relationships between the hidden dimensions of aggressiveness identified in the previous analysis. The results of Exploratory Factor Analysis (EFA) – showing the co-occurrence of observable reactions to items (co-occurrence of behaviour) – are used for purely descriptive purposes, revealing that the data are co-dependent. However, they do not show the substantive rules of this relationship, i.e., they do not describe the data at the content level. In the so-called measurement model (CFA), a latent construct involves items with a content related (on the basis of theory) with the concept that is its (construct) meaning.

A graph, illustrating a hypothetical network of latent variable relationships, represents a directional theoretical semi-cause-and-effect model. This model does not contain all possible relationships included in the so-called measurement model (CFA), and only those that are necessary to obtain the model optimally fitted to the data (see Figure 2).

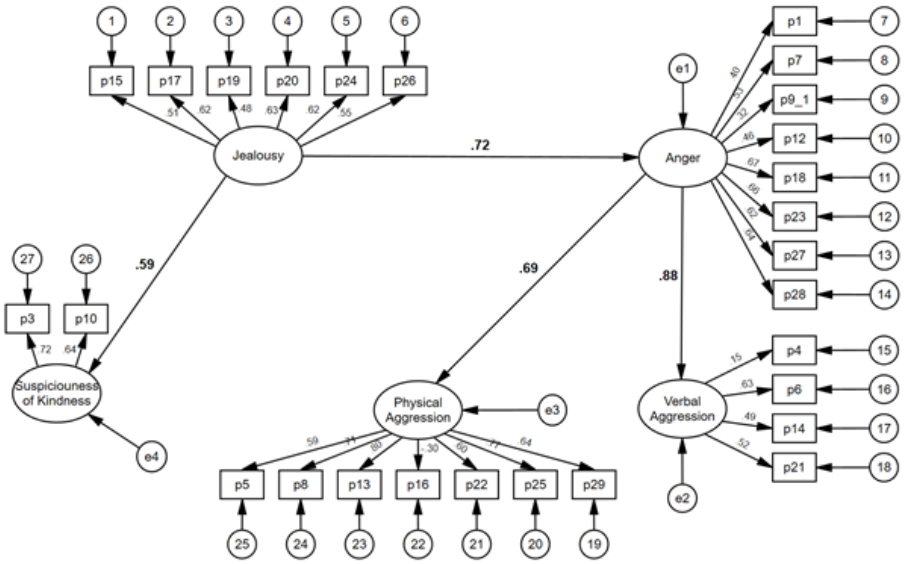

Figure 2. Aggressiveness model with estimates of the parameters after application of the SEM technique with 27 items. Resentment and jealousy structure was marked in the figure as jealousy.

As above, fit indices for the model: RMSEA, CFI, and NFI together have adopted acceptable values. The values of statistics χ^2 (320) = 4752.8, $p < .0005$ and $\chi^2/df = 14.85$ are clearly too high. The RMSEA has taken a satisfactory value of .059, while CFI = –.855 and NFI = 0.846 are slightly too low but acceptable. Comparing the formal characteristics of both models, i.e., the values of fit indices, one can see that – according to the rules of behaviour of these measures – the value of χ^2 statistics of the directional model has increased, but only slightly. However, the values of the other coefficients have practically remained unchanged. This means that the paths that have been reduced (cf. Figs. 1 and 2) did not contribute to the model, and therefore did not explain a significant part of the variability and covariance of variables. From the formal point of view, each bidirectional path (association) of latent features (shown in Figure 1) represents the composition of two unidirectional relationships (of a functional and not necessarily causal nature) between a pair of specific constructs, e.g.: the symmetrical relationship of resentment and jealousy with anger is .73 (cf. Figure 1), while an asymmetrical relationship of .72 expressing the directional relationship of resentment and jealousy with anger (cf. Figure 2) is almost the same. This means that the directional relationship between anger and resentment and jealousy is most likely very small and insignificant compared to the relationship in the opposite direction.

Recognising that the model fits the data sufficiently, one can see that resentment and jealousy, the initial cognitive component in the aggressiveness model, has a direct effect on the suspicion that is also a cognitive component, and on the anger that is the affective component of aggressiveness. At the same time, resentment and jealousy have an indirect effect (through anger) on physical aggression and verbal aggression, which are behavioural components of aggressiveness. These results are partly consistent with Tucholska's

suggestion (1998), which only based on the analysis of Pearson's correlation coefficients for scale pairs (anger and physical aggression: $r = .57$ and anger and verbal aggression: $r = .48$) assumes that anger is a "catalyst" of aggressive behaviour. The results are inconsistent in that one of the two important aspects of hostility (which – based on the results presented above – cannot be combined into a single concept in the Polish population), resentment and jealousy, seems to be the original premise of aggressiveness.

4. Discussion

In the Polish population, a slightly different factor structure of the Aggression Questionnaire was obtained. For the subjects (aged 10–79 years), the scales of Anger, Hostility, and Verbal Aggression did not reproduce satisfactorily, and the dominant factor was the of Anger (cf. EFA results). A similar result was obtained for a German adaptation of the questionnaire (von Collani & Werner, 2005), although a considerable part of the research sample consisted of participants under the age of 30 years. In most of the studies cited above, there is no mention of age control, and perhaps this is why similar effects were not found in other populations.

The factor structure of aggressiveness in the Polish population proved to be more complex. This suggests a need to return to at least two of the previous indicators of hostility: resentment (or jealousy) and suspiciousness. It is worth remembering that the original intention of the authors was to operationalise the six components of aggressiveness. For diagnostic purposes, an instrument for differentiation between many different components of a complex construct, which is aggressiveness, seems to be more useful. An example of such a tool can be 13-scale questionnaire developed by Choynowski (2008) and validated on the Mexican population.

Considering the SEM results illustrated in Figure 2, the question arises to what extent the order and directions of relations in the model are supported by a type of substantive theory of aggressiveness (describing and explaining the existing mechanisms and connections of actual behaviour). Then the proposed model could be treated as a cause and effect model of aggressive behaviour. In its present form, it can be treated as an empirical descriptive model. Cognition → Affect → Behaviour scheme is one of the possible positions for cognitive evaluation when taking action (cf. Doliński, 2001) and was used as an assumption when developing the model. Once it was confirmed, competing models were tested, none of which have achieved acceptable values of the goodness of fit indices. Does this mean that the verified exploratory model can contribute to a more precise conceptualisation of the aggressiveness?

As an exploratory model, for now, it probably is not universal. This is further reinforced by the fact that, according to studies conducted in different populations (partially referred to above), even if SEM was used, the four main constructs proposed by Buss and Perry (1992) were considered, rather than the five, as in the case above. At the same time, there are more detailed reflections on the concept itself in other approaches to aggressiveness, e.g., Choynowski's concept (2008), which is based on a much higher number of dimensions (13). This issue is further linked to the number of questionnaire items. As can be seen in Figure 2, not all values of the measures determining the degree of explanation of the items by the construct are high enough. The question arises about the possibility of modifying the Aggression Questionnaire when adapting it (e.g., replacing some ques-

tions with others, increasing the number of questions, decreasing, etc.). Will the same theoretical model be appropriate for new results (from new research)?

The last question raises an important problem of stability of the construct introduced into the model, e.g., a higher level of male physical aggression is a result well confirmed in studies of various populations (cf. Rytel, 2011). Also in the studies in which the aggressiveness model was developed, the largest sex differences were found in Physical Aggression. Sex differences in Verbal Aggression were smaller. Verbal Aggression among men was greater than among women. Although the effect size for sex differences in Hostility (without any division into two dimensions) was small, women were more hostile (Aranowska & Rytel, 2011). The effect of increased hostility of Polish women in comparison to men requires of course further research. Perhaps analyses of the detailed components of this construct (at least two, jealousy and suspiciousness) will shed new light on this difference. In the Hungarian population (Gerevich et al., 2007), this effect did not occur (there is no statistically significant difference between the mean of men and women in the Hostility scale), but a similar – although statistically insignificant – trend was revealed in the German population (von Collani & Werner, 2005). Statistically significant – although completely unimportant from a practical point of view (cf. Thompson, 2002) – turned out to be the difference between the mean of men and women in the Anger scale. A similar result was obtained in a study conducted in Germany (von Collani & Werner, 2005), in which the women's average level of Anger was also higher than the men's.

Whether the above conclusions indicate the instability of the factor structure of aggressiveness, or the differential importance of its dimension during individual development requires further research. Especially in the light of the additionally observed dependence of the aggressiveness components with age, the analysis of the factor structure of aggressiveness in different age groups seems to be particularly important. Although statistically significant, Pearson's correlation coefficients between the Aggression Questionnaire scales and age of all subjects from the Polish population are negative and relatively weak, assuming values lower than |.29|. The relationship between the Aggression Questionnaire scales and age in the group of men and women is similar. Correlation coefficients obtained in both groups do not exceed |.25| (Aranowska & Rytel, 2011). It is therefore unreasonable to treat age as a variable related to dimensions of aggressiveness in a linear manner. This raises two important questions. Firstly, what is the nature of this relationship (if such a relationship exists at all), and secondly, if – as it seems necessary – the proposed analyses should be carried out for different age intervals, what those interval should be. At present, the only premises seem to be the theoretical ones resulting from a general theory of development, which is reflected in the comparison of aggressiveness of men and women of different ages carried out by Rytel (2011).

Regarding the research results presented, there is a particularly important problem related to the validation of the instrument. Is it reasonable to validate the Aggression Questionnaire on a sample representative of the population as a whole? Assuming that the structure and intensity of aggressiveness change dynamically over the course of an individual's life, and gender is a moderator of the intensity of at least one of its components, the answer is negative. As a result, it is necessary to identify other potential moderators of aggression levels and to conduct research on groups differentiated by age and gender. Thus the development of e.g., norms for the entire population, without taking into account gender and age, is methodologically incorrect.

Research on the psychometric characteristics of the questionnaire has been conducted almost since its development. Although the psychometric properties of the Aggression Questionnaire were and still are of interest to researchers, validation concerns relatively narrowly defined populations and is primarily based on student samples. Exceptions include, for example, studies conducted on samples where the age of the subjects exceeds 55 years. The lack of research in groups of different genders and ages makes it impossible to compare the structure of the questionnaire.

What additionally limits the possibility of making such comparisons is the methodological inadequacy used in data analysis, mainly concerning the factor extraction method. Even though the authors of the Aggression Questionnaire assumed the relations between the components of aggressiveness, some researchers use methods leading to orthogonal dimensions and even resort to the use of methods that do not reveal any dimensions treated in science as common factors, but only as their earlier transient form, i.e., the principal components (cf. Fabrigar, Wegener, MacCallum, & Strahan, 1999).

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Appendix

Buss-Perry Aggression Questionnaire (Amity Version)

No permission is needed if the questionnaire is used for research purposes. Any other use requires the written consent of the Amity Institute. The penultimate column indicates which scale a given test item belongs to (PA – Physical Aggression, VA – Verbal Aggression, A – Anger, H – Hostility), while the numbers in the last column refer to the item numbers in the Buss-Perry Aggression Questionnaire according to Table 1. *Four Aggression Factors* (p. 454) in: Buss, A. H., Perry, M. (1992). The Aggression Questionnaire. *Journal of Personality and Social Psychology*, *63*(3), 452–459. In this Table 1, the items of the questionnaire are numbered separately for each scale, hence the number in the last column refers to a given item of the questionnaire within a given scale as shown in Buss and Perry (1992).

1.	Niektórzy z moich kolegów uważają, że jestem „w gorącej wodzie kąpany".	A	5
2.	Gdybym musiał użyć przemocy, żeby chronić moje prawa – zrobię to.	PA	5
3.	Kiedy ludzie są dla mnie szczególnie mili – zastanawiam się, czego ode mnie chcą.	H	8
4.	Mówię otwarcie moim przyjaciołom, jeżeli nie zgadzam się z nimi.	VA	1
5.	Czasem bywam tak rozdrażniony, że niszczę jakieś rzeczy.	PA	9
6.	Kiedy inni nie zgadzają się ze mną, nie mogę się powstrzymać, aby się nie posprzeczać.	VA	4
7.	Nie wiem, dlaczego czasem jestem tak bardzo zawzięty.	H	4
8.	Bywają chwile, że nie potrafię zapanować nad chęcią, żeby kogoś nie uderzyć.	PA	1
9.	Jestem osobą bardzo zrównoważoną.	A	4
10.	Jestem podejrzliwy wobec obcych, którzy zachowują się bardzo przyjaźnie.	H	6
11.	Wzbudzam lęk u ludzi, których znam.	PA	8
12.	Łatwo się wściekam, ale równie szybko się uspokajam.	A	1
13.	Kiedy ktoś mnie prowokuje, mogę go uderzyć.	PA	2
14.	Kiedy ludzie mnie złoszczą, mówię im, co o nich myślę.	VA	3
15.	Czasami pękam z zazdrości.	H	1
16.	Nie jestem w stanie wyobrazić sobie, żeby kogokolwiek uderzyć.	PA	7
17.	Czasami czuję, że wszystko jest przeciwko mnie.	H	2
18.	Mam trudności, żeby zapanować nad swoją złością.	A	7
19.	Kiedy jestem zawiedziony, denerwuję się.	A	2
20.	Czasem czuję, że ludzie śmieją się ze mnie za moimi plecami.	H	7
21.	Często nie zgadzam się z innymi ludźmi.	VA	2
22.	Jeżeli ktoś mnie uderzy, oddaję mu.	PA	3
23.	Czasem czuję się jak beczka prochu – gotowa żeby wybuchnąć.	A	3
24.	Wydaje mi się, że inni ludzie mają na ogół więcej szczęścia ode mnie.	H	3
25.	Są ludzie, którzy drażnią mnie do tego stopnia, że dochodzi do rękoczynów.	PA	6
26.	Wiem, że „przyjaciele" obmawiają mnie za moimi plecami.	H	5
27.	Moi znajomi mówią, że jestem trochę kłótliwy.	VA	5
29.	Czasami unoszę się gniewem bez wyraźnego powodu.	A	6
30.	Wdaję się w bójki trochę częściej, niż przeciętna osoba.	PA	4

MAŁGORZATA STARZOMSKA-ROMANOWSKA*
Institute of Psychology Cardinal Stefan Wyszyński University in Warsaw

ANNA BRYTEK-MATERA*
University of Social Sciences and Humanities Katowice Campus

FATTENING THOUGHTS. "THOUGHT–SHAPE FUSION" AND EATING DISORDERS[1]

Abstract

Psychiatric disorders are characterized by a range of specific cognitive distortions. One of the most interesting cognitive phenomena is *Thought–Shape Fusion*, which occurs when thinking about eating certain types of food increases a person's estimate of their shape and/or weight, elicits a perception of moral wrongdoing, and/or makes the person feel fat. TSF can be induced experimentally in healthy volunteers, but it is especially associated with eating pathology. It may be that thought–shape fusion is both a direct expression of the core psychopathology and also serves to maintain it. In patients for whom thought–shape fusion appears to be a barrier to changing the core psychopathology, direct techniques for addressing thought–shape fusion may be very useful.

Keywords: Thought–Shape Fusion, anorexia nervosa, bulimia nervosa

1. Introduction

Psychiatric disorders are characterized by a range of specific cognitive distortions that are consistent and not subject to spontaneous verification. They may contribute greatly to the persistence of the disorder. Some of these types of distortions have been described in detail in the source literature and scientifically reviewed, in particular the catastrophic misinterpretation of bodily sensations in panic disorder (Clark, 1986), the thinking errors in depression (Beck, 1995), the inflation of responsibility in obsessive-compulsive disorder (Salkovskis et al., 2000) or distorted cognitions or beliefs regarding shape and weight in people with eating disorders (Bonifazi, Crowther, & Mizes, 2000); Cooper, Cohen-Tovée, Todd, Wells, & Tovée, 1997; Cooper & Fairburn, 1992; Williamson, Muller, Reas, & Thaw, 1999; Williamson, White, York-Crowe, & Stewart, 2004).

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*Correspondence address: eltram@life.pl, abrytek-matera@swps.edu.pl

2. History of Origin and Definition of the Term "Thought–Shape Fusion"

The term *Thought–Shape Fusion* (TSF) first introduced by Roza Shafran, Teachman, Kerry, and Rachman (1999) is a variation of the concept of Thought–Action Fusion (TAF), proposed by Shafran, Thordarson, and Rachman (1996; cf. Berle & Starcevic, 2005; Einstein & Menzies, 2004). The latter term was used by researchers to name a specific cognitive distortion that occurs in people with obsessive-compulsive disorders. This distortion is the belief that the intrusive, negative thoughts that appear in a person may have a driving force, that is, they can directly influence the relevant event and/or the belief that the appearance of those thoughts is morally equivalent to performing actions that would constitute the actual implementation of those thoughts (Shafran & Robinson, 2004). Thus, TAF consists of two components. The first one refers to the belief that experiencing a negative thought increases the probability that the relevant event will actually take place. This component is called *Likelihood Thought–Action Fusion* (Likelihood TAF). The second variant of Thought–Action Fusion, which is referred to as *Moral Thought–Action Fusion* (Moral TAF) describes the belief that the experiencing of a negative thought is morally equivalent to actually carrying out the negative action (Grim, 2009). For instance, if a patient with an obsessive-compulsive disorder has an intrusive thought that their relative has been injured in an accident, they are fully convinced that having this thought increases the chances that such an accident (involving a relative) will happen soon (Shafran & Robinson, 2004).

Shafran and colleagues (1996) created a questionnaire consisting of 19 items to measure the TAF, whereby the participant is asked to assess to what extent he or she agrees with the given statement. This assessment is made possible by a 5-point scale (from "0" – *I don't agree at all* to "5" – *I fully agree*). The questionnaire includes two subscales: the first one entitled Likelihood Thought–Action Fusion (examples of items include: "My thinking that my relative/friend is sick increases the risk of them actually getting sick") and the second one entitled Moral Thought–Action Fusion (item example: "When I think of my friend, it's almost as disloyal as if I were unfriendly to them"). The study conducted by Shafran and colleagues (1996) showed that in some individuals, TAF can contribute significantly to obsessive-compulsive disorders by making them feel responsible for their thoughts.

As mentioned above, studies by Shafran and colleagues (1999) have shown that some people may have a cognitive distortion similar to Thought–Action Fusion, which the researchers described as Thought–Shape Fusion and defined it as a person's belief that just thinking about food makes them gain weight. Whereas, as stated above, the TAF consists of two components, there are three components in TSF (Shafran & Robinson, 2004):

(1) The first component is called *Likelihood Thought–Shape Fusion* (Likelihood TSF). It refers to the belief that the appearance of thoughts about eating "forbidden" food (i.e., food containing large amounts of sugar and/or fat, high-calorie foods) increases the likelihood of weight gain or shape change. A person with this form of TSF knows rationally that thinking about eating a high-calorie food cannot create weight gain or shape change, *however, they still have concerns and start to believe against the laws of logic that this is possible*.

(2) The second component called *Moral Thought–Shape Fusion* (Moral TSF), prevails in people who are convinced that experiencing thoughts about eating "forbidden" food (in their opinion) is as morally unacceptable as actual consumption of that food.

(3) The third component of the TSF – *Feeling Thought–Shape Fusion* (Feeling TSF) occurs in people whose thoughts about eating "forbidden" food intensify their negative feeling of being obese.

Roza Shafran and Paul Robinson (2004) propose to translate the described components into the words of a person with a TSF: "When I think about overeating or eating forbidden foods, then – I think my body weight may increase / I think I am immoral / I feel fatter" (p. 400).

3. First Studies on TSF

Preliminary studies on TSF have produced highly promising results. A self-report questionnaire (Shafran et al., 1999) was developed to study the TSF, which is an extended version of the working draft questionnaire applied to a group of 70 students. This questionnaire includes 33 items concerning the three TSF components described above. The participants were asked to answer to what extent they agree with a given statement ("0" – *not at all* – "4" – *totally*). Examples of items include: "Just picturing myself gaining weight can really make me gain weight" (Likelihood Thought–Shape Fusion); "For me, just thinking about stopping exercising for a month is almost as bad as if I didn't really exercise" (Moral Thought–Shape Fusion); "I feel fatter just by thinking about overeating" (Feeling Thought–Shape Fusion). The questionnaire also included items on TSF-related cognitive structures (e.g., "When I eat a fried dish, my body weight will increase much more than that of my friend who ate the same dish") and behaviours (e.g., "Just thinking about giving up exercise for a month makes me want to eat less"). The psychometric properties of the questionnaire were checked by conducting studies on 119 students with an average age of 20.7 years (SD = 4.3), 77% of whom were women. Based on the raw results, an analysis of the main components was performed (using the varimax rotation method on 33 items of the questionnaire) in order to identify three factors corresponding to the three TSF components. The analysis showed that only one factor is responsible for 46% of the variation. Thus, three factors corresponding to the three subscales of the questionnaire (Likelihood, Morality and Feeling) could not be identified. For this reason, the authors (Shafran et al., 1999) decided that one overall result of the TSF will be taken into account in further studies. Further analysis of the raw results showed that the scale is characterized by high internal consistency (which means a high degree of similarity of the results obtained by the participant) for its individual items. The results of the correlation analysis showed a statistically significant moderate (within $.51 < r < .61$, $p < .001$) relationship between TSF and all subscales Eating Disorder Examination – Questionnaire (EDE-Q – questionnaire version[1]; Fairburn & Beglin, 1994). Furthermore, the analyses

[1] It is a reliable and accurate tool. It applies to the examination of a person's state within over the preceding 28 days. It comprises 36 items that include behavioural and attitude-related aspects of eating disorders, which are part of the following four subscales: eating restrictions, eating concern, weight concern and body shape concern. The task of the participant is to mark on a 7-point Likert scale the appropriate response (related to the frequency of a given behaviour).

revealed a statistically significant, though weak relationship ($r = .323$, $p < .01$) between TSF and TAF (Shafran et al., 1996). However, the correlation analyses did not prove a correlation between the results on Maudsley Obsessional Compulsive Inventory (MOCI[2]; Hodgson & Rachman, 1977). The results of the statistical analysis also showed that the correlations between the results obtained in the subscales of the TSF questionnaire and the EDE-Q remained significant even when variables such as depression (measured with the Beck Depression Inventory test [BDI], which examines characteristic attitudes and symptoms of depression [Beck, Ward, Mendelson, Mock, & Erbaugh,1961]) and obsessiveness (investigated with the MOCI questionnaire) were controlled.

In the same project, after the strictly psychometric study described above, the authors (Shafran et al., 1999) conducted an experimental investigation to determine the role of TSF in the psychopathology of eating disorders and to answer the following questions:

(1) Can a cognitive distortion of the TSF type be elicited under laboratory conditions?

(2) What kind of behaviour may be associated with this distortion?

(3) Does the questionnaire for TSF investigation have a satisfactory predictive accuracy?

Based on the paradigm used for obsessive-compulsive disorder in Rachman, Shafran, Mitchell, Trant, and Teachman (1996) studies, it was initially assumed that a cognitive disorder can be elicited under experimental conditions, which was achieved by asking participants experiencing this disorder to write a sentence about eating "forbidden" food and imagining that they are eating it until the aversion occurs. The following three hypotheses have been advanced:

(1) First of all, the experimental procedure described above will cause participants to admit that their weight gain or unfavourable change of body shape may be the result of thinking about eating "forbidden" food. Furthermore, they will admit that they feel they have behaved immorally by thinking about eating the "forbidden" food. Besides, the participants will state that thinking about eating "forbidden" food makes them feel more obese;

(2) Second, the experimental procedure (described above) will evoke: anxiety, guilt and the desire for so-called corrective behaviour (e.g., looking in the mirror or bringing back the "right image" by imagining eating celery or writing about eating a carrot);

(3) Third, as a result of a certain corrective behaviour, the influence of the experimental procedure will be minimized, which will mean that the participants will be less likely to think/write that their body weight will increase as a result of thinking about eating high-calorie food, as well as to experience less feelings about the morally reprehensible act (which is eating) and about being an obese person.

Additionally, it was predicted that the results within the TSF scale will be prognostic for the effects of the experimental procedure, namely experimental manipulation will cause significant changes in the results obtained by the measurement with this tool (it was a hypothesis concerning the prognostic accuracy of the TSF tool).

In order to verify the above-mentioned research hypotheses, 30 students were examined who, after completing a short screening questionnaire, obtained high scores in at

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least one of the three components of TSF (none of the examined students was a participant in a previously conducted psychometric study). The mean age of participants was 21.3 years (*SD* = 5.3), 87% were women. After completing the same questionnaires used in the previous study (TSF, EDE-Q, TAF, MOCI, and BDI questionnaires), persons were asked to indicate what their current body weight is, how obese they feel and what type of food they consider to be extremely fattening. After completing the questionnaires, the participants were relaxing. This lasted until the level of anxiety (measured using the verbal analogue scale, where "0" corresponds to the *not at all* and "100" corresponds to the *totally*) was 30 points or less. The feeling of guilt was also assessed. The participants were asked to think about food (a single food or a combination of foods) that they considered extremely fattening and which in their opinion would probably cause weight gain. Then they were asked to complete the following sentence: "I am eating…" – here they inserted the names of the fattening food. The purpose of this task was to enable the participants to visualize the consumption of "forbidden" food. Next, they were asked to imagine that they were eating huge amounts of this food until it became very unpleasant. Then the participants were asked to focus their attention on this picture until their feelings of anxiety were at least 20 points higher (on the above described verbal analogue scale) compared to the result at the beginning of the experiment. The following persons were not qualified for further studies: three persons whose level of anxiety did not increase; seven persons whose level of cognitive TSF was not found (despite the high result obtained in the questionnaire measuring TSF); the data of these persons could not be used in investigating experimental predictions, and four persons with elevated BDI scores were not admitted for further studies for ethical reasons.

The level of anxiety, feeling of guilt, feeling of being obese and current body weight was measured using verbal analogue scales in people who were qualified for further studies. Then the participants were asked to assess the probability that their body weight increased as a result of the experimental procedure. The participants informed the investigators about how they perceived their own control over eating "forbidden" foods over the last 24 hours, to what extent they consider their participation in the experiment morally unacceptable, and how strong their desire to reduce the psychological consequences of completing the sentence and the need to check whether they have gained weight as a result of participating in the experiment. Before answering the above-mentioned questions, the participants were asked to read the following introduction: "We would like to understand what you think of these questions, even if you find these thoughts meaningless. In other words, we would like to know what you think about it on an emotional level, so we ask you to listen to the irrational voice in your head, and not just the voice of a rationally thinking person". The participants could then decide whether they would undertake corrective behaviour (similar to neutralisation) within the next two minutes, or whether they would check for possible weight gain. If they chose the second option, the investigator would leave the room to give them privacy. Therefore, the researcher could only be informed about the process of checking the bodyweight when they returned to the room where the study took place. After the check/neutralisation, the level of anxiety and the feeling of being obese was reassessed. It was determined how the participants assessed the probability of weight gain. Additionally, their feelings of guilt and the feeling of having acted immorally were examined, as well as the intensification of their desire to neutralize and check their

weight. In the end, the participants were relaxing until the level of anxiety was lowered to 30 points on the verbal analogue scale (thus the participants were subjected to so--called debriefing[3]).

The results of statistical analyses supported the first hypothesis: it turned out that 26 out of 30 participants (87%) admitted that they were convinced that the experiment caused an increase in their body weight or an adverse change in body shape. The average assessment of the probability that the experimental procedure will cause weight gain was 27.83% (SD = 19.8). Twenty four (80%) of the 30 participants admitted to feeling that it is morally unacceptable for them to think or write about eating "forbidden" food. The mean assessment of this behaviour as morally unacceptable was 34.2% (SD = 28.04). The answers to the question "How obese do you feel?" indicated that all participants felt obese, with a mean score of 51.04% (SD = 21.8, N = 24 — participants after excluding six persons who changed words in the sentence) showed that the participants felt about 50% more obese following thoughts about eating the "forbidden" food/ writing a sentence with the name(s) of the "forbidden" food than before the experimental manipulation.

The results of statistical analyses also supported the second hypothesis: the level of anxiety significantly increased from 17 (SD = 10.39) to 60 (SD = 20.68) after the experimental procedure ($t(29) = 11.13$, $p < .001$). The feeling of guilt also increased significantly from 17.67 (SD = 22.77) to 57.33 (SD = 24.06, $t(29) = 7.25$, $p < .001$). The experimental procedure also caused 24% of participants (SD = 23.4) to desire to check body weight and shape, and 41.67% of participants (SD = 32.12) to experience corrective behaviour.

The results of statistical analyses also confirmed the third hypothesis: two thirds of the participants chose to minimize the effects of the experiment by engaging in neutralizing behaviour. It included crossing out a sentence, imagining oneself at the moment of physical exercise, or eating celery, etc. One third of the participants chose to check their appearance in the mirror. All participants had two minutes for these activities. It showed that these activities significantly reduced the increased (in the results of the experiment) values of all variables ($p < .01$) except for the feeling of moral wrong-doing. No significant differences were observed in terms of neutralization effects in comparison to checking, except that performing the neutralizing activity was surprisingly more effective in reducing the desire for neutralization than the checking ($t(28) = 2.4$, $p < .05$).

What is more, the prognostic accuracy of the TSF tool has been proven. The result obtained by the participants in the TSF scale proved to be predictive for behavioural and subjective emotional changes after the implementation of the experimental procedure.

4. Research on TSF in Eating Disorders

Several years later, Shafran and Robinson (2004) conducted important studies on the prevalence of TSF in people with eating disorders. The authors investigated 42 women whose mean age was 28.6 years (SD = 9.7): 10 met the diagnostic criteria for anorexia nervosa, 20 met the criteria for bulimia nervosa and 22 were diagnosed with an atypical eating disorder. The control group also included 42 women with no history of eating disorders, with a mean age of 28.3 years (SD = 9.1). All women were measured

[3] A method that allows reducing the effects of post-traumatic stress relatively quickly (Talarowska, Florkowski, Wachowska, & Gałecki, 2011).

and weighed. It has been found that two persons from the second group had mental disorders in the past, however, these were not eating disorders. The following tools were used: EDE-Q (Fairburn & Beglin, 1994); Body Checking and Avoidance Questionnaire (BCAQ[4]; Shafran, Fairburn, Robinson, & Lask, 2004); BDI (Beck et al., 1961). Besides, a 34-item TSF questionnaire was used, which was a revised version of the 33-item tool used in the Shafran and colleagues study in 1999. The modification included eliminating items that did not correlate with the overall result or were not part of the main factor. The new version of the questionnaire comprised two sections: the first section (referred to as Concept) comprised 17 items that covered the three domains of the TSF (likelihood, moral and feeling components). These components do not form distinct factors and are analysed together. The participants were to rate their agreement with each statement on a scale from "0" – *not at all* to "4" – *totally*. Example of items includes: "Just picturing myself gaining weight can really make me gain weight". The second section of the questionnaire (referred to as Interpretation) comprises 17 items regarding the interpretation of thinking about forbidden or fattening (in the opinion of the participants) foods. Example of interpretations includes: "I lack self-discipline". As before, participants rate their agreement with each statement on a scale of "0" – *not at all* to "4" – *totally*). The mean scores for the two subscales were computed separately. Statistical analyses have shown that this revised tool provides high reliability and differentiates well between clinical and non-clinical groups.

The results of Pearson's correlation analysis revealed that in the clinical group, there is a significant statistical relationship between the results of the two TSF subscales and all subscales on the EDE-Q, and these results remained significant when controlling the level of depression (BDI scores), except for the correlation between the results of the TSF Concept subscale and the results of the EDE-Q Weight concern subscale and the correlation between the results of the TSF Interpretation subscale and the results of the EDE-Q Restraint subscale. Furthermore, the results obtained in both TSF subscales correlated significantly with the results obtained from BCAQ and BDI tools, however, the correlation between the BCAQ and TSF was no longer significant when controlling for *Body Mass Index* (BMI). The correlation analyses did not reveal the association between the TSF Concept and BMI; they revealed a small, yet statistically significant correlation between the TSF Interpretation and BMI, however, it lost its statistical significance when the level of depression was controlled (with the use of the BDI scale). The pattern of intercorrelations for the control group was similar to that of the clinical group, however, in the first group the correlation between the results obtained in the TSF Concept subscale and the results obtained in the BCAQ scale lost its significance when depression was controlled. The associations between the

[4] This 22-item tool, similarly to EDE-Q, assesses the state of the participant over the preceding 28 days and the frequency of different behaviours related to checking and avoiding confrontation with the body shape, e.g. related to checking and avoiding certain behaviours (e.g. the frequency of weighing). The tool uses a 6-point scales ("0" – *not at all applicable*, "1" – *check less than once a week*, "2" – *check 1–6 times a week*, "3" – *check 1–2 times a day*, "4" – *check 3 or more times a day*, and "5" – *avoid doing so because of possible distress*"). The reliability and validity of this questionnaire have been demonstrated in previous research (Shafran, Fairburn, Robinson, & Lask, 2004), including high discriminatory relevance and high internal consistency.

results of TSF Interpretation subscale and those obtained in the Restraint and Shape concern subscales have also lost their significance. It should be added that the results obtained in the two TSF subscale were characterised by high intercorelation both in the clinical group and in the group of mentally healthy people.

Comparisons between the clinical group and the control group indicated that the participants with eating disorders achieve significantly higher results in both subscales of the TSF measurement questionnaire than those in the control group. This result shows that TSF is a cognitive distortion associated with eating disorders. Moreover, in the clinical group, there was a stronger relationship, in comparison with the control group, between the severity of symptoms in the course of eating disorders and the degree of TSF. It is worth noting the interpretation of the authors (Shafran & Robinson, 2004) regarding the lack of statistical significance of the association between the results obtained by participants in both TSF and BCAQ subscales during BDI control and the lack of statistical significance of the association between the results obtained in the Interpretation subscale of the TSF tool and BMI when controlling for depression. In interpreting the first result, the researchers claim that perhaps the urge to check one's own body that arises from TSF is harder to overcome in a state of low mood. While interpreting the second result, the authors believe that a lowered mood can lead to both negative interpretations and breaking the diet. Both of these results indicate a strong association between eating disorder psychopathology and depression. Strong intercorrelation between the results obtained by the participants in both subscales of the TSF tool indicate that they measure a single, more general concept of the importance of thoughts about food, weight and body shape in people with eating disorders. Furthermore, they confirm the important role that these thoughts play for these people. Undoubtedly, there is a similarity between eating disorders and obsessive-compulsive disorders.

Shafran and Robinson (2004) argue that in eating disorders, over the importance of thoughts about food can be considered a direct expression of overvaluation of the importance of food, shape and weight and their control, which is one of the most symptomatic features of the psychopathology of eating disorders. Moreover, the authors emphasize that if TSF is a direct expression of overvaluation of these three aspects of self-assessment and control, a treatment that would successfully address such abnormal evaluation should also reduce the TSF. On the other hand, they underline that TSF can be a direct expression of the psychopathology of eating disorders, but can also be a factor that maintains it, e.g. a person feels obese from just imagining not exercising for a month, then the focus on shape is likely to persist, as this factor is the most important for their self-assessment. Such thoughts and interpretations can lead to a low mood, repeated monitoring of one's body, self-criticism and unsuccessful attempts at suppressing the thoughts, all of which may serve to maintain the psychopathology. Naturally, one cannot exclude the possibility that TSF is at the core of eating disorders, however, according to the knowledge of the authors of the paper, such a hypothesis was not verified and the sources of this phenomenon were not considered. In patients for whom TSF constitutes a barrier to changing the psychopathological picture, direct techniques for mitigating TSF may be highly beneficial. Such techniques should be incorporated into evidence-based interventions. These interventions should also include the possibility of using the TSF phenomenon during therapy sessions to signal/say to

patients that thoughts and feelings do not necessarily reflect reality. It is worth noting that TSF patients are not delusional, they are fully aware that their thoughts cannot influence their weight, however, they admit that their belief still guides their behaviour.

Another study (Jáuregui Lobera et al., 2011), which was based on the assumption that TSF cognitive distortion can be induced using experimentation, aimed to answer the following research questions:

(1) Can a Thought–Shape Fusion be induced by anxiety?

(2) If it has a specific relationship with thoughts related to eating fattening foods, can it also be induced in non-clinical groups (analogous to clinical groups)?

(3) Whether the participants with more adequate strategies for coping with stress will experience a less intense Thought–Shape Fusion than those who showed inadequate coping strategies?

(4) Can Thought–Shape Fusion influence emotional behaviour (e.g., neutralize feelings that thoughts influence the shape of the body or food)?

Based on these questions, the following research hypotheses have been formulated:

(1) It was assumed that the effect of inducing TSF would be greater than the effect of inducing anxiety.

(2) Although patients with eating disorders should have higher levels of TSF than the control group, it is possible to induce TSF also in non-clinical groups.

(3) It was assumed that participants from both groups with more adequate stress management strategies would experience weaker TSF compared to those with less adequate stress management strategies.

(4) Hypothesis has been advanced that the participants from both groups, among whom the Thought–Shape Fusion will be induced, will neutralize negative feelings to a greater extent and will eat less than those who were not manipulated by the experiment.

To verify these hypotheses, two 45-person groups were studied: patients with eating disorders and healthy students – volunteers with no history of mental disorders aged 18 to 25 years. Respectively, 92.5% and 86.7% of participants were women. The examined from both groups underwent one of three experimental conditions (15 persons from each group to each condition), namely:

– experimental induction of TSF, in which the participants were asked to think about the food (or foods) they considered to be extremely fattening and to imagine, as clearly as possible, in detail, that they were eating a great amount of that food until the aversion appeared. At that time, they should write one sentence: "I'm eating ...", inserting the name of the food (foods) they imagined eating. Researchers predicted that such experimental manipulation could cause a TSF distortion leading the participants to estimate as very likely: weight gain or an unfavourable change in body shape solely from thinking about eating fattening food. Moreover, they will feel that they have done something highly immoral solely as a result of thinking about eating "forbidden" food and will feel more obese as a result of just thinking about eating forbidden (in their opinion) food. Researchers also anticipated that this manipulation would cause anxiety, guilt and the urge for corrective behaviours (e.g., checking in the mirror whether they look slim, or imagining themselves to be eating celery or writing a sentence that they are eating carrots);

– experimental induction of anxiety, where the participants were asked to think about a book or film they had recently read/seen. They were then asked to imagine in

detail that they were giving a speech about this book/film to their own therapists or other patients (in the case of students to teachers or other students). The manipulation was to make the participants imagine that they are being evaluated on the quality of their speech. At that time, they should write a sentence: "I'm giving a speech about ...", inserting the name of the book or film;

– control conditions where participants were asked to think about a book or film they read/watch recently. They were then asked to imagine in detail that they were talking about the book or film with a friend. They should then write a sentence: "I'm talking about ...", inserting the name of the book or film.

Then the emotional and behavioural reactions of the participants were measured. Stress management strategies were also evaluated, with mean scores (high vs. low) for concentration on a stress management problem and mean scores (high vs. low) for concentration on emotions, using Coping Strategies Inventory (CSI; Endler & Parker, 1999; as cited in Jáuregui Lobera et al., 2011)[5]. As part of the study, the Visual Analogue Scale (VAS; 100 points) was also used to measure the mood (where "0" means negative mood and "100" means positive mood). The TSF State Questionnaire was also used to measure anxiety, guilt, the likelihood of weight gain, feeling of fatness, and moral wrong-doing as well as the TSF (Shafran & Robinson, 2004). In addition, the researchers used State Trait Anxiety Inventory (STAI), which measures state anxiety (STAI-S) and trait anxiety (STAI-T; Steisdedos, 1982, as cited in Jáuregui Lobera et al., 2011) and BDI (Conde & Franch, 1984, as cited in Jáuregui Lobera et al., 2011). Furthermore, to assess the behavioural effects of TSF induction, the presence or absence of a neutralising TSF effect was estimated by displaying participants a picture of a cake in real size and asking them to evaluate the amount of cake they would like to eat.

The research was conducted individually (for patients, these sessions were conducted during the hours of therapy sessions and for students, private meetings were arranged). Before the experiment, the participants completed the VAS by assessing the mood and CSI. They were then subjected to experimental manipulation under one of the three conditions described above. After the manipulation, the participants completed the TSF State Questionnaire. Then they were presented with a picture of the cake in real size (in the Coelho, Carter, McFarlane, & Polivy paradigm, 2008). The participants chose the amount of cake they would like to eat at that time, and they could determine

[5] The first part of the test serves to examine eight basic strategies for coping with stress (problem-solving, cognitive restructuring, social support, problem avoidance, wishful thinking, emotional expression, social withdrawal, self-criticism); four secondary ones, constituting appropriate combinations of primary strategies (involvement in concentration on the problem; Avoidance of involvement in concentrating on the problem; involvement in concentrating on emotions, avoidance of involvement in concentrating on emotions) and two tertiary strategies, which constitute appropriate combinations of secondary strategies (involvement or non-involvement in solving the problem) of coping with stress. To measure such aspects of coping with stress, participants are asked to describe in detail the stressful situation. Then, they fill in a 40-item test, which uses a 5-point Likert scale. The task of the participants is to indicate on the scale how often they behave in a specific way in a given situation. The test ends with an item that deals with the participant's perception of their own effectiveness in coping with stress (the question: "To what extent have you handled the situation adequately?" – *not at all*, *to a small extent*, *good*, *very good*, *great*).

the amount of this cake in grams. At that time, participants had the opportunity to neutralize or negate the effects of the sentence they had written previously by crossing it out or writing another word in the place they had previously completed. Depending on whether or not they did or did not do this, they were qualified to one of two groups: neutralizers or non-neutralizers. At the end, the participants completed the following questionnaires: TSF-Q, STAI, BDI.

The results of the study showed that the participants of TSF induction talked about a greater sense of guilt, a more intense feeling of being fat, a higher probability of gaining weight and a higher sense of moral wrong-doing, compared to those who were not subjected to this kind of manipulation (who participated in one of the other two experimental conditions). Thus, the hypothesis of TSF induction was confirmed, and since these differences occurred in both groups, the second hypothesis was also confirmed. The third hypothesis on the influence of stress coping on the decrease of TSF strength was also confirmed for both groups. The last hypothesis concerning the behavioural effects of TSF induction was also confirmed: the percentage of neutralizers was significantly higher in the group of persons with eating disorders compared to the non-clinical group. As for the size of the cookie that was chosen by the participants, patients with eating disorders chose the smallest portions, especially those subjected to the first type of manipulation. In conclusion, research has shown that TSF induction causes both emotional and behavioural changes, which appear to be specific to thinking about eating fattening foods. It is worth to add that in this study, patients with eating disorders subjected to experimental manipulation of the first type compared to non-clinical patients, not only showed a higher degree of TSF state (guilt, more feelings of fatness, more likelihood of weight gain, and a higher degree of moral wrong-doing), but also showed higher scores in terms of TSF characteristics measured with the TSF questionnaire, therefore eating disorder patients seem to be more susceptible to the TSF induction than mentally healthy persons. In the group of patients with anorexia nervosa and bulimia nervosa, only one TSF state degree, namely, the degree of anxiety was higher under the conditions of anxiety induction in both studied groups.

Research carried out by Ignacio Jáuregui Lobera and colleagues (2011) has also shown that perceived self-efficacy in coping with stress, commitment to focus on the problem and commitment to focus on emotions – play a major role in reducing TSF state – particularly in patients with eating disorders. It would therefore be worth examining the role of negative strategies for coping with stress in the persistence of TSF distortion. The authors emphasize the need to analyze the results in particular subgroups of eating disorders. Concluding the results of the research, Jáuregui Lobera and colleagues emphasize that TSF may be involved in developing and maintaining psychopathology of eating disorders. Research on TAF has shown that these cognitive distortions can play a causal role in the development of disturbing intrusive thoughts. It has been proven that educational interventions on cognitive distortions may significantly reduce anxiety resulting from the induction of TAF (as opposed to persons undergoing a controlled intervention). However, the intensity of TSF may decrease during treatment. To learn what is the cause and effect here, it would be necessary to conduct longitudinal studies to assess changes in the TSF experience during the treatment of patients with eating disorders. Besides, a positive change in the strategies used to manage stress could contribute to reducing the importance of TSF distortions in sustaining these disorders.

The cognitive distortion such as TSF fits in with eating pathology, however, the specificity of this distortion for eating disorders has not yet been fully investigated. This attempt was made by Coelho, Baeyens, Purdon, Pitet, and Bouvard (2012). The study aimed to determine the effects of TSF induction on TSF susceptibility in three gro ups of women: with eating disorders (33 women), with obsessive-compulsive disorders (24 women) and in the group of people without a diagnosis of both eating disorders and obsessive-compulsive disorders (26 women). As expected by the authors, the results showed that individuals with eating disorders are more susceptible to TSF than women with obsessive-compulsive disorders and healthy women. They are also characterized by a higher degree of TSF, more negative emotional states and more intense behaviour neutralisation. Moreover, studies have shown that women with obsessive-compulsive disorders were not particularly susceptible to TSF. In fact, healthy women (the control group) have demonstrated increased susceptibility to TSF compared to women with obsessive-compulsive disorders, as evidenced by their higher level of trait TSF, as well as increased prolonged stress (distress) and difficulty in imagining a situation related to food.

The lack of research on the TSF and its neutralisation in individuals belonging to subgroups with eating disorders was complemented by two more studies. Several years after Shafran and colleagues (1999), Adam S. Radomsky, de Silva, Todd, Treasure, and Murphy (2002) conducted a similar study, though not only in the group of mentally healthy subjects but also in the group of *anorexia nervosa*. Twenty patients with the disorder were asked to think about the food they consider to be extremely fattening. Then they were asked to finish the sentence: "I am eating ...", by writing the name of the "forbidden" food in a space. Then the participants were asked to determine the level of anxiety, guilt, the estimation of body weight, and perception of moral wrong-doing. Participants could neutralise the sentences they had formed. Similarly to the Shafran and colleagues study (1999), most of the participants applied neutralisation in accordance with cognitive-behavioural assumptions about eating disorders and in accordance with the findings on the influence of cognitive errors and distortions on the processing of food, shape and weight information in *anorexia nervosa*. It is worth mentioning one more study, conducted by Kostopoulou, Varsou, and Stalikas (2011). The study aimed to experimentally verify the TSF phenomenon in persons with *bulimia nervosa*. Twenty patients with this diagnosis participated in an experiment involving the eliciting of TSF and investigating the effects of corrective behaviour (checking and mental neutralisation). Verbal analogue scales constituted the main outcome measures of the TSF state. The results showed that TSF increases the feeling of moral wrong-doing, body dissatisfaction, anxiety and guilt, it also strengthens the urge to engage in corrective behaviours such as checking and mental neutralisation. The corrective behaviour reduced most effects of the experimental procedure.

In conclusion, it should be noted that TSF components are also present in *bulimia nervosa* and probably play an intermediary role in the persistence of the disease.

At the end of the overview of the TSF studies, it is worth mentioning a study conducted by Coelho, Carter, McFarlane, and Polivy (2008) to compare the effects of TSF induction on women with eating disorders and mentally healthy women – while on a diet and not on a diet. The hypothesis was advanced that this induction will lead to anxiety, guilt, an increased feeling of obesity, perceived weight gain and perception of moral wrong-doing. Another hypothesis was that individuals with eating disorders and

those on a diet would react more strongly to TSF induction compared to those who are not on a diet. The results of the research showed that TSF may be induced in persons with eating disorders as well as in mentally healthy persons. However, individuals with eating disorders reveal higher levels of TSF after induction compared to mentally healthy people (whether or not on a diet). Contrary to expectations, women on a diet had higher levels of perceived weight gain and perception of moral wrong-doing after triggering anxiety, and not after triggering TSF.

The authors of the paper state that there are no research papers on the methods of TSF treatment. However, it should be assumed that, as in the case of TAF, psychoeducation, consisting in making the patient aware of the existence of cognitive distortions (in this case TSF) and their importance in sustaining the vicious circle of thoughts–emotion–behaviour–thoughts, may prove promising. When a patient learns how to find and name the distortions present in their functioning, it will also be possible to modify them. Psychoeducation aims to correct incorrect beliefs, which reduces stress and minimizes neutralising behaviours (Zucker, Craske, Barrios, & Holguin, 2002). It should be remembered that all techniques used in cognitive-behavioural psychotherapy, such as Socratic dialogue, writing down automatic thoughts, searching for evidence of the truthfulness of judgment, or using paradoxes, may also be highly useful in mitigating the TSF.

5. Conclusions

In individuals with eating disorders, it is not only monitoring of food that affects body shape and weight. In the patients' perception, just thinking about fattening food leads to weight gain. Although after a series of studies, it has been proven that TSF can be induced experimentally in both persons with eating disorders and mentally healthy people, the results of the studies unambiguously indicate that this phenomenon is particularly highly associated with the psychopathology of eating disorders. Eating disorders patients undergoing experimental manipulation, involving TSF induction, scored higher with regard to this variable compared to mentally healthy people. Therefore, these persons were more susceptible to TSF induction compared to healthy persons. It cannot be disregarded that TSF may be a direct manifestation of the fundamental psychopathology of eating disorders, which consists in overestimating the importance of food, body shape and weight and control over them. In patients for whom TSF constitutes a barrier to changing the psychological picture, direct techniques aimed at reducing TSF may prove extremely promising.

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ANDRZEJ MARGASIŃSKI*
Pedagogical Department
Jan Długosz Academy in Częstochowa

TRAPS OF PSYCHOLOGICAL DIAGNOSIS ON THE EXAMPLE OF THE BARNUM EFFECT AND THE SO-CALLED SYNDROME OF ADULT CHILDREN FROM DYSFUNCTIONAL FAMILIES[1]

Abstract

The notion of *adult children of dysfunctional families* has been present for several years in psychological and self-help literature. It arouses controversy due to ambiguity of its definition and unclear diagnosis criteria. The author has attempted to verify empirically the so-called ACDFs (adult children of dysfunctional families) control list, treated as a diagnostic tool. The second research aim is the verification of Barnum effect in Polish circumstances, the psychological mechanism which can crucially distort diagnostic conduct. The survey done showed the lack of diagnostic usefulness of most of the ideas connected with the so-called ACDFs control list, the larger part of which has a non-specific, that is of Barnum.

Keywords: psychological diagnosis, the Barnum effect, ACOA (adult children of alcoholic families), ACDF (adult children of dysfunctional families)

1. Introduction

1.1 The Status of Nosological Units and Psychological Practice

Therapists, who are close to suffering and help-seeking persons, are often the first to notice psychological mechanisms that have not been described before. As a result, descriptions and demands for the introduction of new disorders or diseases are often generated from the area of therapeutic practice. Each disease unit requires a precise description of causes, specific symptoms and treatment options. Particularly important is the characteristics of the symptoms, and their uniqueness and repeatability must be indicated. This is not an easy task, and science with its methodology and "hard" tools

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* Corresponding author: a.margasinski@gmail.com

provides assistance. However, therapeutic descriptions are not always scientifically verified according to the intentions of the authors, which gives rise to understandable discussions and disputes. An example of this is the controversy that has arisen in the area of research into dysfunctional families, especially alcoholic ones.

Looking at alcoholic families through the prism of systemic theory has, in the last 30 years, generated a description of several new psychological mechanisms. At the same time, mainly as a result of the activity of the self-help movement, concepts of new nosological units have emerged, concerning both the description of personality and types of stress. This refers primarily to the so-called co-dependency and the so-called adult children of alcoholics syndrome[2]. Cermak (1986, 1991) claimed that co-dependency is both a trait and a personality disorder, and developed the criteria of the phenomenon in line with the approach used in the DSM-III classification. The emerging descriptions were followed by postulates to include the so-called co-dependency into the classification of mental illness and disorders. Cermak's postulates have not been implemented and the so-called co-dependency is not included in either the DSM-IV or the ICD-10. The main reasons why it was not listed in the official classifications include the difficulty of defining the concepts cited unambiguously.

Similar difficulties occurred in the descriptions of the so-called adult children of alcoholics (ACOA). This term refers to adults who grew up in alcoholic families. Observations from the self-help movement indicated that such individuals experience several adaptation difficulties, inhibitions and fears in adulthood, the sources of which are associated with the specificity of growing up in dysfunctional alcoholic families, with the norms that prevail there, the psychological roles undertaken, communication disorders, etc. Similar as in the case of co-dependency. Cermak postulated the introduction of the personality described as ACOA syndrome as a spontaneous personality disorder into the revised versions of DSM-IV and ICD-10, however, this proposal was also rejected. In the descriptions undertaken by authors such as Woititz (1992), Wegscheider-Cruse (2000), Bradshaw (1994), Cermak and Rutzky (1996), several dozen (*sic!*) personality traits are associated with the so-called ACOA syndrome, which has been subjected to justified criticism. According to Burk and Sher (1988), the label of an adult child of an alcoholic, at the level of self-help literature, represents a plethora of dysfunctional and pathological traits, while studies indicate that most children from alcoholic families seem to function fairly normally (when a norm is understood to mean behaviour that is typical of a given society). Lilienfeld, Lynn, Ruscio, and Beyerstein (2011) have even classified the so-called adult children of alcoholics syndrome as one of the

[2] A brief commentary on the spelling of the main terms used in the text. Most of the literature to date uses the terms *co-dependency*, *adult children from alcoholic families*, *adult children from dysfunctional families*. The spelling of abbreviations in capital letters imposed by the rules of language (both Polish and English), suggests that we are dealing here with fully-fledged nosological units, contrary to scientific findings or the ICD-10 and DSM-IV classifications. All these terms should be preceded by the term *so-called* and should be written in small letters. However, to use such consistent spelling would have been very inconvenient, which is why it has been decided to use the following abbreviations throughout the text: ACOA and ACDF. They will always be preceded by the term *so-called* to emphasise their stipulated nature.

myths of modern popular psychology. Despite the fundamental difficulties with definitions and diverse results of empirical research, both the concepts of the so-called co-dependency and the so-called ACOA within addiction treatment and self-help movement have the status of fully-fledged disease units. Therapeutic groups are operating under those names in these facilities that are a tangible example of the discrepancy between scientific theory and psychological practice. A new concept of the so-called adult children from dysfunctional families (abbreviated in the literature as ACDF), which is used to refer to individuals growing up in families with various dysfunctions, other than alcoholism (structural poverty and unemployment, chronic illnesses, gambling, violence, etc.), and experiencing various difficulties in adult life, has emerged from this therapeutic and self-help current in recent years.

Studies presented in the text have verified diagnostic indicators combined with the so-called ACDF syndrome and Barnum statements. In general, the same checklist, that is a set of statements concerning different clinical symptoms, is used for the diagnosis of both the so-called ACOA and the so-called ACDF. However, for the second application, the alcoholic background in the statements has been replaced by a description of pathological mechanisms on a general level. The problem lies in the fact that these checklists (used both for the so-called ACOA and for the so-called ACDF) are not standardised psychological tools, and their psychometric properties regarding reliability and accuracy are unknown. Their usefulness in clinical diagnosis seems to vary greatly. For the clinical psychologist, some indicators may be useful in the process of establishing an individual diagnosis, but some seem excessively ambiguous, with the infamous "Barnum" qualities. This observation inspired the exploratory research referred to herein. Since the mechanism known as the *Barnum effect* is relatively poorly known, it will be described below.

2. Barnum Effect

This phenomenon was first described by Forer (1949), then by Meehl (1956). It is based on the observation that people accept certain descriptions of personality as relevant to themselves, whereas in reality, these are general, vague descriptions, often of double meaning, but linked to socially desirable characteristics that are therefore difficult to reject, thereby making them universally accepted. The term Barnum effect (other terms: *Forer effect* or *horoscopic effect*) refers to the figure of Phineas Taylor Barnum, the famous 19th-century American showman, organiser of famous exhibitions with individuals deformed by various developmental abnormalities, creator of the concept of a travelling circus, famous for his unconventional advertising ideas, in which he often resorted to bluff and mystification. P. T. Barnum was guided by the principle that every customer should find something to suit their taste. The Barnum effect is intensified when the person concerned is convinced that the analyses have been prepared especially for him/her, they come from authoritative sources, and when mainly positive features are emphasised. The so-called Barnum statements are ambiguous characterisations; a classic set of these statements includes the sentences contained in Appendix B. Such sentence structures are often used for horoscopes, hence the term horoscopic effect. In other words, Barnum statements are unspecific and therefore could apply to almost anyone.

The issue of the impact of the Barnum effect on psychological diagnosis has often been addressed in numerous studies by Western authors, which, for lack of space, are not discussed further in this article (Green, 1982; Handelsman & McLain, 1988; Beins, 1993; MacDonald & Standing, 2002; Wyman & Vyse, 2008; Christman, Hennig, Geers, Propper, & Niebauer, 2008). In Polish literature, the Barnum effect was probably first mentioned by Paluchowski (2001); in his later paper (Paluchowski, 2007) the author describes this phenomenon as a general artefact in communication. The effects of receiving feedback on the results of the psychological examination are analysed by Bąk (2009, 2010). The author points out the danger of over-interpretation of information by patients (the Barnum effect) and potential change of behaviour according to the mechanism of self-fulfilling prophecy. This underlines the importance of psychologists working with people to be aware of these mechanisms. Margasiński (2009a, 2009b, 2010, 2011) reviewed the literature demonstrating the risks of the Barnum effect occurring in the diagnosis of phenomena associated with the functioning of alcoholic families, such as the so-called co-dependency or the so-called adult children of alcoholics syndrome. Fronczyk (2010) included an attempt to systematise research on the Barnum effect in his questionnaire diagnosis in a review study. The author identifies four groups of factors taken into account in the research on the determinants of the Barnum effect, including the properties of false feedback, the actual and perceived properties of the source of information, the irrationality of the respondents and the cognitive errors they make, and personality traits that encourage more frequent acceptance of false feedback.

3. Assumptions and Objectives of the Research

The conducted research focuses on the diagnostic properties of the so-called ACDF checklists operating in the Internet and the properties of the items of the Barnum Questionnaire, the Polish version of which is an original translation of the Barnum items used by Forer.

The first objective of the conducted exploratory research is to assess the diagnostic value of descriptors attributed to the so-called ACDF syndrome, which are included in ACDF checklists in the form of statements to which the surveyed person is to refer by selecting an appropriate point on an attached scale. Since there is no definition of the ACDF syndrome, as mentioned earlier, the theoretical relevance of the proposed ACDF checklists cannot be assessed. Therefore, for the purposes of this research, the concept of *specificity* of the statements used in the ACDF checklist examination was introduced. The assessment of the diagnostic value of descriptors attributed to the so-called ACDF syndrome included in the analysed checklist was guided by the following research questions: (1) Are there statistically significant differences between the group of people from dysfunctional families identified by the Family Experience Questionnaire and the control group? If yes, then (2) how many differences in the analysed ACDF checklist are there and for which statements they occur?

It is assumed that a statement is specific for the identification of the ACDF syndrome if it differentiates at a statistically significant level between the group of people from dysfunctional families and the control group. On the other hand, the absence of a statistically significant difference for individual items of the ACDF checklist between the dysfunctional and control group will, in principle, indicate the non-specificity

of a given item. It could therefore be assumed that only those statements which are specific in the sense provided above would have some diagnostic usefulness.

The second objective of the study was to evaluate individual items of the Barnum Questionnaire within separate groups. The detailed analysis was guided by the following questions: (1) What is the structure of the responses to the individual statements of the Barnum Questionnaire?; (2) Are there statistically significant differences between the group of subjects from dysfunctional families identified by the Family Experience Questionnaire and the control group in terms of individual items? If yes, (3) how many are there in the analysed questionnaire and what are these statements?

Barnum statements, as mentioned earlier, are specific descriptions of personality traits that are universally accepted. To determine this property of the Barnum statements, the name *universal statements* was used, and their universality was to be demonstrated by the support of more than 75% and the lack of statistically significant difference between the groups identified. This ascertainment will allow for the determination of how many and which items of the Barnum Questionnaire are universal statements and will be considered conducive to the emergence of this mechanism.

In the empirical study undertaken, hypotheses have been abandoned and only research questions have been used (see Nowak, 1985, pp. 35–36). Such a research perspective is justified mainly by the lack of theoretical background in the form of a coherent set of statements concerning the ACDF syndrome and the lack of standardised tools. The task of this research is to identify and attempt to assess a certain section of the psychological diagnostic practice.

4. Method

4.1 Procedure

The research was conducted among full-time students of the Jan Długosz Academy in Częstochowa, in autumn 2012. Students were informed that they are participating in a psychological project which aims to create new personality questionnaires (called Your Self-assessment 1 and Your Self-assessment 2, and in reality, they completed the Barnum Questionnaire and the questionnaire on the so-called ACDF). Besides, they were asked to fill in the Family Experience Questionnaire, which de facto served to divide the respondents into two groups: those from families conventionally defined as dysfunctional and without such burdens (the control group). The procedure for identifying a dysfunctional group based on the respondents' self-description is generally insufficient and may raise doubts. There is extensive literature available on family functions, which could be used to determine the criteria of family dysfunctionality. However, this would require completely different procedures and resources. Nonetheless, this type of research model is frequently employed, for example, in American research on identifying so-called adult children from alcoholic families, or so-called adult children from dysfunctional families, when the division into groups is made based on a self-assessment questionnaire (e.g., George, La Marr, Barrett, & McKinnon, 1999) or by using a simple screening test for the evaluation of parents by children, that is the Father/Mother Short Michigan Alcoholic Screening Test (SMAST; Logue, Sher, & Frensch, 1992). It is not uncommon to use the Children of Alcoholics Screening Test (CAST)

versions shortened to 5–6 items for screening; a meta-analysis of 98 studies based on such a research scheme and the methodological risks arising therefrom, especially in the sphere of interpretation, was carried out by Vail, Protinsky, and Prouty (2000). As regards the issues in question, however, the intention was to conduct an *initial exploratory study* and, for such purposes, an assignment based on self-description of the subjects seems sufficient. After the completion of questionnaires, the subjects were informed about the actual objectives of the research.

4.2 Measures

As mentioned earlier, three tools have been developed for this research: Family Experience Questionnaire, Barnum Questionnaire and questionnaire on the so-called ACDF.

The Family Experience Questionnaire consisted of respondent's particulars and 11 questions concerning the degree of experiencing various psychopathological disorders in their generational families (alcoholism, violence, poverty, unemployment, sexual harassment) with a 5-point set of answers (*Definitely yes – Rather yes – I don't know – Rather no – Definitely no*). Answers *Rather yes* and *Definitely yes* to any of the questions related to psychopathological experiences qualified respondents to the dysfunctional group.

The Barnum Questionnaire contained 11 items used by Forer (1949), compare Logue, Sher, and Frensch (1992). The instruction explained to the respondents that the questionnaire contained a description of several personality traits, and respondents were asked to indicate the extent to which those traits relate to them. There were only three answers to choose from: *Yes – ?* (*I have no opinion*) *– No*. Statements used in the questionnaire are listed in Appendix B.

The questionnaire on the so-called ACDF was based on an online checklist. Many blogs, forums and websites dedicated to therapeutic assistance or self-help (e.g., www.super-zdrowo.pl; www.leczmy-alkoholizm.org; www.przemiany.com.pl) use such a set, with virtually identical wording, which may indicate its widespread application. The 24 items have been worded in such a way that it was possible to respond with *Yes – ?* (*I have no opinion*) *– No*; this was preceded by an instruction emphasising that there are no right or wrong answers, but that the respondent should choose specific personality traits which relate to him/her. Statements used in the questionnaire are provided in Appendix A.

4.3 Participants

Based on the results obtained in the Family Experience Questionnaire, out of the examined group of 112 students, 79 were qualified to the control group (without family burdens), and 33 people to the dysfunctional group (30 women and 3 men). The dysfunctional group included 76% of people indicating alcohol problems in the family, 13% indicating abuse, 11% indicating chronic unemployment of one or two parents; there were no indications of poverty or sexual harassment. The average age was 23.1 years in the control group and 24.2 years in the dysfunctional group. There were no statistically significant differences in average age, gender composition or parental education between the groups.

5. Results

5.2 Specificity of Descriptors Assigned to ACDF

With all the tools used, higher intensity of the mean values calculated for individual responses in a given group indicates a stronger acceptance of a given claim by the respondents. The ACDF checklist used in the study consists of 24 statements, which were addressed by the test subjects by selecting a response on a 3-point scale.

Table 1
Evaluation of the differences in the level of confirmation of ACDF checklist items in the dysfunctional and control group (Mann-Whitney U test)

ACDF	Sum of ranks Dysfunctional	Sum of ranks Control	*U*
ACDF1	1170.5	1040.5	479.5
ACDF2	1097.5	1113.5	536.5
ACDF3	1128	1083	522
ACDF4	1255.5	955.5	394.5*
ACDF5	1249	962	401*
ACDF6	1160	985	424
ACDF7	1177	1034	473
ACDF8	1146	1065	504
ACDF9	1132	1079	518
ACDF10	1188	1023	462
ACDF11	1232	979	418
ACDF12	1167.5	1043.5	482.5
ACDF13	1076.5	1134.5	515.5
ACDF14	1197.5	1013.5	452.5
ACDF15	1113.5	1097.5	536.5
ACDF16	1136	1075	514
ACDF17	1118	1093	532
ACDF18	1131	1080	519
ACDF19	1043	1168	482
ACDF20	1221	990	429
ACDF21	1190	1021	460
ACDF22	1201.5	1009.5	448.5
ACDF23	1140	1071	510
ACDF24	1173	1038	477

* $p < .05$.

Table 1 presents the results of the collation of the dysfunctional group and the control group in terms of individual items of the checklist for the so-called ACDF. For illustrative purposes, Figure 1 shows the profiles of both groups in terms of items of the questionnaire on the so-called ACDF. Profiles are drawn up on the basis of average coding responses: *yes* – 1 point, *I have no opinion* – 0 points, *no* – coded as –1 point.

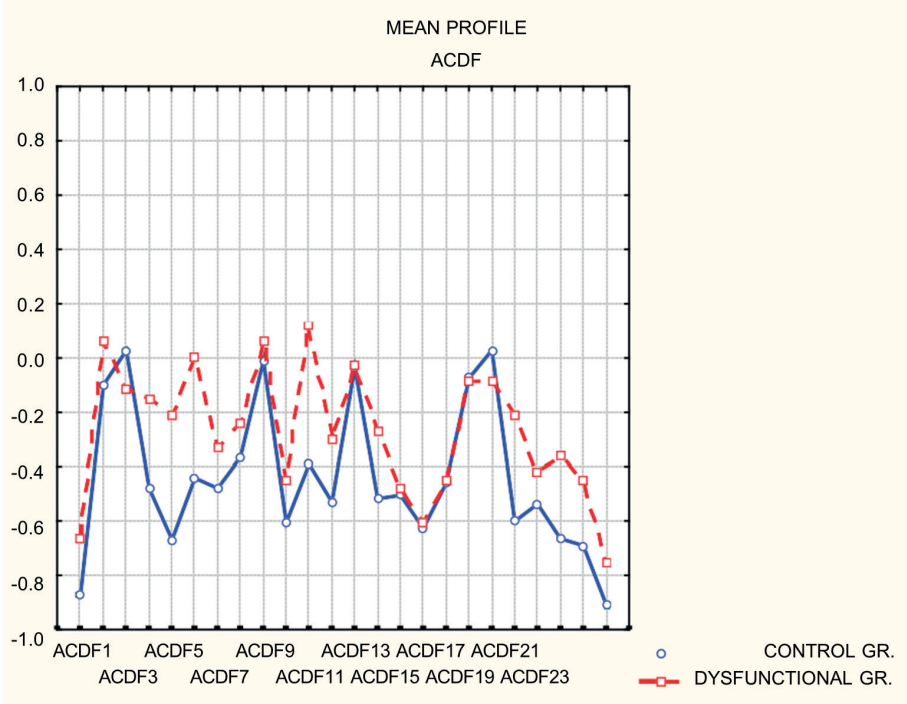

Figure 1. Mean profiles for the so-called ACDF checklist items in the dysfunctional and control group.

Statistically significant differences at $p < .05$ can only be observed for ACDF4: *You generally judge yourself mercilessly, you have low self-esteem or a sense of complete worthlessness* and the ACDF5 statement: *You find it difficult to have fun and to experience joy due to constant tension.* Therefore, only these items could be considered as possibly specific to the so-called ACDF syndrome. As we can see, these items relate to low self-esteem and the level of internal tension. The Figure 1 shows greater differences, at the statistical trend level ($p < .10$), in ACDF11: *You constantly need recognition and affirmation,* ACDF20: *You live in isolation from people even when you are seemingly among them,* and ACDF24: *You become addicted to alcohol, to addicted partners or both*. Those items could be considered as specific descriptors when attempting to create a standardised tool. However, the profiles obtained show that the 22 items do not differentiate between the dysfunctional and the control group and therefore are not specific (in the sense previously assumed) ACDF descriptors.

Besides, as can be clearly seen in the Figure 1, both groups had low scores for ACDF statements, including the dysfunctional group, where high acceptance would be expected. With a maximum possible score of 24 points and a minimum of –24 points,

the average score in the dysfunctional group is –6.48 points, the median is –8 points, the mode is –13 points, and in the control group the average score is –11.15 points, the median is –12 points, the mode is –8 points.

5.3 Barnum Statements Analysis

Each statement of the Barnum Questionnaire was assigned a 3-point scale. The answer *yes* is coded as 1 point and indicates a high degree of acceptance of the statement, the answer *no* indicates a lack of acceptance and is coded as –1 point and *I have no opinion*, which serves as a centre of scale, is coded as 0 points. Table 2 shows the percentage distribution of results in the entire surveyed group, in the group of people from dysfunctional families and in the control group, and the statistical significance of differences in both groups. A two-sided stratum weight test was used to assess the significance of differences.

Table 2
Results obtained for the statements of the Barnum Questionnaire (N = 112)

Barnum Statements	Entire group	Dysfunctional	Control	Difference in the level of acceptance
	%	%	%	%
B1: You have a strong need to be liked and admired	42.6	54.8	37.7	17.1
B2: You tend to be too critical	77.1	80.6	75.6	5.0
B3: You have many unused abilities that you haven't turned into your strengths	50.9	41.9	54.4	–12.5
B4: You have some personality flaws, but generally you can balance them out	85.5	80.6	87.3	–6.7
B5: While on the outside you look disciplined and in control, you sometimes get worried and anxious on the inside	88.2	90.3	87.3	3.0
B6: You sometimes seriously doubt whether you made the right decision	85.5	96.7	81.0	15.7*
B7: In general, you prefer diversity; you become dissatisfied when you are faced with limitations and restrictions	75.5	80.6	73.4	7.2
B8: You are independent in your thinking and do not accept statements by others without satisfactory proof	60.0	70.9	55.7	15.2
B9: You find it foolish to reveal too much to others	57.3	54.8	58.2	–3.4
B10: Some of your aspirations can be unrealistic	48.2	41.9	50.6	–8.7
B11: Security is one of your priorities in life	79.1	80.6	78.5	2.1

Note. Items for which the acceptance level in the entire group is higher than 75% are marked in grey.
* $p < .05$.

Statements B1 and B10 obtained results lower than 50% in the entire surveyed group. Differences in results are observed in the dysfunctional and control group.

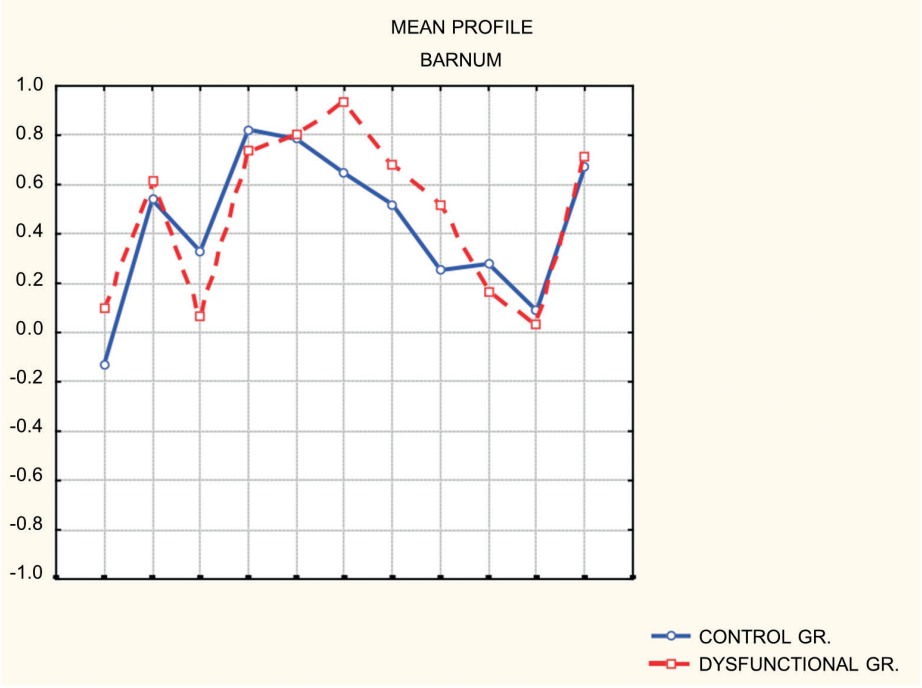

Figure 2. Acceptance for Barnum statements in the dysfunctional (n = 33) and control (n = 79) group.

Items B3, B4, B9 and B10 have lower scores in the dysfunctional group than in the control group. The other seven items have a higher level of acceptance in the dysfunctional group (Figure 2), but only one difference, concerning statement B6, is statistically significant. This item scored higher in the dysfunctional group, although it is high in both groups (96.7% and 81.0% respectively). A level of acceptance above .5 points is observed for the six statements of the questionnaire: B2, B4, B5, B6, B7 and B11. As shown in Table 1, the rate of positive answers for these items is over 75%. In general, the profiles show that the level of acceptance of each of Barnum statements varies, but exceeds the mean of 0 points, that is the middle of the scale, except for item B10. In the dysfunctional group, all the statements obtained the mean higher than 0 points, and in the comparative group, the mean below 0 points is observed only for statement B10. Six of the eleven statements used in the Barnum Questionnaire survey reached the score of over 75% for the entire survey group. Respondents from the dysfunctional and control group differed in the level of acceptance of Barnum statements, however, this difference is statistically significant ($p < .05$) only for one item, i.e. item (B6) for which a high level of acceptance was observed in the entire group (85.5% of the answer *yes*). The dysfunctional and control groups do not differ in the number of statements of acceptance over .5 points. Therefore, the five items of the Barnum Questionnaire can be considered to

be universal according to the adopted assumptions: B2, B4, B5, B7, B11. Although B6 has the support of over 75% in both groups, it differentiates between the dysfunctional and the control group and therefore does not meet the adopted condition of universality. Indicated items are highlighted in Table 2 in dark grey.

6. Summary and Discussion

The Barnum effect is a relatively simple but powerful psychological mechanism. Research conducted on the Polish sample confirms the high level of identification with Barnum statements (six out of 11 statements received acceptance at a level over 75%, and only two of them were below 50%). The level of acceptance of Barnum statements differs in the dysfunctional and control groups at a statistically significant level for only one item. In total, five items from the analysed Barnum Questionnaire are universal for the population of young people (represented by the surveyed group) and these statements should be eliminated both in the diagnostic process and in the construction of measurement tools. The criteria of universality applied in the study were quite exorbitant, and if new tools were to be developed, it would be prudent to apply this conclusion to all other Barnum statements. Studies cited in this article indicate a wide occurrence of the Barnum effect. In this context, the area of psychological diagnosis appears as a particularly sensitive field. The development of new "hard" psychological tests is an arduous struggle with the psychometric requirements for different types of accuracy and reliability that may last for many years. These procedures, compliance with the criteria of accuracy and reliability, should themselves eliminate the possibility of the occurrence of the Barnum effect. In this context, being aware of this mechanism may be helpful at the initial stage of item selection, when choosing specific and non-specific (Barnum) statements.

This is not the case in the area of social pathologies and the accompanying psychological assistance. The therapeutic reports from these experiences are the leading edge in the description of new psychological phenomena and mechanisms. After all, not all individual reports stand the test of time and become descriptions of universal mechanisms. The phenomena popularised in the last 20–30 years, such as the so-called Adult Children of Alcoholics Syndrome (ACOA), the so-called co-dependency, the so-called Adult Children of Dysfunctional Families Syndrome (ACDF), do not constitute nosological units included in the ICD-10 and DSM-IV classifications. They give rise to many definitional doubts, which implies diagnostic and research challenges. There is a dramatic lack of reliable diagnostic tools with regard to these areas. However, since life abhors a vacuum, they have been replaced by various kinds of "checklists", which are multiplied in the age of the Internet. As these publicly available ACOA/ACDF checklists are not standard psychological diagnostic tools, clinicians must be aware of their limitations. As demonstrated by the conducted research, 22 out of 24 items of the discussed tool used to diagnose the so-called ACDF are not specific descriptors, and any diagnosis based thereon may possess all the characteristics of an artefact. Needless to say, this may be particularly acute when patients/readers/Internet users perform a self-diagnosis. Professional diagnosticians need to be aware of this, and readers and patients should be warned against using these lists. Similar caution should be exercised when recommending bibliotherapy or education through various web portals to clients, as such sources usually use sets of indicators repeated after popular psychological self-help publications. A clinician with an elementary psychometric education will notice

that there is a lack of any standards here, and popular guidebooks usually make no effort to address this issue. They typically use the following phrase: If you find that you exhibit any of the characteristics in the list below, you are most likely to have symptoms of co-dependency, you are an ACOA (or ACDF) etc. The self-diagnosis reported by the client can be either an auto-suggestion or a major simplification. Clinical diagnosis should differentiate the specific character of the symptoms attributed to a given syndrome with indicators such as generalized stress, type D personality, obsessive-compulsive disorders, attention disorders, addictions or, simply, Barnum statements.

It is also important to point out the limitations of the conducted research. The analyses conducted did not, in principle, refer to the nosological status of the so-called ACDF syndrome, but only addressed the diagnosis of this phenomenon through a checklist used on the Internet. Preliminary research was conducted with groups selected based on the self-description of respondents. This was done with the use of the Family Experience Questionnaire, which is not a standardised tool in and of itself. For exploratory research of this nature, its application has proved sufficient. It allowed for the separation of two groups, and the results among the groups proved to be differentiating, which justified the adopted division. However, it cannot be claimed that a dysfunctional group allocated in this way fulfils the relevant criteria associated with dysfunctional families, thus it would be necessary to repeat the research on the actual clinical groups identified, for example in health care institutions providing psychotherapy. Moreover, further verification of both the so-called ACDF checklist and Barnum statements should certainly be carried out on other, diverse and larger study groups.

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Appendix A
The list of items used in the study for the diagnosis questionnaire of the so-called adult children from dysfunctional families, developed on the basis of literature and websites

1. You often have difficulty in determining what is normal and you have to guess.
2. You have difficulty in carrying out your intentions from start to finish.
3. Sometimes you lie even though you could tell the truth.
4. In general, you judge yourself mercilessly, you have a low self-es teem or a sense of complete worthlessness.
5. You find it difficult to have fun and to experience joy due to constant tension.
6. You take yourself terribly seriously.
7. It is difficult for you to have an intimate relationship.
8. You are afraid of being rejected, but you often reject yourself.
9. You overreact to changes that you have no control over.
10. You feel different, you feel that no one is experiencing the same problems as you.
11. You constantly need recognition and affirmation.
12. You are either overly responsible or overly irresponsible.
13. You are loyal towards others even when faced with evidence of disloyalty.
14. You demand immediate satisfaction of your wishes.
15. You automatically give in to the situation instead of considering other options.
16. You seek tensions and crises and then you complain about them.
17. You avoid or exacerbate conflicts and rarely resolve them.
18. You are afraid of failure, but you sabotage your own successes.
19. You are afraid of criticism, but you criticise and judge yourself.
20. You live in isolation from people, even when you are seemingly among them.
21. You feel guilty every time you stand or want to stand up for your rights.
22. When things are going well, you are confused and bored, waiting for some thing to happen. Decent, calm, tender partners are dull and dumped.
23. You react mainly to what others do, losing your own sense of self.
24. You become addicted to alcohol, to addicted partners or both.

Appendix B
The list of items consisting of Barnum statements used in the study

1. You have a great need to be liked and admired.
2. You tend to be too critical of yourself.
3. You have many unused abilities that you haven't yet turned into your strengths.
4. You have some personality flaws, but generally you can balance them out.
5. While on the outside you look disciplined and in control, you sometimes get worried and anxious on the inside.
6. You sometimes seriously doubt whether you made the right decision.
7. In general, you prefer diversity; you become dissatisfied when you are faced with limitations and restrictions.
8. You are independent in your thinking and do not accept statements by others without satisfactory proof.
9. You find it foolish to reveal too much to others.
10. Some of your aspirations are unrealistic.
11. Security is one of your priorities in life.

HENRYK GASIUL*
Institute of Psychology
Cardinal Stefan Wyszyński University in Warsaw

THE IMPORTANCE OF LANGUAGE IN THE RECOGNITION AND CATEGORISATION OF EMOTIONAL STATES. THE RELATIONSHIP BETWEEN "ME" AND EMOTION IN A CULTURAL CONTEXT[1]

Abstract

This article concerns the analysis of the importance of language in the self-determination of one's emotional states and his/her determination of the same in another person. In the first part of the article, the author presents difficulties related to the categorisation of emotions resulting from the use of different languages. The author goes on to prove that a broadly defined culture is of key significance for understanding emotions, with language being an indispensable dimension for naming certain emotional states. Due to the fact that emotions are specifically linked to the "subjective self", fundamental role should be attributed to the kind of formed mental structure that defines the character of this "subjective self". Collective and individualistic cultures are examples of a different formation of the structure of the "self". They determine the ways of experiencing emotions and the types of dominant emotional states. As the basic system of social communication, language allows these states to be given meaning, and thus explains the difference in their experiences and guides the way they are categorised.

Keywords: language, culture, emotion, self

1. Introduction

The aim of the article is to substantiate the thesis that the basis for the possibility of recognizing emotions in oneself and others is a formed mental structure in which language plays a special role as a basic tool for coding and decoding (naming) meanings. As such a tool, language also determines the possibility of experiencing certain emotional states in a given way. Language is not an emotion, but it is essential for emotions. Only the naming of an experienced state, in and of itself, gives the individual a sense of

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* Corresponding author: hgasiul@interia.pl

wholeness and comprehensibility of what is within himself or herself and in the world. This has already been pointed out by Schachter who created a two-factor theory of emotion (Schachter & Singer, 1962).

It should be explained that the author treats emotion in a holistic way, as a whole composed of four components: neurophysiological, expressive-social, experiential (feeling state) and motivational. When analysing the importance of language and culture, two of them play a special role: the experiential and expressive component. The activation of these components of emotion, by virtue of the principle of mutual arousal, leads to the activation of the others (Izard, 1977).

An emotion, as a complex set of changes (including physical and mental changes), which is a form of response to a situation or event (or generally a trigger) to which an individual assigns a certain meaning and significance, is something real and has an ontological status. At the same time, it is a certain cognitive construct, which is significantly influenced by broadly understood culture and individual experiences. The possibility for pointing at emotions as being something real is attested to by the evolutionary continuity and similarity of emotional expressions in animals and humans, as has already been demonstrated by Darwin. There is also ample evidence to suggest that the perception of certain fundamental emotions is something universal, independent of culture or nation. The recognition of emotions is a pre-linguistic ability, and words are simply a means of communicating an already formed perception. This is referred to in the so-called universality hypothesis. Certain common ways of perceiving emotions, independent of culture, are the result of similar relational patterns. Each emotion is characterised by a specific type of relational meaning, defined as a basic relational theme. For fear, for example, the main relational theme is facing a precarious existential threat, for shame – to fall below the personal ideal. The basic relational theme is in a way the result of the co-occurrence of the person–environment relationship, personal significance and appraisal processes (Lazarus, 1991, p. 147).

However, the evolutionary continuity does not explain the reality of human emotional life. Animals cannot use vocalisation regardless of emotional and behavioural situations. Appraisal (e.g., anxiety), understanding (e.g., the concept of danger) and behaviour are closely linked in animals (they form a unity). Concept–emotion–behaviour create a synthetic form of cognition and action (Perlovsky, 2009, p. 519). Meanwhile, humans are beings that create meaning, assign importance, but also discover them. As a result, in human beings the reality created by emotions is, in a way, anchored in the structures of meaning. Therefore, understanding human emotions requires a reference to the type of human nature. This type of nature is not only about the intrinsic qualities of being a person, but also about fulfilling these qualities only by interacting with others. As a result, this interaction with others contributes to the development of certain mental structures in the creation of which language plays a particular function.

Language is a fundamental ability of every person. People as such acquire concepts (ideas) through cognitive processes and language. The emotional centres in the cerebral cortex (see e.g., the analyses: Damasio, 2011; LeDoux, 2000) are closely linked to the centres of the limbic system, hence there is a kind of simultaneity of their influence on cognitive systems and language. As emphasised by Perlovsky (2009, p. 520), the emotionality of language is expressed in its sounds, which linguists refer to as a melody of speech or prosody (accent, vowel length, intonation). Everyday speech is usually

only slightly emotional, unless the individual deliberately induces an affective state. However, an appropriate level of emotionality is crucial for cognitive development. If language was not saturated with emotionality at all there would be no possibility of either motivational involvement in conversation or the development of language patterns (models). Simple cognitive processes, such as registering objects, can be developed independently of language. However, higher cognitive structures are developed on its basis, and this requires an emotional connection between cognitive and linguistic patterns. It is important to clearly stress here the important links between neural mechanisms, language and emotions, as well as the evolution of culture that shapes these links and gives them their special character (as cited in Perlovsky, 2009).

As early as in the 1930s, Benjamin Whorf and Edward Sapir argued that the language spoken by people affects their way of thinking. Although this was not a completely new approach – it was previously pointed out by philosophers such as Nietzsche – after it was criticised in the 1960s, particularly under the influence of Chomsky's analyses, recently there has been a return to this idea. Neuroscience research has contributed to this, among other things (as cited in Perlovsky, 2009).

Emphasising the importance of language is referred to in psychology as the Linguistic Relativity Hypothesis – LRH. Research on the meaning of language has been more frequent in the field of colour perception and naming. Although many earlier data indicated a lack of relevance of language in this regard, the latest data seem to suggest its very important role. As it turns out, the words people use to identify colours affect the ability to separate different colour categories. For example, one of many studies (as cited in Lindquist, Barrett, Bliss--Moreau, & Russell, 2006, p. 126) revealed differences in how speakers of different languages categorize specific instances of colour. The study was conducted among English speakers (11 basic colour terms), Russian speakers (12 basic colour terms) and Setswan speakers (five basic colour terms). The study revealed differences in colour categorisation (e.g., classification to the blue–green region), in the creation of a different number of colour groups and in the number of tiles placed in each colour group. Moreover, when the subjects were trained in colour differentiation and colour terms, these skills also led to a better discrimination of their wavelengths. The same seems to apply to emotions.

The study described above justifies the claim that the perception of both the emotions in the subject and those experienced by others depend on the concept of emotions shaped by language, culture and individual experience. Separate cultural contexts, caused by (among other factors) different language, cultural knowledge and activities in different contexts, have a different impact on the perception of emotions. The categories of emotions themselves are therefore fluid.

Barrett, Lindquist, and Gendron (2007) put forward the hypothesis that the context for the perception of emotions is precisely language. Language allows for the categorisation of emotions and gives an opportunity to infer them, if they can be clearly named. There is a similarity between language and assessing the emotions of another person excluded from the context in which that emotion is manifested. Words identifying emotions (related to the conceptual content) and currently available reduce the uncertainty that occurs in the recipient when registering most of the natural behaviour of others (here: facial expressions) and narrow their meaning, thus enabling quick and easy perception of emotions. Words have a great influence on the ability to categorise events or objects, facilitating their perception and thus allowing for better orientation in social reality.

The relationship between words and emotions is very complicated, however, neuroscience research provides some evidence of this relationship. The inferior frontal gyrus, extending from the Broca's area through the triangular and orbital parts, is part of a separate nervous system on the inferior frontal convexity. This part is responsible for the perception of emotions. Inferior frontal gyrus is considered to be the basis for cognitive processes and language, as well as the centre for the retrieval of conceptual knowledge. The very act of naming emotions inferred from the faces of others increases neuronal activity in the right inferior frontal gyrus and contributes to the reduction (lowering) of the activity of amygdala. The reduction of this activity can be treated as a reflection of the reduction of the ambiguity of the incoming information about the registered face.

2. Language as a Basis for Categorising Emotions

Languages differ in the number of terms used to describe emotions. Wallace and Carson, for example, indicate that the English language contains more than 2,000 words to describe emotions, although people use no more than a tenth of them. In Dutch, Hoekstra discovered 1,501 such terms. Boucher points to 750 names of emotions in Chinese from Taiwan and 230 in Malaysian. Lutz discovered 58 words that are used to describe the temporary inner states by the inhabitants of the Ifalik island (Pacific Atoll, Micronesia). An extremely low number of terms is used by people from the Chewong tribe (population of 300) who live in Malaysia – they only use seven terms to describe emotions (as cited in Russell, 1991, p. 428).

Levy, who studied the Tahitians and Newars from Nepal, has found that different communities have different cognitive models of emotion. There can be an excessive or deficient awareness of emotions. In Tahiti, for example, anger (*riri*) is an overdeveloped structure compared to other languages – it has 46 separate terms, while in English there are only a few (such as *rage*, *fury*, *irritation*, *annoyance*). On the other hand, the awareness of the emotion of sadness (*pe'ape'a*) in the Tahitian people is reduced – there is actually no concept of sadness; there is only a generic term that can be translated as a feeling of illness, worry or tiredness. This is not unique to Tahiti. Among the inhabitants of the Ifalik Atoll (often referred to as a peaceful community), the word *song* differs from other types of anger and the way that anger towards other societies is understood. The word *song* is not used to describe feelings about unpleasant or frustrating events; it is used to describe reactions to morally reprehensible actions. It is a pro-social term, which identifies activities that may disrupt the moral order or violate social values. However, Lutz (1998) adds that the word *song* also indicates a state in which a person cries, sulks, or does harm to himself, including an act of suicide. It can therefore encompass both anger and sadness.

When referring to the Ifalik culture, one can also stress the differences in the meaning of the term *fago* (as cited in Harré, 1998, p. 48; Lutz, 1998). People living in the Ifalik often use the word *fago*, which includes a class of judgments that take account of relations with someone else. They have a *fago* towards someone who is ill, towards someone who leaves their home, towards someone who dies or is dead, towards someone who is polite, kind (goodnatured) and socially competent. In English, the meaning of this emotion can include such states as compassion, love and sadness. In general, *fago* seems to express an opinion that someone deserves something. For example, the

sick person deserves our attention and sympathy, the dead person deserves our attention and grief over the passing of life, someone socially valued deserves our attention and recognition. Furthermore, *fago* also expresses an opinion that someone potentially lacks something, for example, a sick person lacks care, a person dies in the feeling that nobody will miss him or her, a socially competent person may be undervalued. *Fago* is neither a regret nor a sadness about something, rather it reflects the need for or rejection of satisfaction or dissatisfaction. The dimension of sadness that Lutz (1998) talks about is a kind of consequence of an assessment of the anticipation that someone lacks care or recognition or mourning for him/her.

In many languages, there are different "shades", nuances that in one word combine several emotional states, such as anger and sadness, shame and embarrassment (Japanese, Tahitian, Ifalik community, Indonesian, Newars from Nepal). The Javanese language uses a single term, *isin*, which encompasses shame, guilt, shyness and embarrassment; Pintupi (a group of Australian Aborigines) use a single term, *kunta*, which contains shame, embarrassment, shyness and respect. Examples are many. Not to mention the fact that in some languages it is difficult even to unequivocally point out to comparable terms – some languages may lack a concept of emotion as such altogether (data as cited in Russell, 1991, pp. 429–430).

It is becoming increasingly clear how important semantic background is for inferring emotions, even from facial expressions. At this point, it is worth mentioning the research on semantic dementia, which confirms that conceptual knowledge of emotions seems essential for the perception of emotions (Lindquist, Gendron, Barrett, & Dickerson, 2014). In general, the results of the research indicate that emotions are experienced and perceived in the medial and ventrolateral prefrontal cortex and anterior and mesial temporal lobe. In case of damage to the above mentioned brain structures, patients cannot infer the category of emotions that a given facial expression belongs to (the research concerned the ability of naming such emotions as anger, aversion, sadness, anxiety, and happiness). Previous studies by Lindquist et al. (2014) have indicated that a temporary deterioration in access to and use of emotional knowledge by healthy people results in a decrease in the ability to categorise emotions. It should be clarified that the research was experimental. The subjects were put in a state of the so-called semantic satiation (e.g., repeating the name of a given emotion 30 times weakens the ability to later read and name the emotion expressed in the photograph) or into the state of the so-called verbal over shadowing, consisting in repeating the name of an emotion other than the one expressed on the face. Therefore, inferring facial expressions and categorising given names of emotions requires the use of language, which seems to be something very fundamental. People with a damaged anterior temporal lobe cannot perceive anger, sadness and other emotions in other people's faces as separate emotions, although they are able to recognise affective valence, i.e. whether these emotions are positive or negative.

The above examples prove the difficulty of direct translation of the names (terms) of emotional states. Language is a result of a mentality, way of thinking, evaluation and many other conditions. However, it is not only the language that is important, but also the principles for its use. These principles include, among other factors, the standards in which emotions are expressed and properly felt. We recognise which words relate to emotions only as a result of the role they play in a given culture (see analyses: Harré, 1998). The above also applies to the accuracy of recognising emotions experienced by others.

The dialect theory of emotional communication indicates that lower accuracy in inferring the expression of emotions of so-called external groups results from their lesser similarity to a given cultural group in terms of style of expression (however, there is no significant research on vocal expression). The authors of dialect theory propose that the language of emotions be treated as universal. Different cultures, however, may express themselves in different dialects, which, in turn, make the recognition of emotions less accurate when one considers cultural differences or barriers. Even minor linguistic differences can lead to some confusion. Cultural differences in the expression of emotions are like dialects of more universal grammar of emotions (Elfenbein, Beaupre, Lévesque, & Hess, 2007).

For example, Lindquist et al. (2014) compared the perception of emotions that have linguistic equivalents by participants from the US and the Himba ethnic group (who have relatively little contact with people outside of their immediate communities and live in the Keunene region of Northwestern Namibia). The experiment consisted in the ability to recognize emotions shown in photographs. One group was provided with a set of emotion words and participants were asked to indicate which emotions fit the facial portrayals, while the other group was asked to recognise the emotions based on facial expressions and sort them freely. The results showed that there were some differences between the studied groups – the US participants categorised the supposed emotions rather aptly (both the groups of people who had been emotion words and those that were not), while people from the Himba group sorted the names of emotions and labeled face piles slightly differently. This study confirms, albeit not entirely, that both the cultural dimension and the universality of emotions are significant.

Research studies on the expression of 11 emotions conducted by Laukka, Neiberg, and Elfenbein (2014) in five English-speaking national groups (i.e. residents of the USA, Australia, India, Kenya, and Singapore) prove that there are differences in the ease and precision of recognising the expression of emotions – members of a given community differed from each other, despite their linguistic similarity. This also confirms the relevance of the dialect theory.

However, the difficulty of direct translation of meaning (semantics) and label for a given emotion does not mean that people from different socio-cultural circles do not experience the same types of emotions. Insightful analyses by Wierzbicka (1999a), carried out on the basis of linguistic and ethnographic research, indicate, among other things, that all languages include the word *feeling*, in all languages some feelings are treated as *good* and some as *bad*, all languages contain emotional exclamations and emotional terms, in all languages feelings can be described as bodily images (depictions), and all languages include substitute (alternative) grammatical constructions allowing for the description of feelings based on recognition (Wierzbicka, 1999a, p. 36). According to Wierzbicka, patterns of emotions and the ways of their interpretation are the result of culturally conditioned emotional scripts (see analyses in Jasielska, 2013, p. 116 et seq.). The literature presents analyses of the significance of language in the creation and expression of emotional states (see e.g., Gawda, 2007; Jęczeń, 2008), the significance of cognitive processes (e.g., Maruszewski & Ścigała, 1998), as well as proposals for solving difficulties in translating the names of emotional states (see e.g., Rowiński, 2008; Wierzbicka, 1999b) and for organising approaches to the analysis of the role of language (e.g., Jasielska, 2013).

3. Examples of Interpretation of the Relationship Between Language and Emotion

Nowadays, the role of the semantic layer in information processing is increasingly stressed. It is not enough for the information alone to be provided by an event, but it is important to draw conclusions about it from our knowledge of the world. The role of language is particularly important in creating meaning and interpretation of information, but the relationship between language and emotion is very complex – it can be described as mutual determinism. For example, according to Shanahan (2008), understanding the importance of language requires a departure from treating it solely as a cognitive structure responsible for providing meaning.

Recognition of the contextual and semiotic dimension of language leads to emphasizing the role that emotions play in the communication process. The treatment of language as a basis for giving meaning requires that thinking is considered to be an intersubjective phenomenon. Intersubjectivity can only be understood by reference to the emotional dimension of thinking. Therefore, emotion is always critical in the creation of meaning. Shanahan (2008) points out explicitly that emotion is a kind of assessment of the stimulus by the organism in order to choose the right type of behaviour as a form of response. Emotion is a kind of language amplifier that changes the meaning of an object or situation.

It seems that this interpretation can be accepted, although there are also many criticisms in this regard. Salvatore and Venuleo (2008) had already pointed out some weaknesses in such an interpretation. Firstly, the subject does not come into contact with a single, separate object. The subject does not so much meet the object, but rather is immersed in the dense network of potential relationships created by the surrounding reality. This means that the registration of an object requires a kind of exclusion and separation from the whole context experienced by the subject. Two people involved in the same field of experience but having different positions, will be able to create different objects. Secondly, it follows from the above that the perception of a stimulus is achieved through meaning (it does not happen before the meaning has been assigned); the mediation of meaning is intrinsically linked to the selection and evaluation of the pattern of relationships to which we refer. Finally, the creation of meaning is embodied in social activity and shaped and directed in accordance with the requirements of the regulation of such social activity. In other words, it is the result of specific positioning. From this perspective, creating meaning is always a social and discursive process.

According to Harré (1991, pp. 142–143), when interacting with others, it is important for the subject to take different positions within the socio-cultural context. For Harré, emotion is the exploration of some kind of social action. Emotions do not exist as isolated from this arrangement. There are only different ways of emotional acting and feeling, through which one's judgment, attitude, opinion is revealed in their own, physical way. For example, anger is a noun, but this noun does not describe a person or what they have, but refers to his or her condition. This doing can take the form of physical sensation, of which only a socially developed person is aware. For example, being angry is considering anger in a given situation as an expression of a moral position. Shame and embarrassment are a matter of culture and language – shame is the result of a serious breach of the social contract (breach of convention and moral guilt); embarrassment is a delicate breach of convention (custom, agreement).

However, the creation of meaning is not just a product of positioning; rather, it is the way in which such positioning attempts to reproduce itself in the dialectic space of social exchange. The creation of a sign is not a simple text-creating operation, but an act of speech; the act of communication is an integral part thereof and is carried out by a given system of activities. Therefore, it is not possible to look at language without taking into account its perlocutionary value, connotational function, which lead to a certain action, affect the listener, the expectations and experience of a given reaction, etc. We use language in order to have a relationship with others and to act through that relationship in some way. Thus, language is an argumentative and rhetorical activity aimed at strengthening someone's vision of the world (as cited in Salvatore & Venuleo, 2008).

From the perspective of physiological indicators and body language, emotions are expressed as something that exists objectively. However, by registering these indications, the observer assigns a certain meaning to them and tries to infer what they demonstrate – in this case, we are dealing with the inclusion of the subjective perspective of a given observer – the emotion starts to occur, but in an ontologically subjective way (it depends on the perceiver). According to the philosopher John Searle (as cited in Barrett, 2012, p. 417), people create ontologically subjective entities as part of social reality by imposing on objects (and people) functions that are not based solely on the nature of the physical properties of these objects. According to Searle, object X matters as having a certain status Y in a particular context C. This status allows for the indication of a specific function (or functions) of X, which does not result from its physical structure. For example, if a plant is seen as a flower or weed, this perception creates a meaning about the value of the plant – the flower triggers a readiness to admire, whereas the weed triggers readiness to reject. Then a flower or weed determines the possibility of communication between people, defines a form of some social influence on the other person. However, there must be a kind of consensus in people's minds about this flower or weed – that one is something positive and the other negative. It can be said that ontologically subjective categories depend on collective intentionality regarding the way they exist. In a way mediated by meaning, physical properties acquire the ability to perform certain functions that are not directly related to the very nature of these objects. People create ontologically subjective categories that fulfil certain functions, which help to create the social life. The same applies to emotions. The inflow of impressions from the world (e.g., light, sound) combined with impressions from one's own body creates an experience of emotion or perception of emotion when it is given meaning – when a form of categorisation occurs. By categorising impressions, they acquire functions that do not arise spontaneously from these impressions, but from the addition of information from previous experiences. Needless to say, this is a very fast and immediate process.

4. Culture as a Factor Creating a Type of Relationship Between "Self" and Emotions

These briefly signalled analyses inevitably lead to the need to consider the social context as important for understanding the relationship between the language used and emotions. However, the very specificity or nature of emotions must also be taken into account. Nowadays, the fact that emotions are closely linked to the subjective "self" is rarely questioned. It can be said, referring to some authors (e.g., Lambie &

Marcel, 2002), that there is a close relationship between the "self" and emotion and that this relationship can be perceived as bidirectional. An emotion affects the "self", and the "self" is capable of confirming, strengthening or changing emotions. Emotion always entangles the "self" and leads to its particular perception and organisation of the "self" in a form that allows it to respond in a specific situation.

As pointed out by Greenberg (as cited in Hermans & Hermans-Konopka, 2010, p. 254), emotions are the basis for the construction of the *self* and the key determinant of the organisation of the "self". In the context of Hermans' dialogical theory of the "self", emotions are treated as a temporary position that the "self" takes in relation to various forms of reality. However, emotions themselves can also become a way of assuming a position (e.g., I place myself as someone happy). It should also be emphasised that the way emotions are experienced is influenced not only by the previous history of placing oneself in different positions of the "self" but also by the context in which the individual participates – a context that is mainly interpersonal. Emotions are not only a part of the "self–other" relationship, but also a part of the history of the "self–me" relationship and previous contexts. Because of this very close relationship between emotion and the "self", the style (character) of the mentality will be shaped by existing in a given culture. Language as a mental structure is particularly important in culture, as has already been substantiated above. For example, the longitudinal studies carried out by Nafstadt et al. (as cited in Hermans & Hermans-Konopka, 2010, p. 293) indicate huge changes in the number of terms used in connection with neoliberal ideology and consumerism. Between 1984 and 2006, the number of articles in the press containing the words *buy*, *purchase* and *sell* increased by 63%. The use of the word *customer* has increased by 46%, the word *consumer* by 45%, *pressure to buy* by 36% and the word *greedy* by 86%. There was also a 44% increase in the use of the words *I*, *me*. On the other hand, the use of words such as *solidarity* (60%), *belonging* (68%), *social welfare* (60%), *sharing*, *community*, *common* (30%) has decreased. The use of the word *gratitude* has decreased by 27%. An interesting change has been observed in the frequency of the use of the words *give* (down 23%) and *receive*, *take* (down 47%). Finally, the use of the word *restraint* has reduced by 60% and *modesty* fell by 66%. However, the use of the word *want more* as something somewhat opposed to *satisfied*, *grateful* has increased enormously – by as much as 187%. The above proves the fundamental importance of mental changes resulting from cultural changes and its impact on the use of terms that, as it were, adequately reflect the emotions experienced in such cultural contexts. Culture not only imposes ways of expressing the emotions we experience, but at the same time indicates in which relationships and how we should experience them. For example, Averill emphasises the importance of the so-called emotional position, which can be analysed in terms of privileges (e.g., a person in love can engage in sexual behaviour with another person), limitations (e.g., lovers are to be honest with one another and discreet), responsibilities (what people should feel or do, e.g., in a state of mourning they should take certain related actions), initial requirements (e.g., most social positions can be held by people of appropriate age, gender, and social status; as cited in Hermans & Hermans-Konopka, 2010, pp. 56–57).

With regard to the different ways in which emotions are categorised in different cultures, it can be said that the ways of reacting, which have been mentioned earlier, often lead to the need to take into account the different ways in which the sense of "self" is formed. In the

Ifalik culture, there is no distinction between "self" and others. The connection with the feelings and thoughts of others is natural in that culture, and therefore its representatives use the word *we* rather than *self*, for example, instead of saying *I would like to do something with you* they prefer to say *we should do it together*. This is not unique to this culture.

The link between "self" and emotions is visible when considering collectivist and individualist cultures. Within collectivist cultures, for example, the "self" in Confucianism is somewhat suppressed, as the ultimate goal is to realise oneself through self-education towards harmonious relationships. In African cultures, the "self" includes ancestors; it includes both humans (e.g., grandparents) and the non-human world, both of which are treated as being part of the community.

In individualistic cultures, youth is a period when a person must strive to achieve an identity that enables him or her to function independently in different social groups, outside his or her own family (failure triggers an identity crisis); in collectivist cultures, the growth in adolescence is about strengthening dependency needs in hierarchically ordered family relations, and the ideal is to be like others, and not to be different. The first words of young Chinese children are ones that relate to other people; in the United States, on the other hand, children begin with learning words about objects. In their drawings, children from Cameroon portray themselves as being alone. And when they draw pictures of their families, they portray themselves as smaller than children from Germany do when they draw same kinds of pictures. In Japan, feeling good is more related to interpersonal situations (such as a feeling of friendship), while in the U.S., feeling good is more often associated with interpersonal distance – such as feelings of superiority or pride. In the United Kingdom, happiness is positively linked to a sense of independence, while in Greece such a link is considered to be negative. Mao states that the word *individualism* is often translated in China as *gèrén zhǔyì*, with negative rather than positive connotations, such as "self-centered" or "selfish" (2003, data as cited in de Mooij, 2014, p. 206). In the European languages, we have a reflection of a mentality that emphasises its own distinctiveness from others. As a result, the European is more focused on the states he or she is experiencing and on safeguarding his or her own subjectivity – integrity.

The division into collectivist and individualist cultures outlined above explains the disparity in the development of different forms of the "self" – the "interdependent self" or "independent self" respectively. Many analyses show (as cited in Adams, 2012, p. 184) that people with an autonomous construction of "self" tend to focus on the characteristics of people and objects as basic units of reality. It also leads to treating oneself and others as a whole abstracted from the context. Therefore, there is a dominant tendency among such people to describe oneself in terms of properties and disposition, as well as promotion-focusing through strengthening oneself and emphasizing one's uniqueness. Individual choices and preferences and a kind of tendency to cultivate self-esteem, often through attributive distortions in favour of oneself, are of crucial importance.

All this is also reflected in emotional life. The formed "independent self" leads to the domination of experiencing and expressing oneself by emphasizing the possession of positive qualities and being separate. For example, research by Kitayama, Markus, and Kurokawa (2010) shows the relationship between the "independent self" and emphasizing the personal meaning of emotional experience (more than normative or consensual) and the positive evaluation of self-awareness emotions (i.e., pride) that signal personal fulfilment.

In the case of the "interdependent self", the psychological reality is different. The "interdependent self" is a kind of integration into context and community. People emphasise that they do not exist in isolation, but rather that their actions reflect the importance of others in the community (the actions of some have consequences for others). The predominant experience here is that of experiencing oneself as someone in close relationships with others. The importance of given events, situations, objects, etc. is a result of taking into account the relations between objects, events and situations, which leads to a stronger sensitivity to discovering the properties of a given situation and not to focusing on one's own characteristics or dispositions. Therefore, taking into account the context promotes dialectical reasoning styles and tolerance of logical contradictions. Moreover, the general attitude in the case of the "interdependent self" contributes to the focus on preventing something by meeting commitments or standards and thus leading to the discovery of domains of life that will need to be improved.

Such a construction is also connected with paying less attention to the expression of personal qualities, and more to the process of accomodation and adaptation to the environment itself. Therefore, it will be important to possess information that indicate one's own shortcomings or failures in meeting obligations and standards. This motivation to prevent defects (more than to promote self-empowerment) is particularly evident in the tendency to make an increased effort to carry out tasks after tasks after failure (more so than after success).

The "interdependent self" is associated with tendencies to experience and express emotions, which emphasise adaptation to the interpersonal context. For example, the studies by Mesquita (2001), Oishi, Diener, Scollon, and Biswas-Diener (2004) indicate the relationship between the "interdependent self" and the predominance of emphasis on the external, "objective" or consensual meaning of emotional experience. Moreover, feelings that signal one's own forms of imperfection are evaluated more positively. Self-awareness emotions, such as guilt, triggered by violations of social norms or failure to meet social obligations, are valued higher in collectivist societies than in individualistic ones (see Eid & Diener, 2001). Intercultural differences seem to be less important in terms of other emotions that arise from external interactions (e.g., anger, sadness).

Conclusion

In conclusion: on the one hand, the obvious foundations of the construction of human nature (biological background, somatic properties, personality structure) are crucial for understanding emotions, however, the cultural context and linguistic system is a special form of superstructure. In this case, the importance of the cultural context should be reduced to the dimension of the created cognitive-social-experiential structure that allows for the development of a given style of perception of reality and oneself. Emotions are closely linked to the "subjective self", but the way they are experienced depends fundamentally on the system of developed meanings in which language plays a fundamental, crucial role. In other words, the developing mentality of a given type and the ability to categorise emotions in a given style, through the use of a given language, makes it possible to infer the meanings attributed to the emotional states experienced.

One final reflection. The role of language in strengthening emotional states alone cannot be overlooked. The relation between one's inner construction and the outwardness of

the type of expression reinforces the experienced emotional states. Speech, as an external form of communication through language, reinforces the emotional states experienced. Some languages are more expressive, some are less. For example, studies and research by Guttfreund (1990) on bilingual people (English–Spanish) indicate that, regardless of whether the first language was English or Spanish, the subjects manifested their emotions more intensely when using Spanish during the interview.

The human voice is an important source of emotional information through measures such as acoustic tone patterns, intensity, voice quality and duration. In the 18th century, the Russian writer Mikhail Lomonosov observed that the front vowels (like *i*) are preferred when tender words are pronounced and the back vowels (like *o*) when describing matters that trigger fear or sadness. The experiments carried out by Rummer, Schweppe, Schlegelmilch, and Grice (2014) aimed to show the relationship between spoken vowels and emotional states. Subjects in a positive mood produced more words containing *i*, a vowel involving the same facial muscles that is used in smiling, i.e. the zygomaticus major muscle. Subjects in a negative mood, on the other hand, produced more words containing *o*, a vowel involving the orbicularis oris muscle. The above would suggest that the relationship between vowels and mood is related to, or modified, by orofacial muscle activity. The cartoons also seemed to be rated as funnier by subjects articulating the *i* vowel. All of this is to some extent in line with Darwin's earlier hypothesis of facial feedback and with research carried out by Zajonc, Murphy, and Inglehart (1989), who experimented with German speakers (the participants were asked to read stories that contained higher or lower frequency of the vowel *ue* – u-umlaut).

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PIOTR SZYDŁOWSKI*
Institute of Psychology
Cardinal Stefan Wyszyński University in Warsaw

THE MEASUREMENT OF THE ANALYTICAL STYLE OF INFORMATION PROCESSING. A PRELIMINARY VERIFICATION OF THE TOOLS: COGNITIVE REFLECTION TEST (CRT) AND BASE-RATE TASKS TEST (BRT)[1]

Abstract

The article presents the preliminary verification of two instruments measuring the analytical style of information processing: Cognitive Reflection Test (CRT) by Frederick and Base-Rate Tasks (BRT) test by Kahneman and Tversky. The tests' reliability was analysed, and their validity was preliminarily verified by looking for correlations of their results with the results of other instruments measuring individual characteristics of cognitive functioning, as well as differences between sexes and differences related to university faculties. The participants were 374 students, including 174 males and 200 females representing different faculties. The obtained results confirmed the instruments' reliability (CRT: Cronbach's α = .74; BRT: Cronbach's α = .80). The results' correlation with the results of another instrument measuring the analytical style – the Intuitiveness–Rationality (IR) questionnaire – was weak. The obtained data were similar to those found in the research by Pennycook, Cheyne, Seli, Koehler, and Fugelsang (2012), which proves the correct adaptation of the tests. Based on the conducted analysis, differences between sexes were shown (stronger analytical style was found in males), as well as differences connected with the choice of a university course (stronger analytical style was found in students of technical sciences and psychology).

Keywords: individual differences, dual-process theories, cognitive styles, analytic style, intuition

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*Correspondence address: ksiadzpiotrszydlowski@gmail.com

1. Introduction

In the last two decades, a lot of research in the field of cognitive psychology has been devoted to two ways of solving problems and making decisions related to two different information processing systems (Evans, 2008, 2010; Evans & Stanovich, 2013; Kahneman, 2003; Stanovich, 2009, 2011). These systems are an intuitive system (System 1) and an analytical system (System 2; Evans, 2010). Differences in the word tags used for them reflect different specific characteristics given by different authors. And so, apart from the terms *intuitive* and *analytic* (Hammond, 1996), the following terms are used: *implicit* and *explicit* (Reber, 1993), *experiential* and *rational* (Epstein, Pacini, es-Raj, & Heier, 1996), *heuristic* and *systematic* (Chaiken, 1980), *heuristic* and *analytic* (Evans, 2006), *associative* and *rule-based* (Sloman, 1996); *reflexive* and *reflective* (Lieberman, 2003), *intuitive* and *rational* (Kolańczyk, 1999; Kolańczyk & Świerzyński, 1995).

Processes of type 1 are evolutionarily older and characterized by automaticity (they become activated as soon as stimulation appears), with speed, low amount of the energy needed, and thus: little effort needed to process information, relation with unconsciousness and contextual thinking, and a direct link to emotions and implicit memory. They are characterised by little information processing capacity but do not require a lot of energy. They do not allow new problems as well as those requiring a high degree of accuracy to be solved. Due to their speed, they are not very sensitive to disturbances caused by current thoughts and actions, require little concentration and are not perceived by a person as unpleasant.

Type 2 processes are: relatively slow, awareness and reflection-related, which requires a lot of energy to process information, controlled, linked to explicit memory, based on abstract thinking and not directly linked to emotions. They enable a wide range of new and original problems to be solved and decisions to be taken, ensuring high accuracy of solutions. However, they involve considerable energy costs, which means that they are slower to act, tend to be easily disrupted by other thoughts and actions, and require a high level of concentration, which a person often perceives as unpleasant.

Both systems affect each other and in the light of the theory of two systems, a compromise is reached between them; this is the energy compromise that a person makes to solve a problem in a way that is right for him or her. If a person devotes more energy, he or she will be guided more by analytical thinking (Toplak, West, & Stanovich, 2014).

The development of the theory of two systems has contributed to the development of research in the field of differential psychology, especially concerning cognitive styles. The tendency to use System 2, which is subject to clear individual differentiation, is described as an analytical style. Numerous studies indicate that individual differences concerning the involvement in Type 2 processes are revealed in the course of reasoning and decision-making tasks, regardless of cognitive abilities (e.g., De Neys & Glumicic, 2007; Stanovich & West, 1998, 2000; Toplak, West, & Stanovich, 2011, 2014). Several studies have been carried out so far, which have found, among other things, positive relations, e.g., between analytical style and openness to experience (Browne, Pennycook, Goodwin, & McHenry, 2014), analytical style and creativity (Barr, Pennycook, Stolz, & Fugelsang, 2014). A negative correlation of the analytical style has been demonstrated, for example, with moral values (Pennycook, Cheyne, Barr, Koehler, & Fugelsang, 2014a; Rozyman, Landy, & Goodwin, 2014), moral judgments (Paxton, Ungar, & Greene, 2012; Pennycook, Cheyne, Barr, Koehler, & Fugelsang, 2014a), as well

as with religiousness (Gervais & Norenzayan, 2012; Pennycook, Cheyne, Barr, Koehler, & Fugelsang, 2014b; Pennycook, Cheyne, Koehler, & Fugelsang, 2013; Pennycook, Cheyne, Seli, Koehler, & Fugelsang, 2012; Shenhav, Rand, & Greene, 2012; Pennycook, Cheyne, Koehler, & Fugelsang, 2013).

The research presented here aimed to test the usefulness of two types of tasks for measuring the analytical style of information processing: tasks adapted to the Polish population from the Cognitive Reflection Test (CRT; Frederick, 2005) and tasks used by Kahneman and Tversky in Base-Rate Tasks decision-making research (BRT; Kahneman & Tversky, 1973; De Neys & Glumicicic, 2007). Firstly, the reliability of the tests was assessed. Secondly, their validity was preliminarily verified by looking for correlations of their results with the results of other instruments measuring individual characteristics of cognitive functioning, as well as differences between sexes and differences related to the faculty.

2. Method

2.1 Participants and Procedure

The participants of the study were 374 students (age: $M = 21.7$ years, $SD = 1.9$), including 174 males and 200 females. The study participants were full-time students and represented the following areas of study: technical (students from a Technical University and Fire Service School, both active service and civilian students), social (students of pedagogy, psychology and journalism) and physical culture (students from the University of Physical Education).

The participants filled in a battery consisting of the tools described below and a fiche (sex, age and type of university). The tools were arranged in the following order: CRT test, IR questionnaire, Kahneman and Tversky (BRT) task set. The study was carried out in groups.

2.2 Tasks

Cognitive Reflection Test (CRT). The *Cognitive Reflection Test* (CRT; Frederick, 2005; Gervais & Norenzayan, 2012; Pennycook, Cheyne, Seli, Koehler, & Fugelsang, 2012; Shenhav, Rand, & Greene, 2012) contains three quasi-mathematical problems that give the subjects a hidden desire to deal with them quickly and thoughtlessly, but which does not lead to a correct solution. For the correct answer, the examined person receives one point. A sample task is as follows:

"A baseball bat and a ball cost together PLN 11. The baseball bat costs PLN 10 more than the ball. How much does the ball cost? _____"

In this task, the answer *PLN 1* comes to mind intuitively, but it is not correct. According to the test assumptions, the Type 1 process caused the choice of intuitive response. To solve the problem correctly, the Type 2 process needs to be activated - it enables going beyond the intuitive thought and starting mathematical operations aimed at a correct solution (PLN 0.50). This marks the analytical style.

Kahneman and Tversky's (BRT) Tasks. The study used a set of problems from the area of Kahneman and Tversky's decision-making (BRT; 1973; De Neys, & Glumicicic,

2007), which lead to a conflict between an "ingrained" stereotype about e.g., sex or profession and information about objective probability. Here's an example:

In a study 1000 people were tested. Among the participants there were four men and 996 women. Jo is a randomly chosen participant of this study.

Jo is 23 years old and is finishing a degree in engineering. On Friday nights, Jo likes to go out cruising with friends while listening to loud music and drinking beer.

What is most likely?

a. Jo is a man

b. Jo is a woman

A good answer to the above task requires the use of logic and probabilistic thinking. However, the task has been constructed in such a way as to evoke intuitive thinking, which, as more heuristic, conflicts with the principles of probability. Type 1 Processes are automatic and fast, so the first look at the problem imposes an intuitive answer (Jo is a man), i.e. stereotypical. Type 2 Processes require more energy and involve consideration of a greater amount of data the task provides. In this case, it is necessary to pay attention to the number of people of a given sex, and thus to move towards probability thinking and to go beyond the stereotype (Jo is a woman). The principles of logic and probability characterise the analytical style.

In addition to the tasks where, as in the example above, there is a conflict between stereotype and logic (IBRT – Incongruent Base-Rate Tasks), the set includes two other types of problems: those where the stereotypical response is identical to the probability response (CBRT – Congruent Base-Rate Tasks), and those where no stereotype occurs (NBRT – Neutral Base-Rate Tasks).

An example of CBRT is the following task:

In a study 1000 people were tested. Among the participants there were 995 who buy their clothes at high-end retailers and five who buy their clothes at Wal-Mart. Karen is a randomly chosen participant of this study.

Karen is a 33-year-old female. She works in a business office and drives a Porsche. She lives in a fancy penthouse with her boyfriend.

What is most likely?

a. Karen buys her clothes at high end retailers

b. Karen buys her clothes at Wal-Mart

"In a study 1000 people were tested. Among the participants there were five who campaigned for George W. Bush and 995 who campaigned for John Kerry. Jim is a randomly chosen participant of this study.

Jim is 5 ft and 8 in. tall, has black hair, and is the father of two young girls. He drives a yellow van that is completely covered with posters.

What is most likely?

a. Jim campaigned for George W. Bush

b. Jim campaigned for John Kerry"

The applied set consists of 18 tasks (six of each type, arranged randomly). An indicator of the analytical style is the resistance to the stereotype and use of logic and probability thinking in IBRT problems (the more correct answers, the greater the intensity of this style). NBRT problems, on the other hand, can be considered as a measure of cognitive capacity; solving them correctly requires the use of the principles of logic and probability in a situation that is free from the distorting influence of intuitive think-

ing. If the examined person is unable to solve such tasks, then his/her cognitive style should not be evaluated (e.g., Pennycook, Cheyne, Seli, Koehler, & Fugelsang, 2012). Therefore, NBRT tasks can be treated as a kind of control scale. The CBRT tasks are buffer tasks.

Questionnaire Intuitiveness–Rationality (IR). The Intuitiveness–Rationality Questionnaire (IR; Kolańczyk & Świerzyński, 1995) is a tool for assessing the preferred way of thinking: intuitive vs. rational The IR questionnaire is a reliable and accurate tool for measuring the intuitive style, therefore it was used to assess the accuracy of the CRT test and the Kahneman and Tversky task set.

An example of a questionnaire item is as follows:

"I get to know someone much better when I do not know anything about him or her before and I just sense him or her myself."

The task of the examined person is to respond to the statement and choose answers on a scale from 1 to 4, where 1 means *definitely yes*, and 4 means *definitely not.* The overall result, which is an indicator of rational style, includes all items. Part of the positions has inverted scoring. The higher the questionnaire score, the more intuitive the examined person is.

3. Results

3.1 Cognitive Reflection Test (CRT)

The test turned out to be difficult for the respondents: the average score was 1.17 (with a possible maximum of 3.0), the difficulty rate was 40% (the ratio of the number of points obtained by all the respondents to the number of points possible to obtain). The analysis of the frequency of good solutions showed that over 40% of the respondents did not give a single correct answer, while all tasks were solved correctly by just over 20%. For CRT the α-Cronbach coefficient was calculated, this was 0.74.

Due to the data found so far in the literature indicating sex differences in cognitive styles, the CRT results of men and women were compared, expecting the former to be higher. Due to the nature of the distributions received, two categories were created: 0 points (all three incorrect answers) and 1-3 points (at least one correct answer). Table1 compares the frequency of these response categories in men and women.

Table 1
Percentage of correct response in CRT for women and men

No. cor. resp.	Women $N = 200$		Men $N = 174$	
	Frequency	%	Frequency	%
0	109	72.3	45	45.8
1–2–3	91	27.7	129	54.2

Note. No. cor. resp. = number of correct answers; % = percentage of correct answers.

Table 1 shows that men more often gave correct answers than women. This difference was found to be significant $\chi^2(df = 1) = 31.50, p < .001$. The ϕ coefficient calculated from Table 1 was: $\phi = 0.29, p < .01$, which indicates a moderate strength of the relation between the analysed variables as well as the fact that men use an analytical style of thinking more often than women. Frederick (2005) also reported the existence of important and significant sex

differences (the difference in the correct responses, as in this study, was over 50 per cent in favour of men). Replicating studies were conducted by Toplak, West, & Stanovich (2014) and confirmed that men more often gave correct answers.

Many existing data also indicate a link between cognitive style and personal interests. Such a relation has been found, for example, regarding field dependence-independence (Matczak, 2007), which is clearly related to the globality-analyticity dimension (cf. e.g., Nosal, 1990). More analytical style can be expected from those with interests in science and less intense from those with humanistic and social interests. The next analysis, therefore, compares the results in CRT of students of seven different faculties. The results are presented in Table 2.

Table 2
Percentage of correct answers in CRT versus field of study

	AWF		Pol		Psych		Jo		Ped		FFs		FFc	
n	69		37		40		51		52		95		30	
Nga	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
0	45	82.1	13	62.3	7	40.0	27	66.7	42	92.3	11	31.6	9	56.7
1–2–3	24	17.9	24	38.7	33	60.0	24	33.3	10	7.7	84	68.4	21	43.3

Note. Nga = number of good answers; Freq. = frequency; % = percentage of correct answers; AWF = University of Physical Education; Pol = Technical University; Psych = psychology; Jo = journalism; Ped = pedagogy; FFs = fire fighting (firefighters); FFc = fire fighting (civilians).

It turned out that students of fire fighting (firefighters and civilians) and psychology have the highest frequency of good answers, which means that they are more analytical. The lowest percentage of correctness was found in the case of students of pedagogy and at the University of Physical Education. These differences were found to be significant: $\chi^2(df = 6) = 98.75$, $p < .001$. The strength of the relation between the analysed variables measured by Cramer's **V** statistics is average, **V** = .51, and indicates that there is a clear link between the analytical style and the faculty. Students of technical sciences and psychology are guided by a more analytical style of thinking. Therefore, the second part of the conclusion that a greater increase in analytical style can be expected from those with interests in science and less from those with humanist and social interests is in a clear contradiction with the expectations drawn from previous studies mainly on the field dependence-independence. Perhaps this should be explained by the differences between the two dimensions. Although there is a similarity between them, one can also point out an important difference – field dependence-independence mainly describes individual differences in perception, the analytical character measured by CRT determines the features of thinking. In the next analysis, a relation between the CRT test and the IR questionnaire was expected, which is a tool constructed to measure the dimension of cognitive style intuitive-rationality for Polish groups and is characterized by high reliability and accuracy. Demonstrating such a link would be in favour of the relevance of the CRT, so for its examination, the results were correlated with those of the IR questionnaire. The Pearson coefficient *r* turned out to be insignificant and was .05, which is contrary to expectations.

3.2 Kahneman and Tversky's (BRT) Tasks

Neutral tasks (NBRT). As has already been said, NBRT problems are treated as a measure of cognitive ability, so the inability to solve them would be grounds for not taking a person's results into account when analysing cognitive style. However, there was no one in the study group who would not solve at least one task correctly, 70% of the respondents gave correct answers in four to six tasks. On this basis, it was decided not to eliminate any person from further analysis. The results of groups differing in sex were then compared. These are presented in Table 3.

Table 3
Percentage of relevant responses in CRT for women and men

	Women $N = 200$		Men $N = 174$	
Nga	Frequency	%	Frequency	%
1–3	67	33.5	44	25.3
4	45	22.5	37	21.3
5–6	88	44.0	93	53.5

Note. Nga = number of correct answers; % = percentage of correct answers.

Based on the above results, it turned out that women and men do not differ in their cognitive abilities $\chi^2(df = 2) = 3.89$, $p < .05$. This result is consistent with the literature. Small differences were found when comparing the results of people studying different faculties, as shown in Table 4.

Table 4
Percentage distribution of correct answers in NBRT in individual university faculties

	AWF		Pol		Psych		Jo		Ped		FFs		FFc	
n	69		37		40		51		52		95		30	
Nga	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
1–3	23	33.3	11	29.7	5	12.5	19	37.3	23	44.2	20	21.1	10	33.3
4	21	30.4	3	8.2	5	12.5	11	21.6	13	25.0	23	24.2	6	20.0
5–6	25	36.3	23	62.1	30	75.0	21	41.1	16	30.8	52	54.7	14	46.7

Note. Nga = number of correct answers; Freq. = frequency; % = percentage of correct answers; AWF = University of Physical Education; Pol = Technical University; Psych = psychology; Jo = journalism; Ped = pedagogy; FFs = fire fighting (firefighters); FFc = fire fighting (civilians).

The most correct answers were given by students of psychology and Technical University, followed by fire fighting students $\chi^2(df = 12) = 33.23$, $p < .01$. The strength of the relation between the analysed variables measured by Cramer's V statistics is V = .22, $p < .01$ and indicates a weak relation between cognitive ability and the faculty.

Tasks with stereotypes (IBRT). As we remember, the IBRT is the right part of the test to measure cognitive style. To estimate the reliability of the test, the Cronbach coefficient α for IBRT was used, which is .80, and indicates high internal compliance. Analyses of gender differences were also conducted. The results are presented in Table 5.

Table 5
Percentage of correct responses in CRT for women and men

	Women $N = 200$		Men $N = 174$	
Nga	Frequency	%	Frequency	%
0	89	76.3	48	66.6
1–6	111	23.7	126	33.4

Note. Nga = number of correct answers; % = percentage of correct answers.

It turned out that men reveal analytical style slightly more often than women – $\chi^2(df = 1) = 11.46$, $p < .01$. However, the strength of the relationship between the analysed variables (sex and percentage of relevant responses) measured by the ϕ coefficient is weak and amounts to $\phi = 0.17$, $p < .05$. Further analyses compared the correctness of answers given by students of different faculties.

Table 6
Percentage of correct answers in IBRT vs. the field of study

	AWF		Pol		Psych		Jo		Ped		FFs		FFc	
n	69		37		40		51		52		95		30	
Nga	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
0	26	81.7	8	59.9	11	52.9	23	79.1	31	96.9	28	67.6	10	68.9
1–6	43	19.3	29	40.1	29	47.1	28	20.9	21	13.1	67	32.4	20	13.1

Note. Nga = number of good answers; Freq. = frequency; % = percentage of correct answers; AWF = University of Physical Education; Pol = Technical University; Psych = psychology; Jo = journalism; Ped = pedagogy; FFs = fire fighting (firefighters); FFc = fire fighting (civilians).

It turned out that the field of study significantly differentiates the students results $\chi^2(df = 6) = 20.70$, $p < .01$. The strength of the relation measured by the Cramer's V coefficient indicates the existence of a clear relation and dependence between the analytical style and the faculty in IBRT (V = .23, $p < .01$). Students of psychology, Technical University and fire fighting gave the most analytical answers. Thus, mainly students of technical sciences and psychology demonstrate the analytical style. As in previous analyses regarding CRT, the relatively high performance of psychology students is not in line with expectations.

As mentioned earlier, the use of an IR questionnaire in the research was intended to check the relevance of the IBRT task set. Average IR correlations were expected, which would be a strong argument for IBRT accuracy. It turned out that, as expected, IBRT and IR results correlated positively with each other, but the strength of the relation is very low – the Pearson coefficient r was only .12. A moderate correlation of IBRT with NBRT, at .49, may indicate a certain saturation of tasks that measure the analytical style

of cognitive skills. In the Pennycook, Cheyne, Selie, Koehler, and Fugelsang studies (2012), the strength of the relation was slightly less, with the Pearson coefficient *r* of .32.

3.3 Cognitive Reflection Test (CRT) and Kahneman and Tversky's Tasks

Recent analyses are intended to demonstrate a relation between CRT and IBRT, which would indicate the similarity of the constructs examined (these are the tools to measure the analytical style), but no relation between CRT and NBRT is expected. Such a relation may suggest that the tests used can measure separate constructs, so at the end of the analyses, correlation coefficient of IBRT and NBRT to CRT was calculated. After the analysis, it turned out that there is a positive (albeit low) relation between the tasks and the stereotype – IBRT (.23) and neutral tasks – NBRT (.21) with CRT. In the Pennycook, Cheyne, Selie, Koehler, & Fugelsang (2012) research, the relation between CRT and IBRT was .26, and between CRT and NBRT .26.

4. Discussion

The research presented here aimed to check the usefulness of the CRT test (Cognitive Reflection Test) and Kahneman and Tversky's tasks to measure the analytical style in Polish groups. Both tests differentiate between the respondents and are highly reliable. The research carried out allows to observe gender differences in the framework of analytical style (in favour of men), replicating studies carried out by Frederick (2005) and Toplak, West, and Stanovich (2014). Such differences were also found between students of different faculties (analytical style in technical sciences and psychology students). However, the NBRT tasks, which control cognitive capacity, no sex differences have been found, which is in line with their purpose – to measure cognitive capacity that is not gender-specific.

A link between the IBRT and CRT tests and the IR questionnaire was expected; in the case of the former, such a link exists but is weak, whereas in the case of CRT, no link has been demonstrated, which can be explained by different nature of the tools: Kahneman and Tversky's and CRT tasks are test tools, IR is a questionnaire.

A link between CRT and IBRT tests was demonstrated, but also between CRT and NBRT tests. Demonstrating the latter relation is problematic in that it may support the claim that the CRT test measures not so much the analytical style but the cognitive skills, as well as the IBRT tasks, or that the tools measure separate constructs, although this relation is similar to that in the research of Pennycook, Cheyne, Selie, Koehler, and Fugelsang (2012), which speaks in favour of the correctness of the test adaptations. There may be different aspects of the analytical style of information processing that are culturally diverse.

In the future, it is advisable to carry out further research on the accuracy of the Polish adaptation of the CRT test and Kahneman and Tversky's tasks, with a broader range of age groups and the use of other tools to assess accuracy. It is also worth examining the relationship between cognitive style and personal interests.

The appearance of a newer version of the CRT test, extended by four additional tasks, may contribute to further development of research on analytical style in Polish groups. However, it seems that the two tools discussed here can already be used today for further scientific research on the analytical style of information processing.

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TERESA RZEPA*
SWPS University
Faculty in Poznań

ON PSYCHOLOGICAL AND WAR MISSION OF THE FOUNDER OF THE LVIV-WARSAW SCHOOL[1]

Abstract

The double mission, ideally fulfilled by Kazimierz Twardowski, the founder of the Lviv-Warsaw School, is discussed in this article. Twardowski was fulfilling his psychological mission all his life, whereas his war mission lasted three years (1914–1917) – when he was carrying out the role of the president (rector) of the Lviv University. A short biography of Kazimierz Twardowski precedes descriptions of those missions.

Keywords: founder of the Lviv-Warsaw School, psychological mission, war mission

1. Introduction

When on November 15, 1895, 29-year-old Kazimierz Twardowski (1866–1938) was appointed the head of the Department of Philosophy at the University of Lviv, one would expect the professor's scientific activity to focus on philosophy. However, anyone who at that time, just like Twardowski, considered himself a modern philosopher, was also engaged in psychology – a fashionable discipline that quickly gained crowds of followers. The course of Twardowski's educational and socialization path and the people he met on that path ha a significant impact on his psychological interests and undertaking a mission to spread psychological knowledge.

When, in June 1914, 48-year-old Kazimierz Twardowski was elected rector, one could expect that his organisational activity would concentrate on the matters of the university and that his scientific and didactic activity would be carried out according to rigorously followed plans. However, that was not the case. The three years of his life, marked by his being the rector of the University of Lviv and his unique mission at the time, were disrupted by the First World War.

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*Correspondence address: trzepa@swps.edu.pl

This text deals with these two types of missions which Twardowski – from the perspective of contemporary evaluation – fulfilled exemplarily before 1918, i.e., before Poland regained its independence after the years of Russian, Prussian and Austrian partitions. Before I move on to discuss the essence and the course of these missions, a few sentences on the life story of Kazimierz Twardowski.

2. Life

Twardowski grew up in a catholic house in Vienna, in the atmosphere of official seriousness. He was the eldest son of Malwina Kuhn (1844–1932), daughter of a pharmacist from Przeworsk, and Pius Twardowski (1828–1906), a lawyer who came from Kamieniec Podolski and who held increasingly high official positions throughout his life. No wonder that he similarly saw his son's career and to this end, he made efforts to obtain a scholarship from the funds of the Galician National Department for him. As a result of fatherly efforts, the 11-year-old Kazimierz became a student of Theresianum, a middle school for men (with a boarding house), known for its discipline and rigour, where the boys were prepared for a career as clerks, diplomats or soldiers. Young Twardowski was a straight-A student from the beginning and at the end of his school, in 1884, he received the gold medal of the school. During his stay at the Theresianum, Kazimierz has developed a habit of discipline and internal harmony, a stoic attitude, responsible, reliable and systematic work ethics, unbroken ethical principles, a passion for logical thinking and absolute disclosure of errors in reasoning (Twardowski, 1992).

After Matura exam, passed on July 13th 1885 with a very good result, in early December of the same year, Twardowski accepted the position of home teacher in the Transnistria estate of the politician and philosopher Count Wojciech Dzieduszycki (1848–1909). It was there, in Jezupol, that he met his future wife, Kazimiera Kołodziejska (1862–1945). They got married on 9 January 1892 (Jadczak, 1992).

One year after graduation (1886), Twardowski began philosophical studies at the University of Vienna, dividing his time between the duties of student and teacher at the Dzieduszycki family. In addition to his philosophical subjects, he studied history, mathematics and biology. In the years 1889–1890, he served in the army. From the first year of his studies, his teacher was Franz Brentano (1838–1917), whose personality made the "greatest impression on Twardowski". He soon became his "closer" student, and his relationship with the master took on an "invaluable personal nature", giving him the right to visit Brentano's house unannounced (Twardowski, 1992). As a result of many hours of discussions, possible because of the uniqueness of this relationship, Twardowski took over most of the scientific views of his master (Brentano, 1874/1999) and focused the "personality of the scientist" on the role of a teacher rather than a "truth seeker" detached from didactics. The relationship with Brentano also strengthened the attitude of life and habits that were brought up from Theresianum: discipline, severity of customs, moral responsibility, emotional stoicism, and lasting behaviour principles. It also encouraged the belief in the power of independent thinking and in placing logical reasoning, careful descriptions and analyses above rash judgments or explaining something without a prior description of the problem. Such an approach has become the basis for the so-called semiotic method, used by Twardowski, which consists of a precise analysis of meanings and precise definition of concepts. He showed uncompromisingly and openly that the confusion of terminology, over-using symbols and

the vagueness of language testify not so much to the "wisdom" of a lecture or publication as to the entanglement and confusion of their author's thoughts, which then deserve neither attention nor having their work read[2] (Twardowski, 1919–1920/1965).

During his studies, Twardowski cooperated in organizing the Philosophical Society at the University of Vienna. Between 1887 and 1889, as the Society's vice-president, he acquired administrative and organizational experience, which he later used in Lviv, especially during his tenure as rector of the University of Lviv. The defence of his doctoral thesis took place in 1891, and his dissertation (entitled *Idee und Perzeption. Eine erkenntnistheo-retische Untersuchung aus Descartes*) was published in 1892. Robert Zimmermann (1824–1898) was the formal supervisor of the dissertation, however, in reality, it was Brentano who worked at the University of Vienna as a private assistant professor and, therefore, did not have the relevant academic qualifications (Jadczak, 1991, 1995, 1997; Rzepa, 1997, 1998; Rzepa, Dobroczyński, 2009; Twardowski, 1992; Woleński, 1985).

In January 1892, Twardowski received a government scholarship and went to study in Leipzig, where for three months he attended Wilhelm Wundt's (1832–1920) lectures on the history of modern philosophy and took part in the work of Prague psychological laboratory, which was already then called the centre of world psychology. In his later publications, however, Twardowski did not refer to the experiences related to this period, and in his autobiography, he only mentioned the Leipzig laboratory. This proves that he was not fascinated by the experimental psychology practised there. What was more important to him was that in Leipzig he made closer and long-lasting acquaintance with Oswald Külp (1848–1936), founder of the Würzburg school (Schultz & Schultz, 2008; Zusne, 1975). In the summer semester of 1892, Twardowski stayed in Munich, where he attended lectures and classes in philosophy taught by Carl Stumpf (1848–1936), a psychologist of music and acoustics, a famous experimenter and author of the first psychological work devoted to the perception of space (Zusne, 1975). Twardowski established a lasting acquaintance with Stumpf (just like with Külp). On multiple occasions, he invited to his home, where they played music together (Twardowski, 1992).

From autumn 1892 to autumn 1895, Twardowski worked as an official in the mathematical office of the life insurance company of the General Association of Officials, and since the salary he received was modest, he made money on the side by tutoring and writing philosophical essays for the monthly magazine *Przełom*. At that time he prepared a habilitation dissertation, very well received and widely discussed in the scientific community[3] (*Zur Lehre vom Inhalt und Gegenstand der Vorstellungen*), achieving *venia*

[2] Rigorously applied semiotic method, known as the "ABC of decent thinking" (Ajdukiewicz, 1959), was criticised by, among others, Roman Ingarden (1893–1970) or Tadeusz Tomaszewski (1910–2000), who believed that Twardowski paid too much attention to methodology (the context of justification) while neglecting creative activity (the context of discovery; Ingarden, 1973; Tomaszewski, 1996). During the 85th anniversary, "Tomaszewski talked about his studies in his native Lviv. […] Twardowski's school took a hit. *This school taught how to sharpen the knife constantly, but no one was slicing the bread with it.* We were told, and it wasn't just us, that what is being done there kills creativity" (Pietrasiński, 2015, p. 82).

[3] The dissertation received flattering reviews from such scholars as Alexius Meinong, Goswin K. Uphues, Hans Schmidkunz, Paul Natorp, Edmund Husserl, Josef Kreibig, Theodor Ziehen, lois Hőfler, Martin Anton Marty. The reviews were published, among others, in such maga-

legendi in July 1894. In the academic year 1894/1895, as a private university reader, Twardowski lectured on logic and philosophy at the University of Vienna. Since this position was not associated with either remuneration or academic rights, he was determined to seek a chair in one of the Galician universities. On October 18 1895, the Austrian Ministry of Education appointed Twardowski as associate professor of philosophy at the University of Lviv. The beginning of tenure is considered to be on 15 November, because on that day the young professor gave his first lecture in Lviv (Twardowski, 1997, vol. 1).

On October 1 1898, the 32-year-old Twardowski was nominated for the position of professor and since then, in addition to his normal scientific and didactic activity, he has held many responsible positions both within and outside the university. He was, among other things: Rector in the difficult times of World War I, Prorector, Dean and Deputy Dean of the Faculty of Philosophy, spokesman of the professors' college, university senator and ministerial expert, initiator and member (also honorary) of numerous scientific societies, state examination boards for teachers, organisational committees of scientific conventions and conferences, a member of the Polish Academy of Arts and Sciences and of the Governmental Stabilisation Commission, established in 1919 to organise the professorial staff of the University of Warsaw and other Polish universities. Thanks to his efforts the university office was reformed (in 1908–1913) and the organisational structure of the departments and deans' offices was modernised (decentralized). It was Twardowski who drafted the first study regulations and regulated the entries in the indexes. He directed the work of the Universal University Lectures Committee, and – by making speeches and lectures – promoted philosophical and psychological knowledge. He was also the head of the Women Middle School (mainly due to the education of his three daughters) and was also president of the Society of Higher Education Teachers and vice-president of the Austrian High School Association. It is also known that throughout his life he was faithful to his Lviv faculty and did not leave it despite being nominated three times for positions at the University of Warsaw and despite several invitations to work at the Ministry of Education (Twardowski, 1992, 1997, vols. 1, 2). Twardowski contributed to the fact that after 1918 one of his first students – a logician and mathematician Jan Łukasiewicz (1878–1956) – became first the head of the section and then the minister of higher education and consulted Twardowski on an ongoing basis on all personnel decisions related to filling the chairs of philosophy, psychology and pedagogy departments at Polish universities.

Without a doubt, Twardowski was and is one of the most famous and respected figures in the history of Polish science. He was called: *the master*, *the teacher of philosophers, logicians, mathematicians and psychologists*, *the creator of the Lviv and Warsaw School*, *methodological razor*. Therefore, it is obvious that apart from many prestigious awards and due honours, in 1929 Twardowski received a diploma of an *Honorary Doctor* from the University of Warsaw. Soon after, in October 1932, he also an *honorary doctorate* again, this time from the University of Poznań at the hands of its then rector Stefan Błachowski (1889–1962), a psychologist and student of Twardowski.

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zines as *Mind*, *The Monist*, *Zeitschrift für Psychologie und Physiologie der Sinnesorgane*, *Revue Philosophique*, *Archiv für systematische Philosophie*, *Zeitschrift für Psychologie*. The dissertation, written in Brentano's spirit and complementary to the master's reflections, is considered to be Twardowski's most important philosophical work (Woleński, 1985).

On May 10 1929, tormented by diabetes, Twardowski decided to retire. Since the authorities could not imagine the university without such a distinguished professor, they tried to postpone the decision. Finally, Twardowski parted with Jan Kazimierz University[4] on 30 April 1930. That's what he wrote about the event:

> "This is the last time I was in my office as a professor in active service. When I left the room, I took off a piece of paper with my name under the plate "Management" (of Philosophical Seminar). As of tomorrow, I am no longer its Head". (Twardowski, 1997, 2, p. 127)

However, despite retiring, he gave lectures until April 30 1931, participated in meetings of the faculty councils, and even kept his office, because – according to the decision of the President of the Republic of Poland – from June 4 1930, he held the title of honorary professor, which was associated with many privileges.

Kazimierz Twardowski died on 11 February 1938 in Lviv. The funeral, which attracted crowds of students, graduates and employees of the Jan Kazimierz University and the inhabitants of Lviv, was – according to the will of the deceased – of a secular character. Also, according to his will, a copy of his highly regarded speech, entitled "On honours of the University", was put in the coffin. The speech, treated as Twardowski's scientific testament, contains personal reflections on the tasks and role of the university and its place in the scholar's system of values. It also contains probably the most accurate characteristics of Twardowski as a scientist and didacticist:

> "The university teacher is above all a servant of the objective truth, representative and preacher of the objective truth among young people and society. The service is noble and extremely honourable, but at the same time requires not only appropriate intellectual qualifications and relevant expertise, but also great fortitude and strong character. Whoever engages themselves under the banner of science must renounce anything that could push them out of the way specified by such a banner." (Twardowski, 1932/1992, pp. 466–467)

According to the testament, Twardowski was "a man of science, a scholar in the fullest and most beautiful sense of the word [...] deaf to whispers of various ambitions", who throughout his life was able to "defend himself from the temptation to play any role where it is not about the truth but power, influence, dignity, honour and title, or simply about the money!" (Twardowski, 1932/1992, p. 468).

3. Psychological Mission

Actually, from the moment he took up a chair at the University of Lviv until the end of his life, Kazimierz Twardowski worked for both philosophy and psychology. Therefore, he can be regarded as the founder and creator of a philosophical and psychological

[4] In honour of the founder of the university, King Jan Kazimierz (1609–1672), the change of name (Universitas-Joannes-Casimiriano Leopoliensis) was approved by the Head of State Józef Piłsudski (1867–1935), on 8 November 1919.

school of science. The School of Philosophy, whose historical and substantive continuity was guaranteed by students employed after 1918, mostly at the University of Warsaw, was called the Lviv-Warsaw School (Woleński, 1985). The School of Psychology, on the other hand, whose origins and development are exclusively related to Lviv, can be called the Lviv School. In its history, three periods in which Twardowski played the role of a master can be distinguished: (1) from the turn of 1898/1899 to 1901; (2) from 1902 to 1919; (3) from 1920 to 1939 (Rzepa, 1998, 2002).

3.1 First Period: 1898/1899–1901

The lectures given by Twardowski, who brought freshness and originality to Lviv and a breeze of the latest achievements of European science, were attended by crowds. His otherness, far from romanticism and messianism, as well as his impressive knowledge, tendency to discuss any issues, to make himself a model of rigour in fulfilling his duties, resolutions and demands, his willingness to give advice and guidance, unyielding logic and consis--tency, commitment and willingness to help created an extraordinary personality and quickly made Twardowski's circle of supporters. The first Polish philosophical seminar, established in 1897, was the place of scientific meetings. Students interested in philosophy, psychology, ethics and logic could take part in its works[5]. Given the clear increase in interest in psychology, Twardowski decided to give thematic lectures. First series in the winter semester of the academic year 1898/1899 concerned visual illusions, the occurrence of which every student could check on themselves thanks to special boards, demonstrated by the master. A little earlier Twardowski started the battle for the fair position of psychology in the curricula and organizational structures of the university. First of all, thanks to him lectures and classes on psychology entered the program of philosophical studies. From 1897, he gathered apparatus, considered at the time to be essential equipment for the psychological laboratory. In 1901, he obtained permission from the Galician authorities to develop several rooms for experimental research in the field of psychology. They were carried out in a phenomenological variant, used in the laboratory managed by Stumpf, paying much less attention to the repetition of experimental projects from Wundt's laboratory (Witwicki, 1921, p. XIV).

This period saw the publication of first works of Twardowski, prepared in Polish[6] and familiarizing readers with the topic, tasks and methods of psychology and its relation to other sciences, especially philosophy and physiology (1897/1965, 1898/1965). In his extensive articles, Twardowski devoted a lot of space to terminology and definition issues. He introduced Polish names and provided definitions of the following key concepts: *im-*

[5] The requirements set by Twardowski resulted in about 30% of the students passing the seminars (Jadczak, 1997).

[6] There was a legal basis for this; on July 4 1871 (a year after the Jagiellonian University), the University of Lviv was granted the right to conduct lectures in Polish and Ruthenian (Ukrainian) languages (Iłowiecki, 1981). In April 1879, the Polish language was declared official; it was still possible to take exams in German and Ruthenian (Ukrainian), but only with the consent of the examiner. After three years, the Austrian authorities considered lectures in Polish as the rule and in Ruthenian as an exception. This decision ignited the long-lasting Polish-Russian" "war" for national influence and significance.

pression, *image*, *perception*, *representation*, *abstraction*, *mental disposition*, *mental act*. In his works, he proclaimed that the subject of psychology is mental life, which consists of facts (phenomena, phenomena) and mental dispositions (e.g., sensitivity, memory, imagination, intelligence, will). The direct and obvious source of knowledge about mental life is the inner experience – always *someone's* and experienced *by someone* through introspection, possible by memory and imagination. A psychologist gaining knowledge about mental life is entitled both to describe processes and states taking place inside themselves, as well as to reconstruct and interpret someone else's mental life and, on this basis, to formulate the laws governing *psyche* (Rzepa, 2002; Twardowski, 1897; Witwicki, 1925).

This period of development of Lviv psychology is crowned by the date of April 14 1901, connected with the didactic and scientific success of Władysław Witwicki (1978–1948), who, on that day, defended his first doctoral dissertation in psychology in Lviv, titled *Analiza psychologiczna ambicji*. Published in 1900, the dissertation contains the basic assumptions of the theory of kratism, the first Polish psychological theory. Witwicki decided that a person lead by ambition is independent of other people and external circumstances, and thus experiences states of pleasure because of their dominance over the social environment and control over situational factors. They experience a sense of power and moral strength. This is why it perpetuates an ambitious desire to dominate, impress and guide others. They will go to great lengths to ensure that someone else does not become better, stronger, more significant, more valuable, with more life force. They will do everything to avoid unpleasant feelings like contempt, humiliation, pity, weakness or powerlessness due to the impossibility of overcoming any obstacle (Markinowna, 1935; Witwicki, 1900).

3.2 Second Period: 1902–1919

This is the time when the School flourished and the most important theoretical and methodological ideas were born. In 1904 Witwicki (again as the first of Twardowski's students) gained scientific independence based on a dissertation entitled *Analiza psychologiczna objawów woli* and started to cooperate with the Lviv University as a private lecturer. Soon, he presented a development of the kratism theory, using its assumptions to present the genesis and typology of social feelings in an original way, announcing new areas of research on the effect of first impression and halo-effect, on the sources of comedy and on establishing and maintaining interpersonal relations (Witwicki, 1907, 1927).

In 1907, Twardowski's battle for regular grants for the functioning of the Lviv psychological laboratory, which became an integral university unit, ended. At the same time, Twardowski constantly and effectively applied for internships and study grants for his students with a view to them using the achievements of European science. He knew that the experience, knowledge, habits and skills gained abroad would be usefully transferred to Lviv. Thanks to these efforts, all psychologists who came under his wings could attend lectures of luminaries of the then psychology and learn about the organisation, methods and results of the famous psychological laboratories. Another very important initiative of Twardowski was the creation of the *Philosophical Movement* in 1911 – a magazine with a philosophical-psychological profile, which included: reports on the contents of Western journals, book reviews and abstracts or discussions of lectures, conferences and papers. Moreover, due to his extensive foreign contacts, Twardowski kept up to date with the latest publications and either translated them himself or assigned one of his students

to do it. Among the translators there were: Witwicki, Mieczysław Kreutz (1893–1971), Zygmunt Zawirski (1882–1948), Izydora Dąmbska (1904–1983), Tadeusz Kotarbiński (1886–1981). Twardowski has inspired the translation of famous works by William James, Wilhelm Wundt, Gustav T. Fechner, Alois Höfler, Auguste H. Forel or Theodule A. Ribot.

In 1911, another Twardowski's student, Stefan Baley (1885–1952), received his doctorate under his supervision, defending his thesis titled *O potrzebie rekonstrukcji pojęcia psychologicznej podstawy uczuć [On the need to reconstruct the psychological basis of feelings]* (1907). In the following year, 1912, Twardowski presented an original theory of activities and products, completing his earlier reflections on the structure of mental life. He assumed a simple observation. Here are some words that can be put together in verb-noun pairs, e.g., *speak–speech*, *reckon–reckoning*, *think–thought*, *shout–shout*. The first word of such a pair means an action, while the second one means a product of such action. Both actions and products can be divided into physical and mental as well as permanent and impermanent. Permanence is only available for physical actions and products. Among them, we can distinguish the category of psychophysical actions and products. We can talk about a psychophysical action when a given physical activity is accompanied by an impermanent psychophysical action which influences the course of the former one, thus the resulting (thanks to it) psychophysical product (e.g., letter, speech, melody, drawing, photograph, facial expression, poem, book, picture, diary, etc., that is, every psychological sign and document). Psychophysical products are observable and subject to interpretation because their observation and/or interpretation induces certain mental products in persons performing such actions, analogous to those accompanying the author during their production. Therefore, psychophysical products are external expressions (signs) of mental products. This relationship of expression discovered by Twardowski provides the possibility of reading a physical product "enchanted" in the psychophysical product, which *non omnis mortuus est*, and thus constitutes the basic condition for psychological interpretation, which appears to be a meta-objective procedure, independent of the place and time of its performance (Rzepa, 1993a, 2002).

In the following year, 1913, Stefan Błachowski, who first attended Twardowski's and Witwicki's lectures in philosophy and psychology as well as studied natural sciences at the University of Lviv, defended his doctoral thesis in Göttingen, entitled *Studien über den Binnenkontrast*. He prepared the dissertation under the direction of Georg Elias Müller (1850–1934). Shortly after the defence he returned to Lviv and became Twardowski's assistant. Shortly afterwards, on December 12, 1917, he received his postdoctoral qualifications at the University of Lviv based on his thesis titled *Nastawienia i spostrzeżenia. Studyum psychologiczne [Attitudes and observations. Psychological study]*.

This period of development of scientific psychology, initiated in Lviv by Twardowski, ended in 1919 when the effects of his intense and nearly two-year-long activity around the staffing of departments of psychology established in five university cities – Cracow, Lviv, Poznań, Warsaw and Vilnius – became apparent. First, on April 1, 1919, Witwicki was appointed the professor of psychology at the University of Warsaw. Błachowski received such a nomination on 16 July 1919 and took over the Department of Psychology at the University of Poznań. After long procedures and the establishment of a separate Department of Educational Psychology at the University of Warsaw, on 16 October 1928 it was taken over by Baley. It was Błachowski who arrived first at the Stefan Batory University in Vilnius to attend the lectures in psychology, and then, it was his

doctoral student, Fr. Mieczysław Dybowski (1885–1975). In 1935, Bohdan Zawadzki (1902–1966), a student and a doctoral student of Witwicki (Rzepa, 2000), took over the management of the Department of Psychology in Vilnus.

It should be emphasised that students of Twardowski, including psychologists, received, as part of his didactic classes and informal meetings devoted to discussions of scientific and life topics, a unique methodological "school" of developing the ability to reliably translate thoughts into words and arguments, to make insightful and logical descriptions, and to understand and interpret all products from the perspective of discovering the thoughts, feelings, and motives that are deeply hidden within them.

3.3 Third Period: 1920–1939

At that time, due to the dispersion of students of Twardowski, the fate of the psychological school in Lviv became much more complicated. On the other hand, thanks to their distance from the master and holding managerial positions in departments of psychology, they had a chance to establish their own scientific schools. This did not happen, however, and that is why the Lviv School is a closed period in Polish psychology. For this reason, although with sadness, it can be called "a school of wasted opportunities" (Rzepa, 1998, 2002).

In 1920, Twardowski managed to create an independent Psychology Department, which he was managing – looking for a successor – until 1928. His dealings with the matter were as diplomatic as they were firm. He was aware of the inefficiency of the search for candidates outside Lviv[7]. Therefore, he brought forward the work on the habilitation thesis by Mieczysław Kreutz, who gained scientific independence in December 1927. This made it possible for Twardowski to speak to the Ministry about appointing Kreutz the head of the Department of Psychology. The decision to appoint another student of Twardowski as a deputy professor was made on June 30, 1928 (Jadczak, 1997; Rzepa, 2014).

> "October 3, 1928 [...]. Dr Mieczysław Kreutz, at my request, is the deputy of the professor of psychology and the head of the Psychological Department since day 1. of the current month, he also takes over the entire management of the Department, and I will stop dealing with the Department in every sense. So, the long period of my work ends [...]. Dr Kreutz is luckier than I am, he gets it ready, what I had to create in every detail, step by step. So I feel sad the moment I part with it my creation, to which I devoted so much effort and time and where I was working so hard on our youth. Until now, I have been fulfilling the task of a professor of psychology alongside that of a professor of philosophy." (Twardowski, 1997, 2, p. 44)

[7] After the oldest students-psychologists left Lviv, Twardowski took energetic steps to transform the Department of Psychology into an independent department, even though he did not have a suitable candidate to manage it. So he was looking for a psychologist with a habitation, although at the same time, as a member of the Stabilization Committee, he knew very well about the post-war "races", the aim of which was to capture independent researchers by an individual – already Polish – universities, abandoned by Russian, Prussian and Austrian staff. In such a situation, he undertook a difficult task, the aim of which was to give this post to Mieczysław Kreutz (Rzepa, 2014).

In the last period, Twardowski and Kreutz managed to educate a group of outstanding psychologists. Unfortunately, most of them died during World War II, like splendidly promising Walter Auerbach (?–1944) – also Witwicki's pupil, Eugenia Blaustein (1905–1944) or Leopold Blaustein (1905–1944), who also studied under Husserl and Stumpf and took part in Max Wertheimer's (1880–1943) research on the knowledge of people. Andrzej Lewicki (1910–1972), a later organiser of psychology at the Nicolaus Copernicus University and a founder of the first in Poland Chair of Clinical Psychology at the Adam Mickiewicz University. Tadeusz Tomaszewski (1910–2000), Twardowski's only successor in terms of the substantive and organisational activities, also stepped out from the same wings[8].

For understandable historical reasons, this period was ended in 1939 due to the outbreak of World War II. Sorry to say this, but psychological theories of the Lviv school have not gained any publicity either at home or abroad, not only because of their weak "marketing" and linguistic barrier but also because of the lack of followers interested in them and unclear resistance of the authors themselves to translating theoretical statements into the "language" of practical applications. Although it is not difficult to assess "what could have happened differently" from a time perspective, as Witwicki would have said with his own sophistry, it is a pity that the founder of the Lviv School of Psychology and his students did not take care of the proper development of their own psychological concepts. It is a pity that the most promising of them, Witwicki, did not manage (like Twardowski) to establish the Warsaw School of Psychology. Admittedly, he is excused that until 1939 he did not have much time to perform such an important task, and after 1945[9] he had no chance to do so.

4. War Mission

Although Twardowski's psychological mission marked almost his entire life, the incomparably shorter war mission, dating from June 1914 to September 1917, cost him much more effort and health. At that time, he was three times[10] a rector during the war – a rector who persistently and consistently fought for the University of Lviv to maintain its status of a Polish university, while at the same time bringing any help to the academic community.

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[8] Tadeusz Tomaszewski is most valued for the fact that he brought up several generations of psychologists and, as a student of Kreutz and Twardowski, he continued the pedagogical assumptions and some ideas of the Lviv-Warsaw School in its psychological current (Rzepa, 1997; Rzepa, Stachowski, 2011). He was the creator of the psychological theory of action, initiated by Twardowski (1912).

[9] He did not have any chance to do so not only because of his age and health status but also because of historical events which made Poland dependent on the Soviet influence for many years. The above-mentioned events refer mainly to disposal of the Polish People's Party (Polish: Polskie Stronnictwo Ludowe), represented by Stanisław Mikołajczyk (1901–1966), by the Communist authorities in 1947, and to have Bolesław Bierut (1892–1956) appointed as president, by the Moscow authorities and then – also by Joseph Stalin (1878–1953) – as secretary-general of (established in 1948) the Polish United Workers' Party (Polish: Polska Zjednoczona Partia Robotnicza).

[10] The then rectors were elected for a one-year term.

According to the university's custom, deans, vice-rectors and a rector elected in June 1914 were to take over on 23 September. Twardowski and his family spent their holidays in Poronin as usual. The war found him there. As the Russian army occupied Lviv already on the night of September 3 to 4, the decision on further proceedings had to be made. For this purpose, a meeting was convened in the "Sienkiewiczówka" villa, occupied by an art historian, Jan Bołoz-Antoniewicz (1858–1922). It was attended by members of the Senate of the University of Lviv, who were staying in Zakopane as well as surrounding towns and cities. It was decided that Twardowski should move to Vienna. This was indeed what happened. Twardowski and his family left Poronin on 17 September and after two days they came to the capital of Austria-Hungary. There, according to the tradition, he formally became the Rector of the University of Lviv on September 23rd. He held this post for three war years, including in Vienna – until July 2nd, 1915.

During this Viennese period, Rector Twardowski's work consisted in taking decisions and actions that were unusual for the position held because organisational issues prevailed. Educational and scientific matters became less important. The rector's work in wartime conditions involved getting to the emigrants: university lecturers and students, as well as organizing their daily life and searching for sources of support for them. Twardowski took careful care of the academic youth, especially of the fugitives from the Russian occupation, of the students who were unable to serve in the army and who wanted to continue their studies commenced before the war, although in the meantime they were threatened with hunger, unemployment, lack of a roof over their heads or of warm clothes. Twardowski, with true rector's dignity, was able to obtain money for such purposes from various institutions and committees, as well as from private individuals. He encouraged professors in exile, as well as he gave talks and lectures, organized street collections. He soon established Fundusz Zapomogowy Polskiej Młodzieży Akademickiej [Welfare Fund for Polish Academic Youth] and, at the same time, Dom Akademicki [Dormitory] "for students from Galicia and Bukovina universities", where, only in 1915, 332 Polish students, including 177 people from Lviv, found board, accommodation and a job opportunity (Jadczak, 1991). For the funds he had gained, Twardowski had the products purchased for a dorm kitchen, he distributed food vouchers and grants to clothing, he granted benefits and reliefs, organized medical assistance. Thanks to his affiliation to the Refugee Assistance Committee of Galicia and Bukovina, he helped emigrants in case of passport problems and difficulties in finding a job, promoted young scientists and students from the military service and took care of the possibility of continuing their interrupted studies. To this end, in cooperation with professors from the universities of Lviv and Vienna, he organised additional courses and conducted examinations that were officially recognised, including PhD oral ones (Polish: rigorosum), especially in law and philosophy.

Twardowski's scarce notes (1997, 1), dated February and March 1915, contain information concerning the organizational activities described above: from those aimed at gaining funds, visits to ministries and other offices or at wealthy friends, through ordering beds, bedticks, mattresses and food, as well as conducting negotiations on university classes and exams, to participating in debates on the future of Europe and Poland. The fact that Twardowski treated himself with dignity and appropriate distance in the role of rector is clearly shown by the fact that it was only during the period of performing this function when he referred to himself using this name, which was written with a capital

letter in the *Journal*. For instance: "6 February [1915]: Deputation of the Rector and deans to the Galician Minister, Dr Zdzisław Morawski[11], with the wishes [...]" (p. 15).

On 20 June 1915, the Russian army left Lviv. Twardowski immediately decided to return and on 5 July he arrived in his town (Jadczak, 1991). He immediately began to rebuild university life, acting in still uncertain war conditions, under constant threat of lack of literally everything and the pressure of sudden evacuation. He was well aware that if under these circumstances he intended to perform the function of a rector in such a way as to preserve the autonomy of the university, rebuild academic life, teach, defend employees and students from harassment by the authorities and from the ambitions of various committees and political organizations, he should be guided by prudence and serenity, maintain a stoic attitude, and, above all, apply diplomacy. Therefore, with his characteristic dignity – as in Vienna and Lviv – Twardowski strived to ensure appropriate social conditions for academic personnel and students returning from the army. He helped families in their efforts to get hostages and prisoners of war associated with the University of Lviv out of captivity. Young people returning from emigration were granted special leaves for preparing for overdue exams. He made no secret of the fact that in solving particularly difficult problems he was provided with the necessary support from his brother, Juliusz Twardowski (1874–1945), who was originally[15] a Deputy Minister, and from 23 June 1917 to 25 July 1918 he managed the Ministry for Galicia under the imperial government (Twardowski, 1997, 1).

Following the approach proven in Vienna, Twardowski – in agreement with the Polish War Archive – initiated an action of "war readings", carried out by Lviv professors. It aimed to raise funds "for Polish documents and war memorabilia". Besides, he established Senacka Komisja Opieki nad Młodzieżą Akademicką [the Senate Care Commission for the Academic Youth], whose main tasks were to provide students with healthcare and welfare care and to expand the range of student houses and academic kitchens. He also moved from Vienna to Lviv and there he successfully multiplied the Academic Youth Provident Fund for a few years, which he managed until 1920. The funds raised – in agreement with the student organization Bratnia Pomoc [Fraternal Help] – were used to support gifted and poor students, including their treatment and stay in health resorts. Since the autumn of 1915, the Fund's finances were used to maintain the staff and to purchase food for student kitchens in the Potocki Academic House. It is worth noting that the organization of work in the kitchen was managed voluntarily by professors' wives (Twardowski, 1997, 1).

Despite the stoic attitude, which for example involved keeping an appropriate distance from politics (Rzepa, 1993b), Twardowski was constantly in its vicinity. After all, the rector's position required the representation of the university's community towards the military, civil and church authorities of Austria and Galicia. Therefore, Twardowski participated in thanksgiving and mourning services (e.g., masses for the Governor of Galicia, Andrzej Potocki[12]), funerals (mainly of workers and students of the University

[11] Zdzisław Morawski (1859–1928), a lawyer, a ministerial counsellor at the Ministry of Galicia, since 30 January 1915 a minister of Galicia.

[12] Andrzej Kazimierz Potocki (1861–1908), Emperor Franz Joseph's ordnance officer, then a very famous politician, due to misunderstandings between the Ukrainian Club and the Polish Circle (i.a. concerning the University of Lviv) was shot dead on 12 April by a philosophy student and

of Lviv, who died in the war), audiences hosted by the authorities, performances and academies for the benefit of various funds (e.g., for widows and orphans of Austrian soldiers, but also of Józef Piłsudski's legionnaires), meetings of university bodies, student and non-university organisations. At the same time, he hosted numerous delegations, coming with matters of both minor and national importance. For instance: "18 March, Saturday [1916]: Brigadier Piłsudski pays a visit to the Rector at the University in the company of an aide-de-camp, PhD Długoszowski. An evening in Kasyno Miejskie [Municipal Casino], a rout in honour of Piłsudski. Rector also present" (Twardowski, 1997, 1, p. 21).

As a member of various committees, Twardowski took part in the national project for the care of the disabled, in the celebration of anniversaries (e.g., January Uprising, Constitution of May 3), unveilings of monuments (e.g., Żelazny Rycerz Miasta Lwowa [Iron Knight of Lviv]), collections of donations and gifts for soldiers and their families. He resolved conflicts and national antagonisms, mitigated intrauniversity disputes and pacified – by "suspending lectures" – manifestations of excessive "politicization" of students and some of the professors "who had an impact on young people, undermining their trust in the Academic Senate and the Rector". There was no shortage of reasons for that. The outrage was caused because of both the "lack of a formal position" and the insufficient "manifestation of solidarity" with the Polish Circle[13] operating in Vienna and with students striking in Warsaw regarding the "general Polish policy" project, as well as because of "the attack on Piłsudski and the interference of a foreign power in our internal affairs"[14]. Regarding the most sensitive issues, Twardowski (1997, 1, pp. 29–40) he followed a stoic attitude and undertook diplomatic efforts aimed at preventing "the predominance of the paedocracy in the alliance with demagogy". He claimed that: "the principle of everything or nothing often leads to nothing rather than to everything." He referred this principle mainly to politics and dealing with it, not to university matters; some of the academic staff were in opposition to his actions and his apolitical attitude:

> "I have even more strongly rebuked those [...] who immediately condemn anyone who is of a different opinion, separate from Polishness. I have said that this walking all over people and suspecting them of God knows what, only because they do not support the politics of screaming, manifestation and platitudes, but are in favour of the politics of real work, that proves the weakness of the position of those. Whoever has arguments does not need to use nicknames." (Twardowski, 1997, 1, p. 45)

Ukrainian, Mirosław Siczyński (1887–1979).

[13] The Polish Circle, as a grouping comprising 50–70 members of the Parliament of Galicia, which is a part of the Austrian Parliament, was established in the 1960s. From 1879, it was part of the government majority and had its representatives in the Austrian cabinet. During World War I, it played an important role in helping refugees from Galicia and Bukowina, and from 1917 it took an unequivocal position on the full independence of Poland.

[14] This involved the arrest (14 July 1917) and imprisonment of Józef Piłsudski in Magdeburg fortress after he refused to take an oath of allegiance to the emperors of Germany and Austria-Hungary.

Twardowski activated his diplomatic efforts when Ukrainian politicians and university employees of Ukrainian nationality undertook another, neatly constructed intrigue, the aim of which was to make the university bilingual[15]. The dispute over the University of Lviv, which Poles considered to be their "national treasure", had a difficult, long-standing history. Since the middle of the 19th century[16]: the Polish public was afraid that the Ruthenians[17] would want to gradually transform the Polish University of Lviv into a Ruthenian one; hence the reluctant, suspicious approach to new Ruthenian cathedrals and genetically-jealous guarding of the Polish language exclusivity in all activities of the university. (Koneczny, 1906, p. 225, as cited in Ryba, 2014; Polak, 2011)

At the same time, Poles had nothing against the Ruthenians establishing their own university, with the Ruthenian language of instruction. However, they preferred a different solution and rejected arguments about the Polish genesis and tradition of the University of Lviv, excellent Polish staff and students, even about taxes and donations made by Poles to this university. The Ukrainian dailies, which had long pursued an aggressive policy against any moves that emphasised the Polish character, tradition and genesis of the university, became clearly active during the war. "20th January [1916], Thursday: 255. anniversary of the University's foundation by Jan Kazimierz. The Rector announced an appropriate reminder of this anniversary on the blackboard. Lviv's dailies [...] released occasional articles.

For this reason *Diło* from January 21st, 1916, issue 19/8918, attacked the Rector" (Twardowski, 1997, 1, p. 17). This is not the first time Twardowski has found out that "the Prussian press is waiting for every opportunity to contrast John Casimir's 'disloyal' celebration with the loyal statement that the University is a foundation of the Austrian emperors." His position on this issue was unchanged and based on the conviction that it was only right to "solve the issue of nationality in our country" by preserving the "national autonomy" of organizations, associations and education (Twardowski, 1997, 1, pp. 36–37).

In August 1917, the Ukrainian community launched a real "attack" on Polishness of the University. For this purpose, there was an audience organised with the general-the governor of Lviv, Karl G. Huyn (1857–1938), during which they tried to convince him of the Ukrainians loyalty and devotion, as opposed to the perversity of the Poles. Twardowski learned about it directly from Huyn during a long conversation in person and that is how he reported his statement:

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[15] The polish term *utrakwizacja* means bilingualism that is formally binding and approved by the authorities, mainly in state institutions and education. In this case, it was about Polish-Ukrainian bilingualism at the University of Lviv.

[16] At that time, Austrians – in accordance with *divide et impera* principle – granted Ruthenians a privileged position by introducing lectures in Ruthenian (Ukrainian) both in the departments of law and theology. In addition, Poles obtained permission to establish the Cathedral of Polish Language in 1856, while the Cathedral of Ruthenian (Ukrainian) Literature had already existed since 1849.

[17] In the Polish and Russian nomenclature the term *Ruthenians* was then commonly used to refer to Ukrainians.

> "He wants us to preserve our position in the country that belongs to us, that we deserve to own [...] and is against any tendency to divide the country. After all, the Poles in Eastern Galicia form a very strong minority and are an element that is economically and culturally dominant. But on the part of the supporters of the division of the country, there is such an argument: "So you want the non-Polish population of eastern Galicia, which faithfully wants to stand by Austria, submit to the rule and political influence of the Poles, who [...] clearly disobeyed the Austrian state?". And to that argument, Huyn said, I have no answer." (Twardowski, 1997, 1, p. 44)

In this difficult situation, Twardowski used the available diplomatic channels, including fraternal ones, to preserve the University's eternal Polish nature. This is what Witwicki wrote about Twardowski's merit:

> "He did not interfere with politics and did not run for legislative bodies [...]. As a rector, he was able to save the University of Lviv from bilingualism on the part of the Austrian government. It was his political act. [...] No political party could say about him: "He is our man". But every enlightened Pole has to say that about him." (1938, p. 1)

Despite so many actions that cannot be overestimated due to the difficulties related to the war circumstances, Twardowski did not receive the words of appreciation or due acknowledgement soon. This was due to a certain set of events which brought him a lot of unpleasantness and ardent criticism. The starting point was the proposal, approved by the Senate of the University of Lviv, of "a group of professors of the Faculty of Philosophy" to grant "His Imperial and Royal Majesty, the Archduke Frederick[18], the title of Doctor of Philosophy *honoris causa*" (Twardowski, 1997, 1, p. 20). The awarding of the diploma – which was done by rector Twardowski – took place in Cieszyn on 10 May 1916. Although Twardowski strongly emphasised the rights of Poles to the University, which were conditioned by the national tradition, Twardowski was remembered more for the fact that he spoke about the future of the University with hope and faith in the "imperial protection and care" (p. 23). In June 1917, Twardowski learned from his brother Juliusz that he was to be awarded the imperial decoration. Immediately, he reacted negatively and, in a letter sent by messenger, asked his brother to abandon this intention. However, it turned out otherwise. Thus, on 26 June 1917, the press reported that Twardowski – allegedly in return for honouring Archduke Frederick with a doctorate in philosophy – received the Commander's Cross of the Order of Francis Joseph with war decoration. After this event, which was virulently commented by the press, the Lviv community widely acknowledged that Twardowski should be attributed with the name of an Austrophile.

[18] Friedrich Maria Albrecht Wilhelm Karl of the House of Habsburg (1856–1936), the last Duke of Teschen, the commander-in-chief of the imperial-royal territorial defense, the Inspector General of the Austro-Hungarian army; in 1914–1916, its commander-in-chief and field marshal. He received a honorary doctoral degree not only at the university of Lviv, but also at the universities of Vienna, Prague and Brno.

Since then, he became a "bad Pole, a traitor of the homeland". On 25 July 1917 he recorded with bitterness:

> "on the same page of Kurier Lwowski there is a note [...]: "Because of the high distinction of His Magnificence Rector Twardowski for his patriotic activity – the Polish academic youth gives 45 crowns". This is the note. – Whoever remembers the justification for awarding me the medal [...] will understand the pinprick that the youth gave me anonymously [...]." (p. 43)

With this stigmatization, numerous and real merits of Twardowski were forgotten, and no attention was paid to the fact that he received the honorary badge of Red Cross Class II with war decoration for helping those in need during the war. The greater sensation was the repetition of "confidential" information for many years about Twardowski's austrophilian activities during World War I. No wonder that we can rarely find such words in his journal:

> "The meeting with Professor Włodzimierz Łukasiewicz[19] that took place there. I have heard many warm and cordial words from him about my Rector's activity. He has a full understanding of my difficult situation, and at the same time, he has an absolute appreciation for my acts as Rector, avoiding becoming involved in any non-university policy." (Twardowski, 1997, 1, pp. 37–38)

Twardowski, on the other hand, found out about himself much more often: "He was accused [Twardowski]: 1) of being a mason belonging to the Masonic lodges (*sic*) and 2) of being an atheist and [...] of harming the church" (Twardowski, 1997, 1, p. 130). After the first post-war inauguration of the academic year, on 25 October 1919, in *Resurrected Poland*, Twardowski wrote bitterly:

> "a part of the report concerning my triennium (1914–17) was delivered to him [vice-rector Wais[20]] by myself at his request [...]. I did not mention anything about myself in it; instead of saying "The Rector did this and that", I always wrote, "The academic authorities did this and that". Nor did I mention anywhere about the fact that I was elected three times in the row, nor about the fact that, when I resigned, the Academic Senate solemnly said goodbye to me and awarded me a ring. And Fr. Wais did not mention it. [...] he did not mention a word about my, after all, exceptional rectorate. I did not expect anything else [...]." (1997, 1, p. 135)

At this point, it should be noted that this exceptionally difficult period of rector Twardowski's war mission was appreciated only in eulogies. On top of that, there was still an issue concerning the honorary doctorate for Archduke Frederick Habsburg. Well, on 6 December 1918 members of the Faculty of Philosophy passed an application

[19] Włodzimierz Łukasiewicz (1860–1924), a professor of dermatology and venereology, university lecturer in Innsbruck and Lviv, member of the Austrian Supreme Health Council.

[20] Kazimierz Wais (1865–1934), a priest, professor of Christian theology and philosophy, rector of the University of Lviv in 1917–1918.

for "cancelling the honorary doctorate of Archduke Frederick at that time" (1997, 1, p. 74). On March 17, 1919, the Senate committee was deliberating on this issue and called on Twardowski to present the genesis and history of this doctorate:

> "Although I smelled a bit like "hearing" to me, I have decided to comply with the wishes of the Commission, so for two and a half hours, I was giving precise information about the whole background of the case, its genesis, course and my participation in it. For the first time, I disclosed the matter [...] of the demand that I should resign from the Rectorate [...], the denunciations that went from here against me to Vienna. I also gave reasons why I thought it was impossible to prevent this doctorate, although I was not enthusiastic about this project at all." (1997, 1, pp. 92–93)

On May 23, during the council of the Faculty of Philosophy, a "letter of the Academic Senate on the cancellation of the honorary doctorate of Archduke Frederick was read out This writing made the worst possible impression on all members of the Faculty" (Twardowski, 1997, 1, p. 104) and it was therefore decided to set up a special committee to draft a new letter instead of the negative document formulated by the senators. On May 30, the content of the new letter constructed by this committee was accepted, and it was decided that the faculty delegation "is to make the Senate reassess its resolution and withdraw the letter. If the Senate agrees to it by 7. June 1919, a letter from the Faculty, which has been enacted today, is to be sent to the Senate and the Ministry" (Twardowski, 1997, 1, p. 106). On 12 June, a discussion was held concerning the conflict with the Senate by the members of the Council of the Faculty of Philosophy once again. The Faculty did not withdraw its original letter. In the end, the validity of the May 30 resolution was voted down thus the Dean "had to send the letter, which was then enacted, to the Ministry and the Academic Senate" (Twardowski, 1997, 1, p. 108). The unfortunate sequence of events was closed thanks to the professor of law, a rector at that time, Alfred Halban (1865–1926), who invited Twardowski to the conference on 25 November 1919:

> "he is discussing with me the issue of finalizing the matter of the honorary doctorate of Archduke Frederick was read out I advise that this matter should not be touched at all, but as regards the exceeding of its competence by the Academic Senate, I advise to elicit a revoking resolution of the Academic Senate." (Twardowski, 1997, 1, p. 139)

And this is what happened. On 21 September 1917, Twardowski presided over the Senate's meeting at the University of Lviv for the last time. It lasted from five to nine. At the end of the meeting, prorector Jaszowski[21] spoke warmly to me on behalf of the Academic Senate and he handed me, from members of the Academic Senate, a steel ring with the university coat of arms and inscription inside: "For Rector (1914–1917). Senate". I thanked them in my long speech. (Twardowski, 1997, 1, p. 49)

[21] Błażej Jaszowski (1856–1921), a priest, professor of church law, rector of the University of Lviv in 1911–1912.

Only Twardowski's passing his position on a new rector, father Kazimierz Wais, and, above all, the fact that Poland regained its independence, as well as Polishness of Lviv and the University, created safe and convenient conditions for undertaking interrupted scientific and educational activity, as well as organizational one, and made it possible to continue the life mission of developing a scientific school, known today as the Lviv-Warsaw School. In conclusion, it is worth noting that the three most important trends in science – philosophical, logical and psychological – initiated in Lviv by Kazimierz Twardowski are linked by scientistic ideology, which consists of rationalism in the sense of anti-irrationalism, faith in the power of science and the role of reason, the postulate of clarity of thoughts in words expressed, and intellectualism (Jadczak, 1995; Rzepa, 1998; Woleński, 1985).

Over the then dominant experimental psychology, the psychologists from Twardowski's School preferred descriptive psychology, considered to be one of the basic sources of humanistic psychology. This gave the psychology they practised a humanistic character because they emphasized the phenomenological basis of cognition and its unique, subjective nature. They emphasized the functional properties of the *psyche* and recognized the differences between consciousness and psychicity, as well as took an interactive attitude towards the soul-body relationship. Although they valued introspection as a method of psychological cognition, to objectivize this process they also used psychological analyses and interpretations of observable (permanent and impermanent) manifestations of mental life, emphasizing the value of knowledge and intuition in psychological research. The psychology derived from the Lviv School is also distinguished by its effective opposition to the then "testomania," justified by the requirement of a holistic approach to human. It is also distinguished by its specific style of scientific writing, characterised by a clear and distinct, yet elegant, language and picturesque examples derived from meticulously collected "life observations". That is why, Kazimierz Twardowski, as the founder of the Lviv School of Psychology, and his students-psychologists should be given priority in forming the humanistic paradigm in Polish psychology.

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WŁODZISŁAW ZEIDLER*
Hohenwestedt

DOES HISTORY OF POLISH PSYCHOLOGY EXIST? MULTIPLE FACETS OF THE HISTORY OF PSYCHOLOGY[1]

Abstract

The reason for the question in the title is that during the First World War, Poland was not an independent country. So there was no official Polish psychology contribution in the war effort. Nevertheless, psychology could develop at two universities (in Cracow and Lviv) as an academic discipline. On the other hand, in the areas under Russian jurisdiction the development of psychology started as a practical discipline (organisation of psychologists – Polish Psychological Society, care for children with special needs – Szyc, Grzegorzewska). In the areas that would soon become Polish again, as early as at the beginning of the 20th century, psychology was being developed in Polish language and it served exclusively peaceful purposes (education, manufacturing) for the future independent state. That means, that as opposed to other "European psychologies" before and after the First World War, Polish psychology did exist and was developed strictly for peaceful purposes.

Keywords: history of psychology and their models, history of psychological thought, empirical and experimental psychology, psychology in religious and ideological contexts, record and interpretation, brentanism in Austrian-Hungarian monarchy

The above title is a travesty of the opening sentence of Hermann Ebbinghaus' *Grundzüge der Psychologie* (1910). In the same text (pp. 22–23), he expressed the opinion that psychology became a science when its potential was directed at the problems of its own development, according to the then valid criteria of science. In this sense, the status of science was a condition for becoming a part of history. And making its own history. It was an interesting proposition, however, it complicated the situation in several different ways. The question of whether and in what sense psychology is science was debated for many years to come. It was only after 50 years that Herbert Feigl (1962) found a satisfactory answer: yes, psychology is a science because it can explain or interpret facts and make predictions.

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Correspondence address: wlzeidler@gmail.com

However, the same psychology soon became the subject of criticism from the student revolution of 1968. The reason for the criticism of young students was the social-historical reflection. It was claimed that psychology became a tool to support the interests of the bourgeoisie. This unusual discovery and the radical formulation was intended to instrumentalise psychology for the needs of this ideology, which, after the bitter experience of the Second World War, was trying to gain control over the minds of Western European citizens. The same ideology, "under the banners of progress and science", enslaved the social and scientific life of Eastern Europe since the end of World War II. At the same time, it *de facto* reduced psychology to the formula applied to natural sciences, at the level of physiology. Thus, the "ideological prescription" of practising psychology proved to be contradictory to Herbert Feigl's diagnosis, as it lacked space for interpretation. The error of the ideology consisted in the fact that it reduced or even closed psychology in the circle of natural sciences, ignoring known and noteworthy attempts to classify the sciences of Heinrich Rickert (1863–1936) and Wilhelm Windelband (1848–1915).

A challenge for psychologists in the so-called socialist countries was a need for a structure that would be able to combine the realities of natural sciences with the ideology of the political system. Psychology itself decided to accomplish the task, using a special type of "interpretation", consisting in making appropriate, i.e., ideologically correct, labels. No wonder that psychologists have lost interest in the history of their science, which has started to put on an increasingly different ideological costume. Further information on the problems of Polish psychology in this period can be found in other publications, examples of which are the articles by Zofia Ratajczak (2011) and Teresa Rzepa (2013).

Similarly to justifying the advantages of psychology as a science, the founders of psychology also had problems with describing and justifying the independence of their science. For Wilhelm Wundt (1913), it was hard to think of separation between psychology and philosophy! The supporters of experimental psychology usually had the opposite opinion. Wolfgang Köhler (1958), who saw the need for interdisciplinary cooperation in this matter, took a different stance, and therefore wrote:

[...] these lucky moments in the history of science appear when facts, which until now have been treated only as single phenomena, suddenly, combined with seemingly distant, other facts, appear to us in a completely new light [...] going beyond the limits is one of the most effective methods of practising science. (Köhler, 1958, p. 91)

As if anticipating Wolfgang Köhler's suggestions, already on the threshold of the 20th century Hugo Münsterberg (1863–1916) postulated the establishment of social psychology as a separate (in terms of subject and methods) psychological discipline. Brothers Floyd and Gordon Allport implemented his postulate. Soon, social psychology became a separate and independent discipline to such an extent that it started writing its own history.

Of course, we have not yet described the entire spectrum of varieties of psychology. At the turn of the nineteenth and twentieth centuries several more "conventions" appeared, which also sought a place in the "salon of sciences": psychoanalysis, psychotherapy, character studies. Wolfgang Martynkiewicz (2009) presented interesting but disturbing examples of forming, in the 1920s and 1930s, the relations of some psychology varieties with emerging power structures in both ideology and politics. These were only some of the possible ways that led to institutionalisation and, in the next step, to the instrumentalisation of psychology. Some of these ways were already in use during the First World War, others during the Second World War, and some after its end.

At this point, it should also be noted that in various historical periods and different countries, the relations of psychology with the surrounding reality, i.e., with time and location and with the social system, were both clear and varied, and its history was recorded in various conventions. Understandably, there was also a heterogeneous interest in psychology and its history. This was reflected in the creation of new models (ways) of dealing with or even practising the history of psychology (cf. Zeidler, 2003). Helmut Lück (2008) distinguished four models of practising it: lives of the noblemen, history of ideas, history of problems, social history. It should also be reminded that after a period of a weak interest or aversion to the history of psychology, this attitude has changed. They were replaced by curiosity or inquisitiveness.

1. Interest in the History of Psychology

The occurrence of factors in social life that strain the mental functioning of individuals or entire groups becomes a reason for seeking help, including in psychology. Such an attitude functions at the emotional level, while the interest in the history of psychology is rather cognitive. It is initiated by cognitive dissonance. That is to say, lack of knowledge or the availability of incorrect or obsolete knowledge. We know that a wide wave of interest in the history of psychology, from the USA to Europe, was caused by the 100th anniversary of the so-called psychological laboratory in Leipzig. Its influence also reached Poland and became well visible, especially after the collapse of the communist dictatorship. In Poland, the result and expression of this interest in the history of psychology, liberated from ideological ties, was an excellent manual by Ryszard Stachowski (2000), whose values – due to the specific perspective of the subject of interest (history of psychological thought) and the avoidance of simplified interpretations – exceed those attributed to the manual of E. G. Boring *A History of Experimental Psychology* (1950, ed. II; cf. Zeidler, 2003, pp. 58–60).

The second one, extremely valuable in this context, is the work of Teresa Rzepa and Bartłomiej Dobroczyński (2009): *Historia polskiej myśli psychologicznej* (A history of Polish psychological thought). The special value of this work is that its authors replaced the search for "foreign" elements in Polish psychology by showing the specificity of the history of Polish psychological thought, and they dared to present this peculiarity clearly. The consequences of these successes were reflected, among other things, in an increase in readers' interest in the history of psychology. In addition to them, there was an intensification of research in the field of the history of Polish psychology, while noticing its links with the development of European psychology. A peculiar novelty was the fact that several scientific meetings (including conferences) and publications were carried out in relation to an attempt at Polish-German cooperation. The results of this trend were presented at two scientific conferences in Warsaw (2009 and 2011, University of Finance and Management) and in several scientific publications (Herrmann & Zeidler, 2012; Zeidler, 2009; Zeidler & Lück, 2011). One can think that the extremely interesting series *Na Drogach i Bezdrożach Historii Psychologii* (*On-roads and off-roads of the history of psychology*), which has been published in Lublin since 2011 and edited by Teresa Rzepa and Cezary W. Domański (2011), is another stage of satisfying the interest in the history of psychology. Adopting such perspective, it should be said that since the beginning of the 21st century there has been a keen interest (of both researchers and readers) in the

history of psychology, with particular emphasis on those areas that were either avoided or "prohibited" during the communist era. We should add that this way of practising the history of psychology in Poland has been successively changing, thanks to which we can say that, apart from "factual" works, publications with a clear focus on interpretation in the relevant social and political context are more and more frequent (e.g., Gołąb, 2015; Hryniewiecka, 2015; Izdebski, 2015).

This brief description of the development of our interest in the history of psychology in Poland allows us to imagine the extent and significance of this issue since we are determined to consider it in a broader context: European or continental one. Until now, the description and analysis of the history of psychology have been limited to the historical and political borders of the selected country (England, Germany, USA, Poland). Meanwhile, according to the previously cited quote, "going beyond the limits is one of the most effective methods of practising science" (Köhler, 1958, p. 91). With regard to the history of psychology, including Polish psychology, Wolfgang Köhler's indication seems both correct and extremely difficult. Problems begin when we try to assess the state of psychology at a particular moment and in a particular country while respecting the existing affinities or peculiarities. It seems that it is only possible to organise the history of psychology per nations, continents or schools superficially, based on the Lück's principle called the history of the noblemen. Attempts to find more sophisticated principles of division may end with failure, one that has limited the value of Abraham A. Roback's work[2] (1970). In his *History of psychology and psychiatry*, originally published in 1961, for all the countries that did not have state independence until World War I, there is no mention of psychology. Can it be therefore assumed that psychology was unknown in all the three parts of Poland during the period of the Partitions of Poland? And if "some" already was established, could it have been the Polish psychology?

2. Did European Psychology Exist?

The actual state of affairs deserves more attention than *Roback's error*, justified by unknown reasons. It is therefore worth taking into account certain realities, which, from the European perspective, must be more visible than if we want to see them 'from the other side of the Ocean'. The question arises whether, during the partitions of Poland (and this was the "Polish specificity"), in their territory, psychology could already have been "Polish", i.e., did it use Polish language as a tool to express its own views and create its own theories? Of course, the functioning of a given science in the national language increases its availability in a given nation, and thus: interest in its contents. Max Dessoir (1902) emphasised that the process of creating one's own, psychological terminology in German was the work of three generations of German psychologists. The specificity of this process with reference to the Polish language was presented by Rzepa and Dobroczyński (2009) as well as by Panczyk and Zeidler (2011). In Poland, the achievement of "terminological identity" took place during the partitions of Poland in a different and specific way for each of them. Therefore, it should be assumed that Polish psychology, i.e., the one that carried out its research and expressed its results in the Polish language, already existed

[2] I provide a more accurate picture of his work in my work: Zeidler, 2011, pp. 47–48.

before the outbreak of the First World War. A good example is the work of Francisca Baumgarten (1917): *Kłamstwo dzieci i młodzieży* (The Lie of Children and Youth), which will be discussed in a separate article (Zeidler, 2018).

Let us return to what we called Roback's error, i.e., his omission of the importance of Franz Brentano's concept for the development and shape of psychology in Europe at the turn of the 19th and 20th centuries. In the already quoted manual on the history of psychology, Stachowski (2000) often returns to the content and role of Brentano's views. Other historians of psychology treat the views and meaning of this scientist in a variety of ways. Norton Hunt (2007) ignores both the author himself and his views. Unlike him, Duane P. Schultz and Sydney E. Schultz (2008), also American authors, have published on two pages a compact but successful description of both Brentano's views and his significance for the development of psychology. They stressed that his main work, *Psychology from an Empirical Standpoint* (1999), was first published in 1874, the same year when Wundt published *Grundzüge der physiologischen Psychologie*. These two works had different but fundamental significance for the two different options of practising the "emerging" new psychology. The empirical psychology (Brentano) and the experimental one (Wundt). Moreover, Brentano has become the founder of a new theoretical orientation, known as the psychology of acts. The authors of this manual call Brentano one of the pioneers of psychology and consider him to be a precursor of character psychology and humanistic psychology.

It should also be remembered that at that time in the history of Europe, changes took place, which included not only political, economic, social and military events, but also science, and they, of course, occurred also in philosophy. And this one was subject to modifications during the 19th century, about which Władysław Tatarkiewicz wrote: "Poland has also been moving from extremity to extremity in its philosophy over the century: it began with positivism, moved on to messianic metaphysics after the November Uprising, and then returned to positivism after the January Uprising" (Tatarkiewicz, 2001, p. 7). All these transformations, regardless of whether we look at them from the European or Polish perspective, were exceptionally important, because in each of them they were "multifactorial", i.e., political coexisted with military ones, economic with scientific ones, etc. When viewing the well-known "separation" of psychology from philosophy in such a more varied perspective, it is worth considering both the facet of this newly emerging psychology and that "old" philosophy from which it has already separated or just wanted to separate. The peculiarity of possible situations is even more interesting because at the time in question, different philosophical orientations existed or prevailed in different parts of Europe. Psychologists already knew this circumstance when the first psychological "orientations" started to take shape, i.e., when Wundt and Brentano wrote their main works. Both to create new relations between philosophy and psychology. Their intentions were unambiguous, but their implementation brought different results. Brentano, moving away from speculative philosophy, became an advocate of empirical psychology. Wundt, who was "critical" of French and English philosophy and at the same time referred to the rules of the natural sciences, became an advocate of experimental psychology. This is the image we are getting with a superficial look. It will be deepened by reading Wundt's controversial work from 1915 *Die Nationen und ihre Philosophie. Ein Kapitel zum Weltkrieg*.

Wundt focuses in this work on three types of variables, which he first distinguishes and characterizes. These are philosophy, "nationality" and religion. The latter turns out

to be the least explicit and dissolves into a group of such terms as tribe, nation, society, empire. In turn, religion overlaps with language and causes further differences. Thus, the author of experimental psychology, apart from the philosophy of the "French" and "Englishmen", which is relatively uniform, encounters problems with the "German" philosophy. At that time there were several German-speaking nations in Europe, and they differed in religion. Thus, there were Catholic and Protestant nations. This was a fact that was of great importance when views on ontological issues, the theory of cognition and methodology had to be agreed upon in the field of psychology. Of the three powers occupying Poland, two had "something" to offer Polish psychology, but the concepts also differed. The one was in line with the Catholic faith, the other with the Protestant. If we take into account several political realities, which are characteristic of the final phase of the partitions, then we understand that in Poland – the concept closer to Catholicism attracted more interest. This means that Brentano's empirical psychology was more accessible to the Polish mentality than other orientations.

However, it would be simplistic to say that only religion decided about the greater accessibility of Brentano's psychology to the Polish mentality. Political and organisational factors also played an important role here, i.e., a more liberal attitude to Polish tradition and organisation in the Austrian partition. Above all, a clearer presence of Polish language in the everyday and cultural life of the society in this partitioned sector. And as its consequence, the presence of Polish science in the official system of sciences, accepted in this sector. In 1986, the University of Vienna published a study on the last 100 years of its history. It contains some details that illustrate the problem we are interested in. From the last partitioned sector two Polish universities "survived": in Cracow (year of est. 1364) and in Lviv (year of est. 1661). Both were Germanised, and it was only after 1867 that they were gradually repolonised, which was "completed" in 1879 with a decree stating that the "official" language at the University of Lviv was Polish. In the academic year 1884/1885 there were 976 matriculated students and in 1913, 5.206 students. At the Jagiellonian University, there were 871 matriculated students in the academic year of 1884/1885 and 2.605 in 1913. Let me remind that Kazimierz Twardowski, after taking up his professorship in Lviv, translated some of his works into Polish. It was a process similar to that of Dessoir: it consisted in translating "Latin works" into the national German language. Some further important information on the functioning of psychology in the Austrian Empire can be found in the works of Gerhard Benetka[3] (1995, 2009), who reminds that Franz Brentano's teaching period at the University of Vienna was 20 years "only": 1874–1894. The next 28 years in the history of Vienna Psychology (i.e., until Karl Bühler became director of the Institute) were marked by multiple changes in orientation (both scientific, social and political) that did favour neither the protection nor dissemination of Brentano's views at this University.

However, interest in his *Psychology from the empirical point of view* continued (1999). Brentano's views, thanks to the activity of his students, were spread in the former Austro-Hungarian Monarchy. Kazimierz Twardowski is a good example here, but not the only one. The influence of Anton Marty from the University of Prague was equally broad, and also in the trends of Brentano's views (cf. Antonelli, 2011). It is not possible

[3] Prof. Dr. Gerhard Benetka (born 1962) is the director of the Institute of the Faculty of Psychology at the Sigmund Freud University in Vienna. He deals with the theoretical foundations of psychology, research methodology and history of psychology.

to exhaust this topic in this study. Therefore I will limit myself to pointing out that the collapse of this double monarchy had a very negative influence on the further interest in the views of Franz Brentano. Restitution of this interest can only be observed at the end of the 20th century (cf. Rzepa, Galewicz, Benetka & Antonelli[4]). In Poland, during the communist era, downgrading or even ignoring the importance of Brentano's views was conditioned by ideology. Meanwhile, the development of Polish psychology and philosophy during the partitions and later, already in the interwar period, as well as their shape – free from connections with "Brentanism" – is unthinkable.

3. Political Digression

Usually, the choice of the language of university lectures was justified by political reasons. However, in the case of the Austro-Hungarian Monarchy there were other traditions and customs. It should therefore be noted that the universities in Cracow and Lviv "had" Polish language, but despite this, Poland did not exist as an independent state. And it was this very circumstance that limited the possibility of "Poland"s' participation in the First World War. It was only at the end of the war, in point 13 of President Wilson's peace declaration of 8 January 1918, that a plan for the restitution of the Polish state appeared[5]. The restitution meant – even before the signing of the Treaty of Versailles (10 January 1920) – that all institutions necessary for the functioning of social, economic and political life had to be created anew. It was already known about psychology that it has significant importance for mental and economic life, both in terms of education and training and production efficiency.

Meanwhile, due to the lack of state independence, none of the three partitions could be, and was not, a party in World War I. This means that, logically, Polish psychology could not be a tool to help the state in waging war, which did not exist at that time! We must therefore assume that, despite having a national self-awareness, Polish psychology could start functioning in an institutionalized manner only within the framework of new state structures: an independent Polish state. In reality, however, the restitution of the Polish state could only begin after the signing of the Treaty of Versailles (10 January 1920), and this meant that all instances necessary for the functioning of the state as a social, economic and political organism had to be created anew.

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[4] Prof. Dr. Mauro Antonelli (born 1962) is a professor at the universities of Milan and Graz. He deals with the history of European psychology, with a particular emphasis on the psychology of Franz Brentano and the School of Graz. In 2016, the first issue of the *European Yearbook of the History of Psychology* was published, of which he is the initiator and editor-in-chief.

[5] President Wilson's peace plan of 8 January 1918, point XIII. "An independent Polish state should be erected which should include the territories inhabited by indisputably Polish populations, which should be assured free and secure access to the sea, and whose political and economic independence and territorial integrity should be guaranteed by international covenant." The same content appeared a year earlier, in Wilson's "Speech" of 22 January 1917. The original English term *should be erected* is not an exact equivalent of the term *restitution*. However, while respecting historical realities, it must be accepted that President Wilson had in mind the political and organizational realities of the time, the collapse of the monarchy and empires, which meant nothing more than a state of independence. Therefore, it seems that taking into account the historical reality, in the Polish language, the use of the term *restitution* is justified.

4. Difficulties with the Reconstruction of the History of Polish Psychology

When we talk about history, the history of psychology or the history of Polish psychology, the difference between actual events (history) and their recording and interpretation must be respected. The latter requires special attention. Each piece of history is an element in the structure of a different, larger whole. Two of them are particularly important. We call the former *a nation*, the latter *a state*. History is littered with evidence that these structures are not clearly and forever separated from each other. Juan J. Linz (2009) showed a whole range of reasons and types of blurring the boundaries between these structures and their degeneration towards totalitarian regimes. His work makes us aware of some deformations in the process of history – in the process of creating and transforming Europe. That Poland has participated in these changes since the Middle Ages requires no proof. On the one hand, one can observe the strengthening of the sense of national identity, and on the other hand, of Polish statehood: their further successes, threats or even failures. The period of partitions was particularly difficult. The eighteenth and nineteenth centuries in Europe were periods of the transformation of all the principles and structures of social, mental, economic and political life. Each of them was based on two different substrates. The former was a sense of national identity, rooted in a specific culture, the latter – the statehood. The specificity of the history of Europe in that period included, as one of its characteristic features, the domination of state structures and their subordination, or even limitation of the independence of national structures, most often using violence and rape. An appropriate example was the compulsion to study in the language of the invader. Where the official language was the language of the invader, it was difficult or even impossible to record and publish the history of one's own nation.

No wonder that recording and disseminating the history of Polish psychology was also difficult, and its interpretation inconvenient. When Władysław Heinrich and Kazimierz Twardowski wrote their excellent doctoral and post-doctoral ("habilitation") dissertations at foreign universities (cf. Panczyk & Zeidler, 2011), was it an achievement of Polish or German psychology? Ryszard Stachowski (2011) recalled the work of Jan Wł. Dawid – the first Polish questionnaire to study the mentality of Polish children, edited and published in 1886! In 1912 Franciszka Baumgarten (1927) conducted original research on the lie of children in a Russian school, but in the Polish language! And in 1990 Helmut Hildebrandt and Eckart Scheerer rated Władysław Heinrich's contribution to the theory of research on attentiveness and apperception very highly – his work in German language, *Die moderne physiologische Psychologie in Deutschland*, 1895 (cf. Heinrich, 1988).

Of course, it is neither my task nor the aim to further point out examples of the presence of Polish psychologists in European psychology. Evidence of the existence of Polish psychology during the partitions, as a collective activity, is also the activity of two scientific societies: the Polish Psychological Society (Warsaw 1907; Celińska, 2009) and the Polish Society for Child Research (Warsaw 1907; Report, 1908). Each of them contributed to the emergence and development of Polish psychology, first during the partition periods, and later also in subsequent periods of historical cataclysms that posed a threat to both Polish statehood and national, or perhaps simply cultural identity.

5. Collapse and Rebirth: The Unexpected Consequences of the Great War

In a very solid historical monograph, *Pandora's Box*, Jörg Leonhard (2014, pp. 460 ff.) noted that the sacrifice, including the sacrifice of the lives of many thousands of soldiers during World War I on the Western front are commemorated by monuments cherished with the utmost respect and care. However, no monuments commemorate even more numerous victims in the battles on the Eastern Front. But are they really needed? It is, after all, the case that all these cruel human sacrifices on the Eastern Front document the political events, perhaps more important than those about which Horacius wrote: *monumentum aere perennius…* – events that were the immediate aftermath of the Great War and brought liberation from imperial dependency to many nations. Leonhard is referring to the rise or rebirth of a series of national states, formerly belonging to one of those empires that had just collapsed as a result of *la Grande Guerre*. Instead of dealing with the increasingly laborious determination of causes and guilt, contemporary historiography tends to maintain – contrary to the earlier views[6] – that, in fact, the Great War primarily closed one chapter of European history[7]. In many European countries, the former monarchies began to be replaced by democracy[8], which implied two kinds of changes. On the one hand, the former powerful state organisms, even entire empires, were falling apart! On the other hand, their place was taken by much smaller countries, which were created by regaining their former freedom and independence. Regarding state identity: rape and violence were replaced by the sense of national identity (probably exactly the one analysed by Wilhelm Wundt in his *Völkerpsychologie*), which was extremely important. If the psychology of that time had something "own" to say about war, it would be that the former empires must have had the greatest difficulty in establishing national identity, in which the idea of a multinational and imperial state was the highest value so far! No wonder that here and there, at different times, the sense of national identity built on the "patterns" of the imperial state led to radical nationalism. In Juan Linz's work (2009) we recognize it under various masks, in the costume of ever-new totalitarian and authoritarian regimes. Reduced to political aspects, it can be said, the idea has retained its vitality to our times. And even more: at various times, it has been the driving force behind what we call the course of history (cf. Herrmann & Zeidler, 2012).

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[6] For example, F. Fischer (1961). This earlier view was also respected in psychological literature, e.g., E. Scheerer (1989).

[7] Cf. e.g., Hans Herzfeld (1991), *Erster Weltkrieg und Friede von Versailles.*

[8] Juan J. Linz defines democracy as follows: "*Wir nennen dann ein politisches System demokratisch, wenn es bei Wahrung der Grundrechte auf Vereinigungs-, Informations- und Kommunikationsfreiheit die freie Formulierung politischer Präferenzen erlaubt*" (2009, p. 12). "We call a political system democratic if it allows the free formulation of political preferences while safeguarding the fundamental rights to freedom of association, information and communication)."

6. Multiple Facets of the Psychology(?)

In this journal, we often meet the same "actors": history and psychology. The former – rather as a record or reminder of history, and only occasionally as their interpretation. Let us also say that psychology during the Great War, despite significant progress in development, was not able to reverse the sense events, and was not always properly prepared to meet the expectations addressed to it. It should be added, however, that the psychology of that period, although present in science, in political and social activities, was not yet a uniform creation. Apart from the academic one, there were also psychoanalysis and psychological techniques[9] looking for a way to their institutionalization. The former and the latter were willing to take into account the needs and tasks resulting from on-going warfare. Besides that, academic psychology then focused on experimental research in laboratories, was not able to satisfy the requirements resulting from the war landscape. Perhaps a certain oversight of psychologists, and later also historians of psychology, was to understand academic psychology in a one-sided way – as natural science. Meanwhile, even before the start of the Great War, another orientation had emerged, which found expression in Dilthey's dispute with Ebbinghaus. This orientation, entangled in the contradictions of its time, instead of explaining, tried to understand the course of specific events! And not only this orientation. Perhaps this type of narrative should also be recalled with reference to the ongoing *la Grande Guerre*, which Scheerer (1989) called wartime journalism.

The author placed all publications with the journalistic title *Kriegspsychologische* outside the boundaries of scientifically understood psychology, which at that time was only slowly and with some difficulty acquiring the "spurs of truthful science". This is because there was no guarantee that the publications with this *Kriegspsychologische* in the title still had something to do with psychological discourse. Julia Barbara Köhne (2014) described such studies as *fachliche und belletristische Kriegspublizistik*. With adjective *psychological* in the title, they built their content using common sense, but they were not based on the psychological results of scientific research. Their journalistic attractiveness was to replace scientific competences.

7. The Way Forward: Towards European Identity?

The authors of the works included in this issue tend to treat *la Grande Guerre* as the next stage in the development of European history. On the other hand, the course and results of this war are treated with an awareness of what Franziska Baumgarten[10] has

[9] Additional interesting details about the "variety", meaning and specific "richness" of current non-academic trends in psychology in the 1920s in Germany were presented by Wolfgang Martynkiewicz (2009).

[10] "*Die Zeit des 1. Weltkrieges war eine Fermentzeit für die angewandte Psychologie. In jedem kriegsführenden Lande gab es das gleiche Problem: wie… erringt man den Sieg über die Feindesmacht…*– (as cited in Daub, 2011, p. 225).

"The time of the First World War was a fermenting time for applied psychology. In every warring country there was the same problem: how ... one can achieve victory over the enemy power... " (Daub, 2011, p. 225).

already noticed as a kind of challenge for psychology (Daub, 2011, p. 225). Imperial states' policies during the war assigned to psychology the selection of recruits or the care of soldiers after injuries. However, the tasks that psychology had to perform after the end of the war for the needs of newly established national states, including the independent Polish state, were completely different. It consisted in building the principles of one's own national pedagogy, general and vocational education, and the use of psychological techchniques (Baumgarten, 1928/1930).

Perhaps the conviction that *la Grande Guerre,* in fact, concluded one of the periods of political and cultural development in Europe is a heuristically more valuable proposition than it initially seems. For the newly established countries that were looking for a way to their future, regaining freedom and independence was a reward for the hardships and sacrifices made in the war in someone else's interest. But freedom was nothing more than a challenge and a task: the search for national identity in the landscape and climate of the 20th century. Of course, with the participation of political awareness, but also with the use of accessible sciences. Was psychology one of them? Did psychology at the beginning of the 20th century have a "mandate" and appropriate tools to explain to any human being what a *nation* and what a *state* is?

This is an important circumstance if we start thinking about the institutionalization of Polish academic psychology. Actually, this process was possible even before regaining independence – at two universities (in Cracow and Lviv), psychology had the right to use the Polish language in its scientific and didactic activities. In our journal, Teresa Rzepa and Ryszard Stachowski show the creation of the foundations of academic psychology in Poland using the examples of the achievements of Kazimierz Twardowski and Stefan Błachowski. Twardowski created philosophy and psychology based on the former Polish university in Lviv, however, based on the current, modern psychology of Franz Brentano from Vienna. Błachowski, based on the knowledge and experience from universities in Lviv, Vienna and Göttingen, formulated at the new university in Poznań the foundations of such psychology that wanted to be European. To avoid blurring the truth, it should be added that both Błachowski and Twardowski built their psychology in direct contact with German psychology. For historical reasons, it was then also the closest and the "best" one.

In the territory of the former Russian partitioned sector, the situation of psychology was more difficult. Despite this, active individuals educated outside the annexation zone, acting under the influence of specific ideas of *Warsaw positivism*, tried to introduce psychology into social life. It was thanks to them that the Polish Psychological Society was founded in Warsaw in 1907 (Celińska, 2009). Also in Warsaw, from 1908, the Polish Society for Child Research was active – inspiring, initiating and caring for psychological research on children who were to become free from enslavement in a few years. Paweł Izdebski, using the example of Aniela Szyc, presents in our journal several details about the psychology of a child in a country where children at school could not use their own language. The author also had the opportunity to reveal the testimony of a kind of solidarity between Aniela Szyc and Franciszka Baumgarten. This solidarity manifested itself in 1912, when Franciszka Baumgarten planned to conduct her research on the lie of children and young people in Łódź in 1912 *(sic!*) in the Polish language! Włodzisław Zeidler described the history and significance of this work in a separate article.

The completion of the whole picture or an outline of its complexity presents the article by Cezary Domański. We learn there about the "consequences" of warfare: psychiatric patients, just soldiers of the proud Austro-Hungarian army, hospitalized in Lublin under the care of Viktor Tausk, a physician of the Imperial-Royal army, of a psychoanalytical orientation.

I would like to thank all the authors for their cooperation in the preparation of this journal. My heartfelt thanks go to Prof. dr hab. Henryk Gasiul, editor-in-chief of *Studia Psychologica*, who encouraged all the authors to work on the preparation of the issue, and in difficult moments raised their spirits.

A special reward for the work of the entire team of Authors will be when the studies collected in the journal increase the interest of readers and become an incentive for further research on the history of European psychology.

Włodzisław Zeidler
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KRZYSZTOF STANISŁAWSKI*
Institute of Psychology
Cardinal Stefan Wyszyński University in Warsaw

WŁODZIMIERZ STRUS
Institute of Psychology
Cardinal Stefan Wyszyński University in Warsaw

JAN CIECIUCH
Institute of Psychology
Cardinal Stefan Wyszyński University in Warsaw

THE POLISH ADAPTATION OF LOCKE'S CSIE QUESTIONNAIRE MEASURING INTERPERSONAL SELF-EFFICACY AND ITS PERSONALITY CORRELATES[1]

Abstract

Celem artykułu jest prezentacja polskiej wersji kwestionariusza do pomiaru poczucia skuteczności interpersonalnej – *Circumplex Scales for Interpersonal Efficacy*; CSIE Locke'a – oraz poznanie osobowościowych uwarunkowań konstruktów koła interpersonalnego i szerokości repertuaru zachowań interpersonalnych. CSIE są oparte na modelu koła interpersonalnego Wigginsa (Wiggins, Trapnell, Phillips, 1988) i mierzą 8 aspektów interpersonalnego poczucia skuteczności: Dominujący, Dominujący i Zdystansowany, Zdystansowany, Ustępliwy i Zdystansowany, Ustępliwy, Ustępliwy i Życzliwy, Życzliwy, Dominujący i Życzliwy. Badanie przeprowadzono na próbie $N = 306$. Rzetelność jednej skali (FG – Ustępliwy i Zdystansowany) jest niska, rzetelności pozostałych skal są zadowalające. Struktura wewnętrzna i trafność teoretyczna narzędzia są satysfakcjonujące. Stwierdzono, że interpersonalne poczucie skuteczności jest najsilniej powiązane z metacechą Beta / Plastyczność, co poddano dyskusji w kontekście Cybernetic Big Five Theory; CB5T DeYounga (2015). Jako wskaźniki szerokości repertuaru zachowań interpersonalnych zastosowano elastyczność interpersonalną (wzniesienie profilu) oraz sztywność interpersonalną (długość wektora).

The article aims to present the Polish version of Locke's Circumplex Scales of Interpersonal Efficacy (CSIE) as well as to elucidate the personality correlates of interpersonal circumplex constructs and the scope of the repertoire of interpersonal behaviours. CSIE is based on Wiggins' interpersonal circumplex model (Wiggins, Trapnell, & Phillips, 1988) and enables the measurement of eight facets of interpersonal self-efficacy: Dominant, Dominant & Distant, Distant, Yielding & Distant, Yielding, Yielding & Friendly, Friendly, Dominant

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& Friendly. The research was conducted on a sample of $N = 306$. The reliability of one scale (FG – Yielding and Distant) was low, and the reliabilities of the remaining scales were acceptable. The internal structure and construct validity of the tool were satisfactory. Interpersonal self-efficacy was found to be most strongly associated with the Beta / Plasticity metatrait. This fact was discussed in the context of DeYoung's (2015) Cybernetic Big Five Theory (CB5T). Two measures were used as indicators of the scope of the interpersonal repertoire: interpersonal flexibility (profile elevation) and interpersonal rigidity (vector length). The flexibility of interpersonal self-efficacy and interpersonal traits were associated with extraversion, agreeableness, emotional stability, intellect, Alpha / Stability, Beta / Plasticity, and General Factor of Personality. In turn, the rigidity of interpersonal values and traits is correlated with extraversion, agreeableness, emotional stability, intellect, Alpha / Stability, Beta / Plasticity, and General Factor of Personality.

Keywords: CSIE questionnaire, interpersonal self-efficacy, circumplex model, interpersonal flexibility, interpersonal rigidity

1. Interpersonal Circumplex Model

The *interpersonal circumplex* (IPC) is commonly used to describe various psychological characteristics concerning human social functioning: interpersonal constructs understood as traits (Leary, 1957; Wiggins et al, 1988), broad interpersonal problems (Alden, Wiggins, & Pincus, 1990; Horowitz, Rosenberg, Baer, Ureno, & Villasenor, 1988), social goals (Ojanen, Gronroos, & Salmivalli, 2005), *interpersonal values* (Locke, 2000) and an *interpersonal self-efficacy* (Locke & Sadler, 2007). IPC arranges the proposed constructs in two independent dimensions. A vertical dimension is *status*, which in the literature is also called *agency*, *dominance* or *power*, whereas a horizontal one is *love*, in the literature also called *communion*, *friendliness* or *warmth* (Carson, 1969; Foa, 1961; Kiesler, 1983; Leary, 1957). IPC constructs are equally distant from the point of intersection of two axes and arranged in a circumplex structure; distances between pairs of adjacent variables are equal.

The precursor of IPC is Leary (1957), who ordered 16 constructs describing interpersonal behaviours in a circumplex structure and assigned one letter (from A to P) to each of them. The letters were arranged counterclockwise, with A at the very top (Leary, 1957). Wiggins (1979; Wiggins & Broughton, 1991) combined the adjacent variables and obtained eight dispositions (each of them is *an octant*), thus constructing his own version of IPC. According to this, dispositions are understood as traits, and each octant is marked with two letters. As an example, Wiggins and co-authors (Wiggins et al., 1988) state that the B (arrogant) and C (calculating) constructs together constitute the BC octant (arrogant–calculating). In the currently most popular Wiggins variant, IPC measurement is based on Interpersonal Adjective Scales (IAS) constructed by him, recently adapted to Polish conditions by Sękowski and Klinkosz (2016; Klinkosz, 2004).

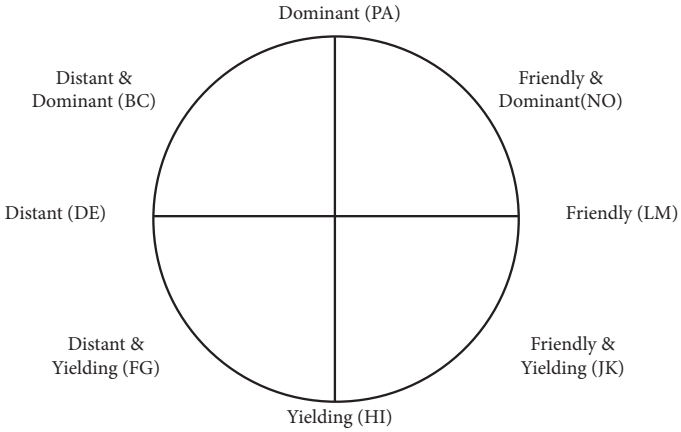
2. Interpersonal Self-efficacy and Interpersonal Values

Locke proposed his own interpretation of IPC as well (2000; Locke & Sadler, 2007). The above-mentioned author presented the possibility of integrating the interpersonal approach (Alden et al., 1990; Wiggins, 1979; Wiggins & Broughton, 1991) with a social-

cognitive approach. A leading representative of this approach, Bandura (1993, 2001, 2006), claims that "efficacy beliefs are the foundation of human agency" (Bandura, 2001, p. 10). He believes that "perceived self-efficacy refers to people's beliefs about how to achieve the goals set" (Bandura, 2006). According to Bandura (1993), self-efficacy is important in four types of processes: cognitive, motivational, affective and selection. A high self-efficacy in one sphere is associated with a high level of motivation, undertaking challenges, involvement in a certain activity and a sense of control of the course of events.

Locke, following the concept of Bandura's perceived self-efficacy, introduced the concept of interpersonal self-efficacy, which is defined as a subject's belief in their own abilities to perform certain types of interpersonal actions (Locke & Sadler, 2007). Locke and Sadler (2007) distinguished eight types of interpersonal self-efficacy: Dominant, Dominant & Distant, Distant, Yielding & Distant, Yielding, Yielding & Friendly, Friendly, Dominant & Friendly. The interpretation of IPC, presented by Locke and Sadler (2007), is shown in Figure 1.

Figure 1. IPC in Locke's and Sadler's interpretation (2007).



To explore interpersonal constructs in more detail, Locke (2000) also proposed the concept of *interpersonal values*, which, in his opinion, are preferences for certain results of interpersonal actions or behaviour. Locke (2000) identified the following types of interpersonal values: Agentic, Agentic and Separate, Separate, Submissive and Separate, Submissive, Submissive and Communal, Communal, Agentic and Communal. Table 1 shows the comparison of constructs (octants) according to Wiggins and Lockes proposal. It is worth noting that there is little research on the relationships between these various types of interpersonal constructs (Locke & Sadler, 2007).

For measuring interpersonal values, Locke (2000) constructed Circumplex Scales of Interpersonal Values (CSIV). Meanwhile, interpersonal self-efficacy was operationalised with the Circumplex Scales of Interpersonal Efficacy (CSIE; Locke & Sadler, 2007).

Table 1
Octants by Wiggins and Locke and examples of CSIE items

Other constructs from the interpersonal circumplex model			Circumplex model of interpersonal efficacy	
Symbol	Traits (Wiggins, Trapnell, & Phillips, 1988)	Values (Locke, 2000)	Self-efficacy (Locke & Sadler, 2007)	Examples of CSIE items
PA	Assured–Dominant	*Agentic*	*Dominant*	...I can be assertive.
BC	Arrogant–Calculating	*Agentic & Separate*	*Dominant & Distant*	... I can keep the upper hand
DE	Cold–Hearted	*Separate*	*Distant*	... I can be tough.
FG	Aloof–Introverted	*Submissive & Separate*	*Yielding & Distant*	... I can hide my thoughts and feelings
HI	Unassured–Submissive	*Submissive*	*Yielding*	... I can avoid getting into arguments
JK	Unassuming–Ingenuous	*Submissive & Communal*	*Yielding & Friendly*	...I can follow the rules
LM	Warm–Agreeable	*Communal*	*Friendly*	... I can fit in
NO	Gregarious–Extraverted	*Agentic & Communal*	*Dominant & Friendly*	... I can express myself openly

3. IPC and Big Five Relationships

Many studies have been conducted on the relationships between interpersonal circumplex construct and Big Five dimensions (de Raad, 1995; DeYoung, Weisberg, Quilty, & Peterson, 2013; Trapnell & Wiggins, 1990). They focused on one type of constructs, i.e., interpersonal traits, and it was observed that two traits of the Big Five, namely extraversion and agreeableness, showed systematic and quite strong connections with IPC dimensions. McCrae and Costa (1989), and de Raad (1995) observed positive correlations between the status/agency dimension and extraversion, negative ones between the status/agency dimension and agreeableness, and positive dependencies between love/communion and extraversion/agreeableness. The studies by Trapnell and Wiggins (1990), as well as DeYoung and co-authors (DeYoung et al., 2013), also point to strong links between the dimension of status/agency and extraversion and between the dimension of love/communion and agreeableness. Furthermore, DeYoung et al. (2013) observed that facets (subdimensions; cf. Strus & Cieciuch, 2014) of extraversion and agreeableness corresponded to IPC octants. In general, the above results indicate that the dimensions of status/agency, love/communion as well as extraversion and agreeableness are the rotated dimensions of the same interpersonal space described by IPC.

It is worth noting that new studies concerning personality structure indicate that there are also two metatraits above the Big Five traits: Alpha (called Stability) and Beta (in other words: Plasticity). Alpha / Stability corresponds to the covariance of agreeableness, conscientiousness and emotional stability (opposite pole of neuroticism), while Beta / Plasticity is associated with a constellation of extraversion and openness to experience (DeYoung, Peterson, & Higgins, 2002; Digman, 1997). Alpha reflects stability at

emotional, social and motivational levels, while Beta reflects cognitive and behavioural flexibility as well as the tendency to explore and engage in new experiences (DeYoung et al., 2002). Finally, some studies indicate that at the very top of the personality traits structure, above two metatraits, the General Factor of Personality (GFP) is located (Musek, 2007). GFP corresponds to the most adaptive configurations of personality traits, i.e., high extraversion, openness to experience, agreeableness, conscientiousness and low neuroticism (Musek, 2007; Rushton & Irwing, 2011). Strus, Cieciuch, and Rowiński (2014) reinterpreted GFP as a Gamma/Integration metatrait. They considered it to be a combination of high Alpha and high Beta. The research by Strus and Cieciuch (2017) showed that the status/agency dimension was linked to Beta/Plasticity, and love/communion – to Alpha/Stability. Moreover, it seems likely that metatraits, especially Beta/Plasticity, may be associated with a broader repertoire of interpersonal behaviours.

Some research suggests that this broad repertoire of various available behaviours in social situations enables the prediction of higher self-esteem (Paulhus & Martin, 1988) and lower interpersonal distress (Tracey, 2005; Tracey & Rohlfing, 2010). Some authors report a reverse dependence, i.e., a broader repertoire of interpersonal behaviours is supposed to be associated with poorer adaptation of behaviours to the requirements of a social situation (Erickson, Newman, & Pincus, 2009). It seems that learning about the relationship between the breadth of the repertoire of interpersonal behaviours and metatraits may facilitate placing the former construct in a broader theoretical perspective, which should enable a more complete interpretation of the prediction of.

4. The Breadth of the Repertoire of Interpersonal Behaviours

Research on the repertoire of available interpersonal behaviours (Locke & Adamic, 2012; Tracey, 2005; Tracey & Rohlfing, 2010) refers to the analysis method of *circular profiles* proposed by Gurtman (Gurtman & Balakrishnan, 1998). The circular profile reflects the distribution of scores among particular respondents and is described using *angular displacement*, *elevation*, and *vector length* (Gurtman & Balakrishnan, 1998). The vector length and elevation will be discussed for the purpose of this research.

To calculate the vector length, vector values of the status/agency and love/communion are used, obtained from the following formulas:

$$\text{Agency} = \Sigma W_i \sin\theta_i \quad (1)$$

$$\text{Communion} = \Sigma W_i \cos\theta_i \quad (2)$$

where W_i is the raw score and θ_i is the angular position of i-thoctant (Gurtman, 2011; Locke & Sadler, 2007). The communion is represented by 0° position, whereas agency – 90°.

$$\text{vector length} = (\text{vector of agency}^2 + \text{vector of communion}^2)^{1/2} \quad (3)$$

In the literature, the long vector is interpreted as a pattern of simple interpersonal behaviours – it should be represented by high scores in one IPC area and low scores in others (Tracey & Rohlfing, 2010). A long vector is treated as an indicator of *interpersonal rigidity* (O'Connor & Dyce, 2001; Tracey, 2005; Tracey & Rohlfing, 2010). A short

vector means a similar tendency to different interpersonal behaviours (e.g., low scores in various areas of the circumplex model or vice versa – high scores) and is interpreted as an indicator of a broader repertoire of interpersonal behaviours. A shorter vector is associated with more adequate interpersonal reactions (Tracey, 2005; Tracey & Rohlfing, 2010). However, a longer vector of interpersonal values correlates with less intense worries and a longer vector of interpersonal traits is associated with a lower sense of internal conflict (Locke & Adamic, 2012).

Another parameter of the circular profile is elevation – this is the mean of the scores obtained in all octants. The elevation may be interpreted as a responding style or an indicator of a general factor (Gurtman & Pincus, 2003). Locke and Adamic (2012) observed the relationships between profile elevation and solving of interpersonal dillemmas and suggest that the elevation reflects more than just a responding style. The above-mentioned authors revealed, that a higher elevation of the interpersonal self-efficacy profile is associated with less internal conflict.

There is no general consensus on the operationalisation of the repertoire breadth of interpersonal behaviours and interpersonal rigidity (cf. O'Connor & Dyce, 2001). As mentioned above, a short vector does not have to reflect the broad repertoire of interpersonal behaviours (i.e., it may reflect low scores in various IPC areas). It seems that the elevation may be an interesting operationalisation of the repertoire of available interpersonal behaviours. In this paper, as indicators of repertoire breadth of interpersonal behaviours, we propose the elevation of a circular profile and the vector length. Like some other authors (O'Connor & Dycey, 2001; Tracey, 2005), we interpret the vector length as an indicator of interpersonal rigidity, and elevation as an indicator of interpersonal flexibility. The comparison of the applied indicators concerning the repertoire breadth of interpersonal behaviours is presented in Table 2.

Table 2
Applied indicators of the repertoire breadth of interpersonal behaviours

	Interpersonal rigidity	Interpersonal flexibility
Indicator applied	Vector length	Circular profile elevation
Interpretation ofthe indicator	Longer vector – higher rigidity	Higher elevation –higher flexibility
Indicator calculation	Calculated on the basis of values of the vectors of agency and communion	Mean of all octants

5. Locke's Circumplex Scales of Interpersonal Efficacy (CSIE)

CSIE contains 32 items, four on each scale. The questionnaire shall be accompanied by the following instruction: "For each of the following behaviors, rate how sure you are that you can act that way with other people." An 11-point response scale was applied in CSIE, which is the preferred response scale for the measurement of self-efficacy (Bandura, 2006). The scope of responses ranges from 0 (*I am not at all confident that...*) to 10 (*I am absolutely confident that...*). An example of a test item: "When I am with

others, , 0 – 1 – 2 – 3 – 4 – 5 – 6 – 7 – 8 – 9 – 10 I can express myself openly."

When testing the circumplex model the first two factors in the principal component analysis are expected to explain most of the variance and a similar part of it (Gurtman & Pincus, 2003). After the principal component analysis of CSIE scales, Locke and Sadler (2007) concluded that the first two factors explained 71.5% of the variance. The authors studied the circumplex structure using the RANDALL program (Tracey, 1997). As many as 257 out of 288 predictions were met and the model was well-fitted (CI = 0.78, $p < .001$; Locke & Sadler, 2007). Locke found satisfactory relationships between CSIE and Inventory of Interpersonal Problems (IIP; Horowitz et al., 1988) as well as Circumplex Scales of Interpersonal Values (CSIV; Locke & Sadler, 2007).

The CSIE questionnaire was used in the studies concerning interpersonal functioning of people with autism spectrum (Locke & Mitchell, 2016), interpersonal difficulties in people with anorexia (Ambwani, Berenson, Simms, Li, Corfield, & Treasure, 2016) and interpersonal complementarity (Locke & Sadler, 2007). According to the interpersonal complementarity model, dominant behaviours of one person causes another one to be submissive, where submissive behaviours incline to dominance, friendly behaviours incline to friendliness, and hostile ones to hostility (Kiesler, 1983). Locke and Sadler (2007) showed that the status/agency dimension at the level of self-efficacy allowed the level of dominance manifested during social interactions to be predicted. In turn, the similarity of partners in the love/communion dimension at the level of self-efficacy is associated with higher satisfaction of social interactions. Kammrath, McCarthy, Cortes, and Friesen (2015) applied CSIE to explain why people with low extroversion and high agreeableness exhibit low assertiveness. According to the authors, introverts have lower assertiveness than extraverts because they show lower assertive skills (PA octant – Dominant). On the other hand, agreeable people are less assertive than those with a low level of agreeableness because they have a higher level of non-assertive skills (HI octant – Yielding).

6. Development of the Polish Version of the CSIE

The procedure for CSIE adaptation was as follows: after obtaining consent from the author of the original version of the inventory for the elaboration of the Polish adaptation, the CSIE questionnaire was translated into Polish. Then, an independent English back translation was performed. The Polish version of the questionnaire was discussed with the author of the original version and accepted by him. The first version of the Polish adaptation of CSIE was prepared by Stanisławski and Cieciuch (Stanisławski, 2012) on a small sample ($N = 110$). It turned out that the reliability of some scales was low. The current research presents the second version of the tool adaptation. To prepare it, the items with the worst properties were modified in five scales: BC (Dominant and Distant), DE (Distant), HI (Yielding), JK (Yielding and Friendly), LM (Friendly). Also, alternative translations of the most problematic statement were added to the HI (Yielding) scale.

The article has two aims: (1) to present psychometric properties of the Polish version of the CSIE questionnaire and (2) to elucidate the personality correlates of the repertoire breadth of interpersonal behaviours. The reliability of the CSIE questionnaire was calculated using the Cronbach's α coefficient. Internal validity was tested using principal component analysis and the RANDALL randomization test.

Theoretical validity was determined by the analysis of the correlation between the octants of self-efficacy and interpersonal traits and values as well as social desirability, personality traits, metatraits and GFP. Next, personality correlates of profile elevation and vector length were investigated with the use of three different IPC interpretations, i.e., self-efficacy, personality traits and values. The following hypotheses were posed:

H1: The circumplex structure, which describes the relationship between scales, will be well-fitted to the data.

H2: The dimension of status/agency of interpersonal self-efficacy will reveal a positive relationship between extraversion and Beta, while the dimension of love/communion will be positively correlated with agreeableness and Alpha.

H3: The octants of interpersonal self-efficacy will be most strongly associated with the corresponding octants of interpersonal traits and values.

H4: Interpersonal rigidity and flexibility will reveal relationships with personality traits, metatraits and GFP.

7. Method

Tools

Circumplex Scales of Interpersonal Values (CSIV). The tool contains 64 items (eight for each scale) which measure the preference of interpersonal values; they form eight scales. As mentioned above, the tool is an operationalisation of IPC applied to the value. Some of CSIV items come from the records of therapeutic sessions, whereas another part was inspired by questionnaires measuring interpersonal constructs (Locke, 2000). The respondents evaluate the value preference using a 5-point Likert scale, ranging from 0 (*not important to me*) to 4 (*extremely important to me*). An exemplary item: "When I am with him/her/them, it is... 0 – 1 – 2 – 3 – 4 ...that they respect what I have to say" (the statement attributed to NO octant – Agentic and Communal). The reliabilities of scales, obtained in the presented survey, are in the range of .64–.82.

International Personality Item Pool–Interpersonal Circumplex (IPIP-IPC). This tool enables us to measure interpersonal traits (Markey & Markey, 2009). It contains 32 items, four for each of the eight scales. The participants respond using the 5-point Likert scale that ranges from 1 (*very inaccurate*) to 5 (*very accurate*). In the present survey, for the five scales, Cronbach's α coefficients range from .60–.79. Three scales have reliabilities below .60; these include JK (Unassuming–Ingenuous) – .35; DE (Cold–Hearted) – .51 and HI (Unassured–Submissive) – .54. An exemplary statement of the questionnaire: "Feel comfortable around people" (NO octant item – Gregarious–Extraverted).

Measurement of social desirability from the Big Five Questionnaire-2 (BFQ-2). To estimate a bias of CSIE scales with a social desirability variable, two social desirability scales from the BFQ-2 (Caprara, Barbaranelli, Borgogni, & Vecchione, 2007) were used. These scales distinguish between moralistic bias and egoistic bias (Paulhus & John, 1998). The moralistic bias is the tendency to present oneself as a person who follows social norms, while the egoistic bias is the tendency to present oneself as a talented and popular person (Paulhus & John, 1998). Seven items measure the tendency for moralistic bias, and seven others measures – the intensity of egoistic bias. The participants respond using the 5-point Likert scale that ranges from 1 (*very inaccurate*) to 5 (*very accurate*). In the current study, Cronbach's α for the moralistic

bias scale is .80, for the egoistic bias scale – .82, for the overall score – .88.

IPIP-BFM-20 personality questionnaire. The tool contains 20 items which allow the measurement of Big Five traits (Topolewska, Skimina, Strus, Cieciuch, & Rowiński, 2014). It is an abbreviated version of the Big Five Markers from the IPIP containing 50 statements. It allows the measurement of five basic personality dimensions according to the lexical tradition: extraversion, agreeableness, conscientiousness, emotional stability and intellect. The respondents make their self-description using the 5-point Likert scale that ranges from 1 (*very inaccurate*) to 5 (*very accurate*). The Cronbach's α for the five scales ranged from .71–.83. Alpha / Stability and Beta / Plasticity metatraits were calculated as the mean of items measuring agreeableness, conscientiousness, emotional stability extraversion and intellect, respectively. GFP indicator was calculated as the mean of all items measuring the five traits. The reliabilities of the scales formed in this way are .67 (Alpha / Stability), .83 (Beta / Plasticity), .81 (GFP).

Analyses

The analysis of the circumplex structure was conducted in the RANDALL programme (Tracey, 1997). All other calculations were made using SPSS 24 package. CSIE, CSIV and IPIP-IPC scores were subject to centration.

Respondents

The studied sample comprised 306 people (including 74% of women and 7% with the absence of gender data). The age range of respondents is 16–72 years (M = 29.09, SD = 11.91). As many as 188 persons filled in on-line questionnaires and 118 were surveyed using a pencil-and-paper method. Some of the respondents completed only the CSIE questionnaire (n = 26), whereas others completed the CSIE together with the CSIV (n = 175), with the IPIP-IPC (xn = 224), with the IPIP-BFM-20 and the social desirability scale (n = 215).

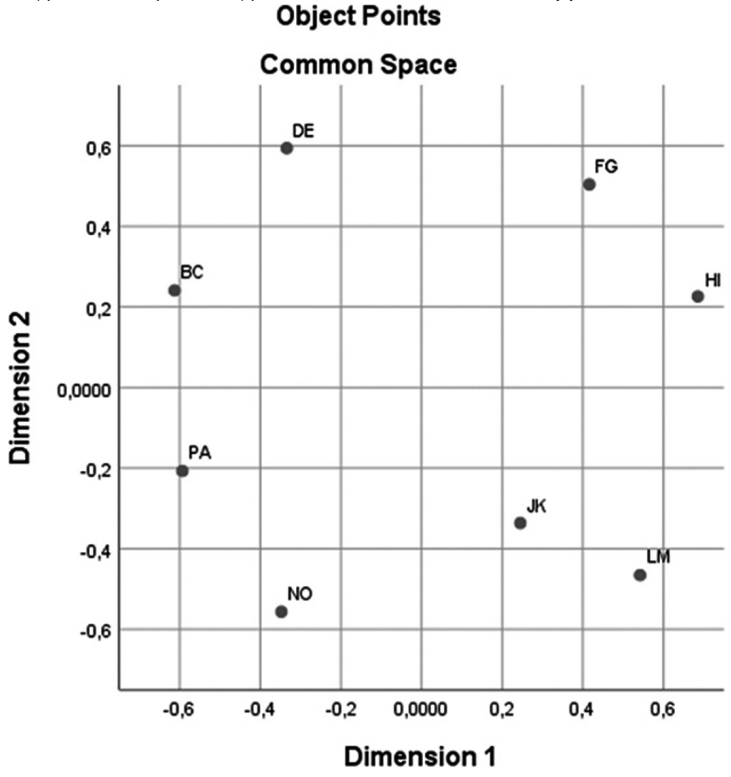
8. Results

Reliability and Circumplex Structure

The reliability of the Polish version and the original CSIE questionnaire is presented in Table 3. In the conducted study, the FG scale (Yielding and Distant) has the lowest value of Cronbach's α – .44. The reliabilities of the seven other scales range from .65 to .79. In general, the reliability of the Polish CSIE adaptation is lower than that of the original version. An attempt was made with principal axis factoring (PAF), but the matrix was not defined positively. Therefore, a principal component analysis (PCA) with Varimax rotation was carried out, with the following results: before centration, the first component explained 59.1% of the variance and the second one – 25.6% (a total of 84.7% of the variance). After centration, the first component explains 45.5% of the variance and the second one – 40.2% (a total of 85.7% of the variance). The factor loadings are shown in Table 4. The first component is located between agency and communion (closer to agency). The second component is located in communion and unmitigated communion. Then an analysis in the RANDALL programme was conducted (Tracey, 1997). Before centration, 217 out of 288 predictions were met; the model was poorly fitted (CI = 0.52, $p < .01$). After centration, 249 out of 288 predictions were met; the model was well-fitted (CI = 0.73, $p < .001$).

Subsequently, the multidimensional scaling for interpersonal octants of self-efficacy was conducted for CSIE-centred scales. The scores of this analysis are shown in Figure 2. In multidimensional scaling, the fit of the model to data is estimated using Stress 1 (Kruskal & Wish, 1978). Kruskal and Wish (1978) proposed the following interpretation of the discussed indicator: Stress 1 > .20 – poor fit, .10 ≤ Stress 1 ≤ .20 – satisfactory fit, .05 ≤ Stress 1 ≤ .10 – good fit, .025 ≤ Stress 1 ≤ .05 – perfect fit, .00 – ideal fit. In the presented analysis, Stress 1 is .202 – on the border of acceptability. However, Stress 1 does not directly indicate that the data are fitted to the circumplex model. The result of multidimensional scaling should therefore be interpreted with greater care, including the results of other analyses.

The multidimensional scaling showed one deviation in the structure, i.e., JK (Yielding and Friendly) and LM (Friendly) octants revealed locations opposite to those expected.



Locations of the remaining CSIE scales are consistent with the theoretical model.

Figure 2. Multidimensional scaling for octants of interpersonal self-efficacy. PA – Dominant, BC – Dominant and Distant, DE – Distant, FG – Yielding and Distant, HI – Yielding, JK – Yielding and Friendly, LM – Friendly, NO – Dominant and Friendly. *N* = 306; Stress 1: 0.202.

Table 3
Reliabilities of the original and Polish versions of the CSIE

Symbol	Locke's octants	Reliabilities (Cronbach's α		
		Locke's octants Locke, Sadler, 2007)	Polish adaptation	
			First version (Stanisławski, 2012)	Second version
PA	Dominant	0.83	0.71	0.79
BC	Dominant and Distant	0.78	0.66	0.69
DE	Distant	0.73	0.63	0.65
FG	Yielding and Distant	0.66	0.63	0.44
HI	Yielding	0.74	0.52	0.74
JK	Yielding and Friendly	0.75	0.65	0.71
LM	Friendly	0.67	0.55	0.75
NO	Dominant and Friendly	0.70	0.74	0.69

Note. CSIE – Circumplex Scales of Interpersonal Efficacy.

Table 4
Rotation component matrix

	Component	
	1	2
PA	0.88	−0,36
BC	0.58	−0,75
DE	0.21	−0,90
FG	−0,91	0.28
HI	−0,85	0.38
JK	−0.11	0.86
LM	−0,20	0.87
NO	0.93	0.04

Note. The meaning of abbreviations is explained in Table 1.

9. Correlations with External Criteria

Correlations between interpersonal self-efficacy and interpersonal traits. Pearson's correlations between vectors of agency and communion, obtained from CSIE and IPIP-IPC, were strong ($r = .61$ and $r = .56$, $p < .01$). The correlation coefficients for individual octants of interpersonal self-efficacy and interpersonal traits are presented in Table 5. The majority of these relationships are weak or moderate. Correlations between the octants of self-efficacy and their trait equivalents range from .22 to .51. Among the eight octants of interpersonal self-efficacy, five revealed the strongest correlations with the corresponding octants of interpersonal traits. These include BC (Dominant and Distant), FG (Yielding and Distant), LM (Friendly) and NO (Dominant and Friendly). PA (Dominant) has identical correlations with PA octants (Assured–Dominant) and BC (Arrogant–Calculating). The remaining octants of interpersonal self-efficacy (i.e., DE – Distant, HI – Yielding, JK – Yielding and Friendly) showed a pattern of relationships which was not consistent with expectations, i.e., stronger correlations with other octants of interpersonal traits than those marked with the same symbols. The relations of both IPC models can also be interpreted from the perspective of interpersonal traits. The four octants of traits show the strongest relationships with corresponding octants of self-efficacy: DE (Cold–Hearted), FG (Aloof–Introverted), LM (Warm–Agreeable), NO (Gregarious–Extraverted). The remaining octants showed a pattern of correlations which was not consistent with expectations.

Table 5
Correlations between interpersonal self-efficacy and interpersonal traits

Interpersonal traits	Interpersonal self-efficacy							
	PA	BC	DE	FG	HI	JK	LM	NO
PA	**0.34****	0.37**	0.20**	−0.44**	−0.34**	−0.11	−0.18**	0.31**
BC	0.34**	**0.49****	0.52**	−0.39**	−0.42**	−0.23**	−0.29**	0.00
DE	0.02	0.10	**0.22****	0.14*	0.05	−0.21**	−0.40**	−0.10
FG	−0.43**	−0.27**	−0.05	**0.51****	0.43**	−0.06	0.06	−0.49**
HI	−0.26*	−0.38**	−0.33**	0.44**	**0.37****	0.10	0.15*	−0.19**
JK	−0.24**	−0.39**	0.31**	0.27**	0.19**	**0.28****	0.31**	−0.06
LM	−0.12	−0.21**	−0.44**	−0.07	0.07	0.32**	**0.46****	0.20**
NO	0.25**	0.12	−0.02	−0.37**	−0.26**	0.05	0.08	**0.36****

Note. The meaning of abbreviations is explained in Table 1.
$n = 224$.
* $p < .05$. ** $p < .01$.

Correlations of interpersonal self-efficacy and interpersonal values. Correlations of agency and communion vectors with CSIE and CSIV indicate a moderate relationship ($r = .52$, $p < .01$ and $r = .41$, $p < .01$). Correlation coefficients between particular octants of interpersonal self-efficacy and interpersonal values are presented in Table 6. The correlations are weak or moderate – correlations between octants of self-efficacy and

their counterparts range from .20 to .40. Among the octants of interpersonal self-efficacy, five of them correlate most strongly with the corresponding interpersonal values: BC (Dominant and Distant), FG (Yielding and Distant), HI (Yielding), LM (Friendly) and NO (Dominant and Friendly). The JK octant (Yielding and Friendly) reveals identical relationships with two octants of values – JK (Yielding and Communal) and LM (Communal). The other two octants, PA (Dominant) and DE (Distant), show a correlation pattern contrary to expectations. The relationships between the two IPC models can be presented in terms of interpersonal values. Five octants of interpersonal values show the strongest relationships with the corresponding octants of interpersonal self-efficacy: PA (Agentic), DE (Distant), HI (Submissive), LM (Communal) and NO (Agentic and Communal). The remaining octants showed correlation patterns that did not meet expectations.

Table 6
Correlations between interpersonal self-efficacy and interpersonal values

Interpersonal values	Interpersonal self-efficacy							
	PA	BC	DE	FG	HI	JK	LM	NO
PA	**0.24****	0.04	−0.06	−0.10	−0.18*	0.05	0.02	0.13
BC	0.36**	**0.35****	0.47**	−0.22**	−0.44**	−0.36**	−0.30**	0.15
DE	0.08	0.16*	**0.31****	−0.03	−0.14	−0.22**	−0.21**	−0.03
FG	−0.18	−0.16*	−0.07	**0.22****	0.23**	−0.00	−0.12	−0.22**
HI	−0.25**	−0.15	−0.19	0.11	**0.40****	0.07	0.05	−0.20**
JK	−0.21**	−0.23**	−0.37**	0.11	0.22**	**0.27****	0.31**	−0.05
LM	−0.16*	−0.19*	−0.27**	−0.00	0.08	0.27**	**0.33****	0.06
NO	0.10	0.07	−0.21**	−0.06	−0.08	0.08	0.06	**0.20****

Note. The meaning of abbreviations is explained in Table 1.
$n = 175$.
* $p < .05$. ** $p < .01$.

Correlations of interpersonal self-efficacy, personality traits and social desirability. The correlations between CSIE octants and social desirability, personality traits, metatraits, GFP are presented in Table 7. Social desirability (overall score) correlates positively with NO (Dominant and Friendly) and negatively with HI (Yielding). The egoistic bias is most strongly (and positively) connected with NO (Dominant and Friendly) and PA (Dominant). The strongest negative relationships were observed with HI (Yielding) and JK (Yielding and Friendly). The moralistic bias correlates most strongly (and positively) with NO (Dominant and Friendly), while the strongest negative correlation was found with DE (Distant). The egoistic bias is more strongly correlated with CSIE scales than the general level of social desirability and moralistic bias. However, all these correlations were at most moderate, indicating a limited bias on CSIE scales with a variable of social desirability.

Extraversion has revealed the strongest positive correlations with NO (Dominant and Friendly) and PA (Dominant), whereas the strongest negative correlations with

FG (Yielding and Distant) and HI (Submissive). Agreeableness turned out to be most strongly (and positively) correlated with LM (Friendly) and JK (Yielding and Friendly) and most strongly (and negatively) correlated with DE (Distant). In the case of conscientiousness, only one significant and weak correlation was found. The variance of intellect is most strongly associated with the variances of NO (Dominant and Friendly) and PA (Dominant). Negative correlations for the intellect were found with FG (Yielding and Distant) and HI (Yielding). In conclusion, as expected, the personality traits most closely associated with interpersonal self-efficacy turned out to be extraversion and agreeableness, and – unexpectedly – intellect. The above-mentioned correlations suggest that at the metatrait level, Beta / Plasticity should show the strongest correlations with interpersonal self-efficacy.

The results obtained indicate that GFP is most strongly (and positively) correlated with NO (Dominant and Friendly) and most strongly (and negatively) correlated with FG (Yielding and Distant). Alpha / Stability revealed the strongest positive correlation with NO (Dominant and Friendly) and the strongest negative one with DE (Distant). Beta was correlated most strongly (and positively) with NO (Dominant and Friendly) and PA (Dominant), while most strongly (and negatively) with FG (Yielding and Distant) and HI (Yielding). The analysed metatraits revealed similar relationship patterns, but GFP and Beta proved to be substantially more correlated with interpersonal self-efficacy than Alpha.

Table 7
Correlations between interpersonal self-efficacy, social desirability and personality traits

	Interpersonal self-efficacy							
	PA	BC	DE	FG	HI	JK	LM	NO
Social desirability	0.13	0.07	−0.11	−0.02	−0.19**	−0.10	−0.03	0.39**
Egoistic bias	0.30**	0.24**	0.07	−0.17*	−0.36**	−0.20**	−0.17*	0.46**
Moralistic bias	−0.09	−0.13	−0.27**	0.15*	0.03	0.04	0.11	0.24**
Extraversion	0.40**	0.23**	−0.01	−0.47**	−0.37**	0.02	−0.02	0.46**
Agreeableness	−0.16*	−0.15*	−0.28**	−0.03	0.03	0.23**	0.33**	0.16*
Conscientiousness	0.10	0.03	−0.10	−0.07	−0.03	0.07	−0.06	0.14*
Emotional stability	0.24**	0.07	−0.05	−0.17*	−0.17*	−0.01	−0.12	0.32**
Intellect	0.35**	0.22**	−0.02	−0.34**	−0.31**	−0.08	−0.06	0.42**
GFP	0.34**	0.15*	−0.14*	−0.38**	−0.30**	0.07	−0.00	0.51**
Alfa	0.14*	−0.01	−0.22**	−0.16*	−0.10	0.15*	0.04	0.35**
Beta	0.44**	0.26**	−0.01	−0.48**	−0.40**	−0.03	−0.04	0.51**

Note. The meaning of abbreviations is explained in Table 1.
$n = 215$.

* $p < .05$. ** $p < .01$.

Personality correlates of interpersonal flexibility and rigidity. Correlations between the interpersonal flexibility indicators obtained with various tools are as follows: CSIE–CSIV: $r = .18$, $p < .05$; CSIE–IPIP-IPC: $r = .36$, $p < .05$; CSIV–IPIP-IPC: $r = .09$, $p > .05$. Hence, these are weak correlations at best. The following correlations were found between the interpersonal rigidity indicators for the following tools: CSIE–CSIV: $r = .36$, $p < .01$; CSIE–IPIP-IPC: $r = .42$, $p < .01$; CSIV–IPIP-IPC: $r = .35$, $p < .01$. Thus they were found to be stronger than those for flexibility. In turn, correlations between the flexibility and rigidity indicators obtained with various questionnaires measuring interpersonal variables were as follows: CSIE: $r = -.35$, $p < .01$; CSIV: $r = -.27$, $p < .01$; IPIP-IPC: $r = .14$, $p < .05$.

The correlations between interpersonal flexibility, interpersonal rigidity as well as social desirability and personality traits are presented in Table 8. The rigidity and flexibility of interpersonal values do not significantly correlate with social desirability. The rigidity and flexibility of interpersonal traits correlate with an egoistic bias, and the rigidity itself is linked to the overall score of social desirability. The flexibility of interpersonal self-efficacy is correlated with the general level of social desirability and egoistic bias. The rigidity of interpersonal self-efficacy has not shown any significant correlations with the dimensions of social desirability.

Table 8

Correlations between elevations, vector lengths and social desirability, personality traits

	Interpersonal flexibility[a]			Interpersonal rigidity[b]		
	CSIE	CSIV	IPIP-IPC	CSIE	CSIV	IPIP-IPC
Social desirability	0,17*	−0.09	0.06	−0.00	−0.07	0.16*
Egoistic bias	0.28**	−0.13	0.19**	−0.09	−0.06	0.16*
Moralistic bias	0.01	−0.04	−0.10	0.09	−0.07	0.12
Extraversion	0.43**	0.04	0.47**	−0.05	0.25**	0.30**
Agreeableness	0.22**	−0.08	0.23**	0.23**	0.39**	0.58**
Conscientiousness	0.15*	0.09	−0.10	−0.05	−0.19*	0.03
Emotional stability	0.24**	−0.31**	0.21**	−0.02	0,20*	0.19**
Intellect	0.53**	−0.15	0.36**	−0.05	0.28**	0.28**
GFP	0.52**	−0.13	0.39**	0.00	0.29**	0.44**
Alpha	0.33**	−0.16*	0.16*	0.06	0,17*	0.38**
Beta	0.55**	−0.05	0.48**	−0.06	0.30**	0.34**

Note. CSIE (Circumplex Scales of Interpersonal Efficacy), $n = 215$. CSIV (Circumplex Scales of Interpersonal Values), $n = 148$. IPIP-IPC (International Personality Item Pool–Interpersonal Circumplex), $n = 195$.

[a] profile elevation. [b] vector length.

* $p < .05$. ** $p < .01$.

Flexibility in terms of interpersonal self-efficacy and interpersonal traits correlates with extraversion, agreeableness, emotional stability, intellect, GFP, Alpha, and Beta.

The flexibility of interpersonal values is only dependent on emotional stability and Alpha. The rigidity of interpersonal values and traits correlates with extraversion, agreeableness, emotional stability, intellect, GFP, Alpha and Beta. The rigidity of interpersonal self-efficacy is only correlated with agreeableness. In conclusion, in the case of interpersonal traits, both flexibility (profile elevation) and rigidity (vector length) correlate with basic personality traits. As far as interpersonal efficacy is concerned, its flexibility proved to be linked to personality traits, while its rigidity proved to be essentially independent of personality traits. For the interpersonal values the pattern was reverse, i.e., rigidity correlated with personality traits, whereas flexibility generally did not.

10. Discussion

Psychometric Properties of the CSIE

The first aim of the current study was the empirical verification of the Polish adaptation of the CSIE questionnaire. The main shortcoming of the presented CSIE version is low Cronbach's α of the FG (Yielding and Distant) scale. This scale, also in the original version, has the lowest (although clearly higher) reliability. The reliability of the FG (Distant) scale can be considered to be relatively satisfactory (α = .65). The reliabilities of the remaining scales range from .69 to .79 and they are satisfactory.

As in the original version, PCA has revealed that the first two factors explain the vast majority of variance, and each of them explain a similar part, which confirms the circumplex structure of interpersonal self-efficacy. PCA has some limitations, e.g., it may overestimate the variance explained by the components (Schmitt, 2011). Due to the negatively defined matrix, it was not possible to carry out an PAF, characterised by fewer shortcomings. However, PCA is commonly used in the study of the structure of circumplex models (Locke, 2000; Locke & Sadler, 2007; Ojanen et al., 2005; Wiggins, Phillips, & Trapnell, 1989), which facilitates the comparison of the obtained results.

The next step in the analysis of the circumplex structure was a randomization test, which revealed that the Polish version of the CSIE had slightly less fit than the original one (Locke & Sadler, 2007). Multidimensional scaling confirmed the circular structure, although one deviation was found in this structure – JK octants (Yielding and Friendly) and LM (Friendly) were empirically located in the reverse order.

The four octants of interpersonal self-efficacy proved, as expected, to be most correlated with both the corresponding values and interpersonal traits; these included BC (Dominant and Distant), FG (Yielding and Distant), LM (Friendly) and NO (Dominant and Friendly). Such octants as PA (Dominant), JK (Yielding and Friendly) and HI (Yielding) revealed an essentially consistent relationships pattern with one type of external interpersonal construct (traits or values) and inconsistent with another one. Only one octant of interpersonal self-efficacy, i.e., DE (Distant), correlated against expectations for both traits and values.

It is not known whether the above-mentioned deviations of the results from expectations are properties of the Polish version of the instrument or the original version as well. It is worth noting that although the measurements of self-efficacy, values and traits are based on IPC, they apply to other personality domains. Thus, the pattern found may not necessarily be the result of measurement imperfections, but may

be due to that the DE (Distant) octant and – to a lesser extent – the PA (Dominant), JK (Yielding and Friendly) and HI (Yielding) octants not corresponding perfectly with one another in the area of self-efficacy and in the areas of values and traits.

The next step of CSIE validation was the analysis of the relationships between personality traits and interpersonal self-efficacy. The following traits were most strongly correlated with interpersonal self-efficacy: extraversion, agreeableness (as expected) and, somewhat surprisingly, intellect. The latter relationship may be less related to the interpersonal nature of the variables measured by CSIE, and more to the fact that it measures self-efficacy, i.e., a cognitive variable (cf. Bandura, 2006). In the area of interpersonal self-efficacy, extraversion and intellect are located between agency and communion (but closer to agency). Interestingly, the correlations between intellect and the octants of self-efficacy are only slightly weaker than the correlations with extraversion. The reason for this situation may be the significance Beta / Plasticity metatrait, which is responsible for the common variance of extraversion and intellect has for interpersonal self-efficacy. Among all the traits and metatraits taken into account, Beta turned out to be most strongly correlated with interpersonal self-efficacy, and it can be located between agency and communion (but closer to agency). These findings are similar to relations of IPC and metatraits obtained by Strus and Cieciuch (2017).

These results can be related to Cybernetic Big Five Theory (CB5T) proposed by DeYoung (2015). The basic assumption of this theory is the postulate that the personality theory should be based on cybernetics, i.e., a test of the system's ability to self-regulate. According to DeYoung (2015), the key category next to the traits is the category of characteristic adaptations. They are understood as "relatively stable goals, interpretations, and strategies, specified in relation to an individual's particular life circumstances" (p. 38). The goals are defined as "representations of a desired future state" (pp. 38–39). The interpretations are "representations of the current state of the world (including the self), involving both factual and evaluative information" (p. 39), while the strategies are "plans, actions, skills, and automatised routines that are used to attempt to transform the current state into the desired future state" (p. 39). DeYoung (2015) points out that socio-cognitive personality theories (e.g., model of interpersonal self-efficacy) can be interpreted as characteristic adaptations that can be explained by traits (and also metatraits). In the proposal of the author of CB5T theory (2015), an important place is occupied by Alpha / Stability and Beta / Plasticity. According to him, the cybernetic function of Alpha / Stability's is the "protection of goals, interpretations, and strategies from disruption by impulses" (p. 42). In turn, the function of Beta / Plasticity is "exploration: creation of new goals, interpretations, and strategies" (p. 42). In this context, a high level of Beta / Plasticity may be revealed in the creation of many new characteristic adaptations as well as a wide range of behaviours and reactions in the interpersonal domain too. This, in turn, will manifest itself in the flexibility of an individual's social functioning, and indeed, Beta / Plasticity has revealed the strongest correlations with interpersonal flexibility both in the sphere of the self-efficacy measured by the CSIE and in the sphere of traits.

Another trait, which was expected to demonstrate systematic and relatively strong correlations with interpersonal self-efficacy, is agreeableness. Indeed, it turned out to be the most strongly (and positively) linked to the LM (Friendly) and JK (Yielding and Friendly) octants, and the most strongly (and negatively) linked to DE (Distant).

Agreeableness is most closely linked to communion. The results obtained are similar to observations by other authors – extraversion is linked to agency while agreeableness to communion (de Raad, 1995; DeYoung et al., 2013; Trapnell & Wiggins, 1990).

GFP revealed correlations with both agency and communion represented by the NO (Dominant and Friendly) and FG (Yielding and Distant) octants. Interestingly, although weaker than Beta / Plasticity and GFP, the correlations with interpersonal self-efficacy were also shown by Alpha / Stability. Generally speaking, it has proved to be related to communion.

Personality Correlates of Interpersonal Flexibility

The second aim of the study was to elucidate the personality correlates of two indicators of the repertoire breadth of interpersonal behaviours – flexibility (operationalised as profile elevation) and interpersonal rigidity (operationalised as vector length). Contrary to the suggestions of some authors that elevation is an indicator of response style (Gurtman & Pincus, 2003), correlations between interpersonal flexibility, interpersonal rigidity and the measures of social desirability turned out to be weak or insignificant.

The profile elevation (flexibility) of CSIV correlated significantly only with emotional stability (negatively). This result is consistent with the findings of Locke and Adamic (2012), who found that people with a higher CSIV elevation experienced more worries, a sense of difficulty and internal conflict. It seems reasonable that preferring different interpersonal values may involve interpersonal problems. This result suggests that elevation of CSIV does not reflect interpersonal flexibility, but rather a conflict in the sphere of values.

It may be assumed that the repertoire breadth of interpersonal behaviours is negatively correlated with the intensity of ethnic prejudices. Sibley and Duckitt (2008) carried out a meta-analysis of personality correlates of ethnic bias, including a sample of 22,068 people. The authors stated that ethnic prejudices are consistently associated with lower agreeableness and lower openness to experience (Sibley & Duckitt, 2008). The flexibility of both interpersonal self-efficacy and interpersonal traits correlated positively with extraversion, intellect, agreeableness, emotional stability, GFP, and Beta. The above-mentioned configuration of traits resembles the personality correlates of ethnic prejudices.

It is worth noting that among all analysed traits and metatraits both the flexibility of interpersonal self-efficacy and flexibility of interpersonal traits correlate most strongly with Beta. It is possible that Plasticity, in addition to interpersonal self-efficacy, also explains interpersonal flexibility. It seems that the above interpretation is consistent with the cybernetic function of Beta / Plasticity (DeYoung, 2015).

Locke and Adamic (2012) noticed that the people with a higher elevation of CSIE profile exhibited more worries about making the wrong decision. At the same time, they feel less internal conflict, perceive a given situation as less difficult and are more confident in their decision. These correlations are consistent with the results obtained in the current study. Among the analyzed variables, Locke and Adamic did not find any correlates of elevation of IPIP-IPC.

The second analysed indicator of repertoire breadth of interpersonal behaviours is vector length. Locke and Adamic (2012) suggest that people with shorter vectors

are more flexible, but at the same time they may be less able to cope with ambivalent situations. On the other hand, people with a longer vector (more rigid) may show a narrower repertoire of interpersonal behaviours, but they may be more convinced of the validity of their actions. In the present study, it has been found that the rigidity of interpersonal self-efficacy (vector length) correlates only with agreeableness, and this correlation was weak and positive. In turn, the rigidity of interpersonal values and traits correlated with extraversion, intellect, agreeableness and emotional stability; this configuration of traits resembles GFP. Indeed, the rigidity of interpersonal values and traits was correlated with GFP, Alpha, and Beta. It seems that a person with clearly defined interpersonal values and a strongly crystallised repertoire of interpersonal behaviours can be simultaneously stable (Alpha), determined and confident (Beta) in the face of new situations. These results suggest that a narrow repertoire of interpersonal behaviours would mean in this case not so much rigidity but clarity and determination.

Locke and Adamic (2012) stated that a longer CSIE vector was linked to stronger confidence in decision made. A longer CSIV vector, on the other hand, is also correlated with fewer worries, a lower sense of difficulty and stronger confidence in the decision made. The length of the IPIP-IPC vector was associated with a lower sense of internal conflict, lower sense of difficulty and a stronger confidence in the decision made (Locke & Adamic, 2012). In the case of the vector's length correlates, the results of the cited authors and conclusions from the current research are also consistent with each other.

For both CSIE and CSIV, the elevation and vector length correlate negatively with each other, but these correlations are moderate and weak respectively. These results are consistent with the literature and suppositions formulated in the introduction. In the case of the elevation and length vector of IPIP-IPC, the correlation is positive but very weak. Negative correlations between profile elevation and vector length, and especially their relationships with personality traits, metatraits and GFP suggest that profile elevation may be a satisfactory indicator of the repertoire of interpersonal behaviours. In turn, the profile elevation and vector length may be independent indicators of the repertoire of interpersonal behaviours. However, the vector length does not have to directly reflect the narrow repertoire of interpersonal behaviours (e.g., a short vector can represent a person with a broad repertoire of behaviours or a person with low scores in all areas of the circumplex model). Presumably, the repertoire of available interpersonal behaviours is better reflected by profile elevation than by the vector length. One may hope that the future research will make it possible to verify this thesis.

In conclusion, the Polish version of CSIE has a generally satisfactory internal structure and theoretical validity. At the same time, the low reliability of the FG scale (Yielding and Distant) and the reversaled position of the two octants, i.e., JK (Yielding and Friendly) and LM (Friendly), draw attention to the need for their modification in future research. In the case of investigating of correlates of the repertoire of interpersonal behaviours, the not a very large sample and the fact that the study was dominated by women can be considered limitations. It is worth noting that this research is probably the first empirical analysis of the correlations between the repertoire of interpersonal behaviours and personality traits and metatraits. It is advisable to replicate the obtained results with a larger sample, that is more balanced in terms of gender proportions. It may be interesting to explore the correlations between various indicators of the repertoire of interpersonal behaviours and real social behaviours.

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Wydawnictwo Naukowe
Uniwersytetu Kardynała Stefana Wyszyńskiego