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Temperamental traits and life and job satisfaction

The aim of this research project was to evaluate the impact of the temperamental traits and structure (as defined by Strelau's Regulative Theory of Temperament) on the level of life satisfaction and job satisfaction (interpreted according to Zalewska's Transactional Model of Quality of Life). The participants of the study were employees (N=199) having different jobs and from different workplaces. The results indicate that there exists a positive relationship between both types of satisfaction and activity and endurance as well as a negative relationship between the measures of satisfaction and emotional reactivity. Multiple linear regression analysis revealed that activity and emotional reactivity are temperamental predictors of life satisfaction. The temperamental predictor of job satisfaction in the cognitive aspect is only activity, whereas in the case of job satisfaction in the emotional aspect - activity and endurance. The statistical analysis revealed that the temperament structure harmonising in the dimension of under-stimulation – over-stimulation has no correlation with any types of satisfaction.

Keywords: *life satisfaction, job satisfaction, Regulative Theory of Temperament*

Life and job satisfaction

Life satisfaction is an attitude of man towards his own life and it is defined as general and permanent evaluation of one's own life (Veenhoven, 2000). The satisfaction structure is based on cognitive assessment, attitude towards life and emotional attitude, i.e. affect towards life. One can often find the term of subjective well-being or happiness as equivalents of life satisfaction. On the other hand, job satisfaction is an attitude towards one's own work that determines how beneficial for an individual his or her work is (Zalewska, 2003a) and that reflects a lasting emotional attitude towards it (Veenhoven, 2007). Job satisfaction is treated as partial life satisfaction referring to job as a whole.

The research concerning life satisfaction as well as job satisfaction focuses on two issues: potential consequences and the determinants of satisfaction. As regards the first issue, it was proved that many benefits are connected to life and job satisfaction (Veenhoven, 2000). Satisfied people, in comparison with the dissatisfied, are characterized by firstly, more active professional and social life, secondly, bolder goals with better perspectives, and, finally, successful

interpersonal relationships, longer life and better physical health. Moreover, it is highly probable that creative thinking, creative activity and intrinsic motivation are all to some extent the consequences of life satisfaction (Fredrickson, 2003; Isen, 2002). In addition, Barbara Reinhold (1998) suggests that dissatisfaction with job is the factor which "kills the man." It weakens the immunity system and is considered a risk factor for cardiovascular diseases (e.g., stroke, heart attacks, cardiac arrests), gastrointestinal system (e.g., diabetes and ulcers), respiratory system and allergic reactions. It increases the tendency to anxiety and depression. It also causes alienation and "cutting off" from the emotions as well as disrupts relationships in general social life.

It is not easy to point at the reasons for satisfaction. Most of the research on satisfaction uses correlation procedure, thus it is difficult to separate causes and effects. Satisfaction correlatives are the most frequently mentioned, although some variables allow to indicate the satisfaction determinants such as temperamental and personality traits in addition to demographic factors such as financial situation, sex or age. The satisfaction correlatives are also health,

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stress experience, good relationship with other people, activity which can give life a meaning or, finally, cognitive curiosity (Kashdan, Steger, 2007). Job satisfaction is connected to such job characteristics as autonomy, relationships with supervisors or work environment and sex, age, the type of post held and professional prestige. (Diener, Biswas-Diener, 2010). These variables became a basis of three main happiness shaping factors called the rule of happiness or a model of sustainable happiness (Lyubomirsky, 2007, pp. 31-36). The authors of the rule, Ken Sheldon, Sonja Lyubomirsky and David Schkede (2005) distinguish three main factors affecting the level of happiness: a person's innate potential determinant of happiness in 50%, situational factor determining satisfaction in 10% and volitional factor associated with one's actions that influence the level of life satisfaction in 40%. This rule of happiness of Lyubomirsky and others reconciles two approaches to the genesis and shaping of happiness, top-down and bottom-up.

The strongest predictor of happiness is the genetic potential, constant and always present. This potential is understood as the set point in David Lykken's biological model of happiness (2004) or identified with the will of life in Janusz Czapiński's onion theory (1992). The possible potential of satisfaction in these theories is treated as an attractor - the deepest, genetically determined, satisfaction stabilizing factor (Czapiński, 1992). It means that man will always come back to his biologically determined happiness level regardless of life experiences.

As for the biological determinants of satisfaction, researchers mention often personality and temperament. Tadeusz Mądrzycki & Sylwiusz Retowski's research (1992) showed relations between personality/temperament and optimism/pessimism. It turns out that a high level of neuroticism, low extraversion and a high level of reactivity and low mobility of the nervous system are associated with pessimism.

Moreover, Big Five personality factors are associated with the frequency of experiencing emotions, extraversion – with positive emotions, neuroticism – with the negative (Costa, McCrae, 1980). These factors are directly connected to life satisfaction: neuroticism is the most firmly correlated (-.45), then extraversion (.40) and conscientiousness (.31). (Kashdan, Steger, 2007). Job satisfaction indicates the role of positive and negative affectivity and personality characteristics. The genetic determinants of job satisfaction are mediated more strongly by emotional affectivity disposition (23.6% of the genetic variance in job satisfaction) than the Big Five traits which mediate the satisfaction only in 24%. (Ilies, Judge, 2003). Other studies point to the role of disposable core self-evaluation traits in job satisfaction shaping. The meta-analytic results of the relationship between core self-evaluation and job satisfaction show that job satisfaction correlates with self-

esteem ($r=.26$), generalized self-efficacy ($r=.45$), internal locus of control ($r=.22$) and emotional stability ($r=.19$). (Judge, Bono, 2001)

There are few studies on temperament as the biological satisfaction determinant. The majority of them, mostly the western ones, identifies the temperament impact on satisfaction at the level of extraversion and introversion or other personality dimensions. (http://scholar.google.pl/scholar?hl=pl&as_sdt=0,5&q=temperament+life+satisfaction).

The Polish researchers who examined the bearing of temperamental traits on satisfaction were Anna Zalewska (2003a) and Łukasz Krzywoszański (2009). Zalewska used A. Eliasz's Transactional Temperament Model (TTM). This author argues that reactivity is positively correlated with life and job satisfaction, moreover, that it acts as a moderator in job satisfaction assessment. Temperament moderation depended on adapting better to new, stressful work conditions, which led to higher job satisfaction.

On the other hand, Łukasz Krzywoszański (2009) conducted research on the impact of temperamental traits on satisfaction with the use of the Regulating Theory of Temperament (RTT). He stated that there exists a relationship between RTT temperamental traits and overall life satisfaction. In the study model, he examined only general level of life satisfaction. Job satisfaction was not examined. The research was conducted among students.

To sum up, there has been no reports on the role of the RTT temperamental traits in shaping life and job satisfaction. It is not known which of the RTT traits influences satisfaction the most. Neither is there any research on the temperament structure in terms of the RTT and its relation with satisfaction. Despite the emphasis on the analysis of the temperament structure in the RTT itself, researchers usually analyse the individual temperamental traits and arbitrarily evaluate the temperament system, when drawing up conclusions about the temperament structure as a whole. Therefore, it is reasonable to say that most of researchers' deliberations concerning the RTT and the features structure are just presumptions (Jankowski, Zajenkowski, 2009). Therefore, it is worth undertaking a study on the ways in which temperament as a set of traits and as a structure shapes life and job satisfaction.

Temperamental traits and life- and job satisfaction

According to the happiness rule, it is the biological factor which is most powerful in shaping overall life satisfaction. The temperamental traits and temperament structure in terms of the Regulative Theory of Temperament (Zawadzki, Strelau 1997, Strelau, 1998) are biologically determined, relatively permanent characteristics of behavior, so one may expect that they are substantially correlated to life and job satisfaction.

Temperament is involved in the process of regulating the level of arousal mainly by such features as: activity, emotional reactivity and endurance. The activity is a feature which shape the optimal level of stimulation by performing actions which provide stimulation or by avoiding activities which would lead to its reduction. Emotional reactivity is the quantity of individual needs for stimulation, i.e., the amount of stimulation providing the optimal level of arousal. It is defined as the typical size of reaction of an individual to an emotional stimulus, including the two opposite poles: sensitivity and efficiency (resistance) (Strelau, 2006). The people with low reactivity are usually characterized by low sensitivity and high efficiency, and the people of high reactivity are characterized by high sensitivity and low efficiency. Low reactivity is accompanied by a strong demand for stimulation, that is high activity. High reactivity is accompanied by low need for stimulation, that is low activity (Klonowicz, 1982). Endurance (efficiency + resistance) in turn is defined as the ability to respond adequately in situations requiring long or highly stimulating activity or in conditions of strong external stimulation. Stimulation adjustment can be described as effective when the stimulation inflow shaped by the activity corresponds to the need for stimulation set by the reactivity. In other words, in effective adjustment the need for stimulation is satisfied sufficiently - it is neither over-satisfied nor under-stimulated (Zawadzki, Strelau, 1997). As a result, the arousal is maintained at the optimal level, which can be beneficial for the individual, because it stimulates positive affective states and provides high operational efficiency (Krzywoszański, 2009). Such a situation is described as the effective stimulation adjustment and is called the harmonising structure of temperament (Zawadzki, Strelau, 1997).

A person with a harmonised temperament structure may be expected to feel calm and positive emotion, in other words – to be satisfied, and the other way round – the excitation over or under the optimal level or too high or too low activity may be the source of negative emotions. The change of the constant relation between the traits, which causes the possibility of dissociation between them, may indicate that stimulation is regulated ineffectively, which would point at a non-harmonised temperament (Zawadzki, Strelau, 1997). Negative emotions which accompany a non-harmonised temperament structure show up as dissatisfaction with life or with some other sphere. Single temperamental traits as well as temperament structure constitute a biological factor which determines overall and partial satisfaction.

Emotional reactivity and activity modify the meaning of environmental factors. High activity and low emotional reactivity will result in choosing various, rich in stimuli life and work environments. A person with such traits will strive for appropriate environments and reach higher life- and job

satisfaction. Too low activity with low emotional reactivity, in turn, may cause a lack of exploring the rich environment and the understimulated person will be dissatisfied.

Temperamental traits additionally determine the sensitivity to social stimuli and modify the importance of information given by social surroundings. Highly reactive people are more vulnerable to social interaction than low reactive people, because they are afraid of social punishments – isolation and refuse (Zalewska, 2011). Greater susceptibility of highly reactive people to social interactions and social approval may also impel them to choose situations and behaviour which are not compatible with the stimulation need but, on the other hand, socially desirable. Such actions may lead to emotional overload and evoke strong negative emotions at the same time, thus causing dissatisfaction with life and job.

A similar relationship concerns greater sensitivity to aversive stimuli, which causes cognitive, selective attitude to such factors and recognising the subsequent ones as also aversive. Greater sensitivity to aversive stimuli means that a person reacts strongly to them and experiences more often negative affective states. (Zalewska, 2011). The frequency of experiencing negative emotions is an indicator of lowered life satisfaction.

Temperamental traits are decisive for the coherence or incoherence of “temperament-personality” structure. The incoherence takes place when people with a certain reactivity level have shaped a personality with a different need for stimulation, e.g., shaping a behavior pattern of highly reactive people (Zalewska, 2011). Incoherence of personality characteristics and temperamental traits may appear in frustration, stress, negative emotions which decreases life satisfaction.

Temperament is in particular a satisfaction determinant, when satisfaction concerns job as a life domain. Job is characterised by relatively stable rules of work environments and contents independent of an employee. The work conditions are imposed and an employee’s ability to control them is limited. Therefore, it is difficult for him to match his own temperamental traits: (emotional reactivity, endurance and activity) to work principles. Although temperament is a constant subjective quality and manifests itself in every domain of life, in situation of limited ability of using one’s temperament, one experiences more frustration, negative emotions and dissatisfaction. Therefore, it may be expected that temperament plays greater role in shaping job satisfaction than overall life satisfaction.

Job and life satisfaction alike are emotional and cognitive attitudes based on evaluation processes. Evaluation processes operate on two levels: the cognitive and the affective (Zalewska, 2003a). The first refers to the rational, intellectual aspects of life and job: what a person thinks about his or her life and work, what the balance of benefits and losses experienced in the work and life is for

him or her. The second aspect involves emotions: how a person usually feels about life and work, how often and how intensively he or she experiences positive and negative emotions (Zalewska, 2003a).

The dissimilarity of emotional and cognitive processes shaping job satisfaction (as well as life satisfaction) underlie the idea of separating two elements of job satisfaction to cognitive and emotional (Lock, 1976, McKannell, 1978, Brief, Roberson, 1989, Brandstätter, 1991; Cranny, Smith & Stone 1992, Weiss, 2002, Kasprzak, in press). These theoretical disputes are reflected in the studies where these two aspects of satisfaction are measured with different methods (see Polish studies of Zalewska, 2003a, 2003b, 2006).

The fundamental processes of cognitive assessments are comparison, attributions and expectations. Such understanding of evaluation process requires selective interpretation of work elements and characteristics. The dominating role of cognitive mechanisms and processes in the cognitive aspect of job satisfaction may point to the smaller role of temperament which is expressed rather by emotional sensitivity and demand for stimulation. Cognitive evaluation process should be then less connected with temperament than affect experienced at work. However, it should be noted that temperamental traits influence perception, interpretation and preferences of some stimuli because of their strength and contents, e.g. aversive or social factors. It may suggest temperament plays some role in shaping cognitive job satisfaction, especially the activity of seeking or avoiding certain factors. It needs to be empirically verified, though.

The point of job satisfaction is the focus on "Self", one's own preferences, individual activity level, personal attitude to work (Zajonc, 1980). The emotional aspect of satisfaction refers to the characteristics of the evaluative subject, that is to an employee rather than to the characteristics of a stimulus, that is work. Personal traits like affectivity and inclination to emotional experiences underlying emotional work evaluation, according to the author of this paper, are more associated with temperament than formulating judgments that are present in cognitive life assessment. The temperamental trait which is the most associated with emotional job satisfaction is emotional reactivity, because it determines the emotional attitude to the environment.

The aim and the questions

Having considered the theoretical relationship between satisfaction and temperamental traits as well as the structure of temperament harmonisation and, additionally, the lack of clear empirical data on the topic, the following research questions were asked:

1. What is the role of emotional reactivity, activity, endurance and the harmonisation of energetic traits in shaping life satisfaction?

2. What is the role of emotional reactivity, activity, endurance and the harmonisation of energetic traits in shaping job satisfaction?

Material and method

The tests were conducted in Kujawsko-Pomorskie and Pomorskie voievodeships. They included 199 participants aged 19-58 years, of which 99 were women (49.7% of the total sample) and 100 men (50.3% of the total sample). The average age of the respondents was 32. Among women, the average age was 30 years, among men - 33 years. The professions of the subjects had different stimulative value.

The following questionnaires were used:

1. Formal Characteristics of Behaviour - Temperament Inventory (FCB-TI)

The inventory is a self-description questionnaire. The items are divided into six scales: briskness, perseveration, sensory sensitivity, emotional reactivity, endurance and activity. 3 scales were used in the study: emotional reactivity, activity and endurance. Cronbach's alphas for all scales range from .70 to .87. Its parameters do not differ from psychometric characteristics of other popular personality and temperament tools (Zawadzki, Strelau, 1997). In order to get more information on FCB-TI psychometric features a reader should get acquainted with the above-mentioned publishing.

2. Satisfaction With Life Scale (SWLS) Diener, Emmons, Larson and Griffin, the Polish adaptation by Juczyński (2001)

The scale has five statements. The tested person assesses the extent to which they agree with each statement, expressing the opinion showing life satisfaction. The replies are marked on the bipolar scale 1-7 in which "1" means "I totally disagree" and "7" "I completely agree". The higher the score, the greater life satisfaction. For statistical analyses the results converted to 1-7 point scale were used. Cronbach's alpha is .81 and indicates satisfactory internal consistency of the scale.

3. Measurement of cognitive job satisfaction

The cognitive aspect of job satisfaction was estimated using one question taken from Job Description Sheet by Zalewska (2003a). The bipolar 7-point response scale was attached in which "1" meant "very dissatisfied" and "7" - "very satisfied". This question read: *If you were now to think about everything that matters in your work (for example, actions, conditions of work, colleagues, working hours, salary, supervisors, personal development), to what extent are you generally satisfied with your work?*

4. Measurement of emotional job satisfaction

The emotional aspect of job satisfaction was tested by the use of one question. It was accompanied by a 5-point

Table 1
Temperamental correlatives of overall life satisfaction
(rho – Spearman).

Temperamental traits	Overall life satisfaction N=198
Activity	.34**
Emotional reactivity	-.28**
Endurance	.19**
Temperament structure harmonising	.04

** p < .01

scale of schematic face symbols (based on the “Faces Scale,” Kunin, 1955) from very dissatisfied (face in the horseshoe) to very contented (smiling face), without giving any verbal expressions. The question to measure the emotional satisfaction of work was: “*My work is a pleasure.*” Address this statement marking on the following scale the emotions that accompany your at work.

Because of different scales of measurement used to compare the averages of these variables, the results of job satisfaction in the cognitive and emotional aspects have been converted into a scale of 100 points.

An additional variable analysed in the study is the harmonisation of temperament structure.

In the Regulative Theory of Temperament the harmonisation of temperament structure is understood as a system of energetic characteristics: activity in relation to endurance and emotional reactivity (Zawadzki, Strelau, 1997).

The harmonisation of energetic characteristics sets a continuum in which the midpoint (equal to 0) is the optimally harmonised structure and under- and over-stimulation are the extremes (both are non-harmonised structures).

Under- vs. over-stimulation were estimated by comparing the individual capabilities of processing stimulation (reactivity-RE and endurance-EN) with the level of stimulation (activity-AK). In order to estimate the harmonisation of energetic characteristics (ZH1) the following formula (Jankowski, Zajenkowski, 2009) was used:

$$ZH1 = AK (EN - RE) / 2$$

Standardized z values were used in this formula, the standardisation followed the transformation formula (Hornowska, 2001). In the transformation formula the mean value and standard deviation from the standardization sample were used (Zawadzki, Strelau, 1997, pp. 130-131).

Structure harmonisation was analysed as a continuous trait as well as a qualitative category: optimal harmonisation, under- and over-stimulation.

Results

Temperamental determinants of life satisfaction

In order to determine whether the energetic characteristics of behaviour: activity, emotional reactivity, endurance and harmonized temperament structures are connected with overall life satisfaction rank method was used for variables in the rho-Spearman ordinal scale.

The analysis of relationship between the temperament traits of the energetic characteristics of behaviour and life satisfaction (Table 1) revealed that overall life satisfaction correlates positively at a moderate level activity, negatively at a low level with emotional reactivity, positively at a low level with endurance. There is no correlation with the harmonisation of temperament structure. The obtained data confirm the directions of the relationship between the traits of energetic characteristics of behaviour postulated in Regulative Temperament Theory (Zawadzki, Strelau, 1997). However, the lack of association with the structure harmonising is surprising.

The results of progressive stepwise regression analysis (Table 2) showed that the constructed model can explain 15% of the variability of life satisfaction. In the context of the happiness rule which contributes 50% of the genetic factor in shaping satisfaction, the value of the resulting determination factor is low. The average difference between the observed values of explained variable and the theoretical values is 4.74 points. The value of the F statistic and the corresponding level of test probability p confirmed a statistically significant linear relationship.

As shown in Table 2, the regression factor value was -.31 for the reactivity and .26 for the activity. Both variables turned out to be significant predictors of life satisfaction. It is worth mentioning that the model did not include endurance.

The regression equation for overall life satisfaction based on the regression factor B is as follows:

$$\text{Life satisfaction} = 21.28 - .31 \times \text{reactivity} + .26 \times \text{activity} \pm 4.74$$

Based on the above formula it can be stated that the increase in reactivity by 1 point causes a decrease in

Table 2
Temperamental predictors of overall life satisfaction.

N=199	BETA	St. error	B	St. error	t (196)
Intercept			21.28**	1.50	14.16
Emotional reactivity	-0,27	0,07	-.31**	.,08	-3.80
Activity	0,19	0,07	.26**	.09	2.73

R= .39; R²= .15; Corrected R²= .14; F(2.196)=17,78 p<0,00; St. error of estim.: 4.74

** p < .00

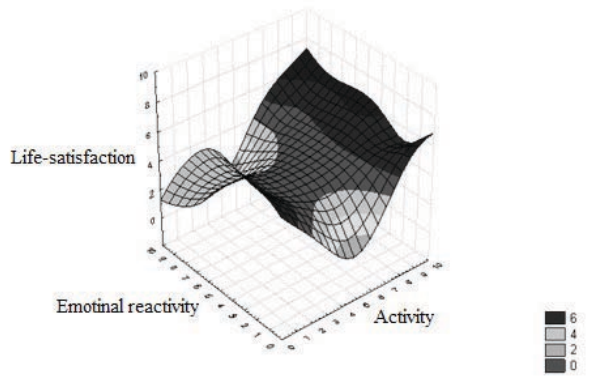


Figure 1. The surface graph of results dispersion of overall life satisfaction for activity and emotional reactivity.

overall life satisfaction by .31 points. Moreover, the increase in activity by 1 point causes the increase in overall life satisfaction by .26 points. Relationships between life satisfaction and activity as well as emotional reactivity is presented in the following 3D surface graph (Figure 1). Figure 1 shows recalculated results. The results for activity and emotional reactivity are given in stanins (1 stanin - low result, 9 stanins - high result).

As shown in Figure 1, the highest overall life satisfaction characterises the people who have the highest scores on the activity scale (9 stanin), regardless of their reactivity as well as the individuals with low activity and low or medium reactivity. The results shown here were shaped in this way mainly due to different group sizes. 5 people have high reactivity and the activity (out of 200 respondents), similarly with low activity with medium ($N=10$) or low ($N=3$) reactivity. However, high activity and the accompanying medium or low reactivity actually determine overall life satisfaction. The character of conclusions achieved in this way is initial. The varied number of subjects in the identified groups may not give an accurate picture of relations. Finally, harmonisation does not have any impact on satisfaction.

Temperamental determinants of cognitive and emotional job satisfaction

A preliminary analysis of the relationship of temperament traits with job satisfaction in terms of cognitive and emotional aspect shows that all the traits of the energetic characteristics of behaviour are equally associated with the cognitive and emotional job satisfaction (Table 3). The direction of these relations is analogous to the correlation between temperamental traits and life satisfaction. Insignificant relationship with job satisfaction, as well as with life satisfaction, indicates harmonisation of temperament structure.

These results became the basis of building and verifying the model of impact of temperamental traits on job satisfaction. However, the first thing to consider was the actual justification of separating the two aspects of cognitive and emotional job satisfaction.

The correlation results between emotional and cognitive job satisfaction presented in Table 4 speak for the high similarity between the two aspects of job satisfaction, but not for their profound identification, which confirms Zalewska's thesis (2003a, 2003b) of two worlds, "the heart and the mind." Additionally, the employees who were tested are on average more satisfied emotionally ($M = 74.9$) than cognitively ($M = 68.5$) with work (the difference is statistically significant, $t = 3.7^*$). Perhaps emotions are more accessible and easier to identify in the satisfaction-dissatisfaction dimension, hence respondents were inclined to choose higher values on the scale. The cognitive assessment is associated with an analysis and a calculation of various aspects of work, which can always cause a weaker assessment of an element of work and lower global job satisfaction. Hence, the emotional attitude to work as more general and sensory will be higher than the rational analysed (eg. compared to some standards) characteristics of a job that can cause insufficiency, tension, and some of them, even dissatisfaction.

Table 3
Temperamental correlatives of job satisfaction in emotional and cognitive aspect (ρ – Spearman).

Temperamental traits	Job satisfaction (cognitive aspect) N=199	Job satisfaction(emotional aspect) N=198
Activity	.31**	.33**
Emotional reactivity	-.25**	-.24**
Endurance	.24**	.26**
Temperament structure harmonisation	-.16 (ns)	-.02 (ns)

Table 4
Relationship between life- and job satisfaction (ρ – Spearman).

Satisfaction measures	Life satisfaction(overall aspect) N=199	Job satisfaction (cognitive aspect) N=199	Job satisfaction (emotional aspect) N=198
Life satisfaction(overall aspect)		.34*	.33*
Job satisfaction (cognitive aspect)			.76*

* $p < .05$

Table 5
Temperamental predictors of job satisfaction in cognitive aspect.

N=197	BETA	St. error	B	St. error	t (197)
Intercept			3.76**	.25	15.16
Activity	0,3	0.07	0.1**	.02	4.49

R= .30 R²= .09 Corrected R²= .09; F(1,197)=20.17 p<.00 St. Error of estim.: 1.18
 ** p < .00

The correlation coefficients in Table 4 indicate only average level of a relationship of job and life satisfaction. We have expected moderate relationship between Job and life satisfaction. They result from the partial contribution of one area of life, work towards life as a whole.

If we take into account two separate dimensions of job satisfaction, there are some established predictors of both aspects of job satisfaction.

Our model (Table 5) can explain 10% of the variability in cognitive job satisfaction with the biological factor - activity (cf. Wojtasik, 1993). This result is surprisingly low because there is the rule of 50% stake of the biological factor in shaping satisfaction. However, it is possible that the happiness rule works for life as a whole and not for its individual areas.

The average difference between observed values of response variable and the theoretical values is 1.17 points. The value of *F* statistics and corresponding *p* level is confirmed by a statistically significant linear relationship. The assessment of significance of free expression shows that the model moves away from the centre of the coordinate system.

The given model can be put down in the following form:

$$\text{Cognitive job satisfaction} = 3.76 + .1 \times \text{activity} \pm 1.18$$

Activity is an important variable of which increase by 1 point on the raw results scale causes changes in the cognitive job satisfaction by .1 points. The role of activity in shaping cognitive job satisfaction is small. The model did not include the emotional reactivity and endurance or the temperament structure harmonisation.

The results of multiple regression once again (compare the results for overall life satisfaction) do not confirm the assumption that the temperamental traits postulated in RTT equally participate in shaping cognitive job satisfaction. Multiple regression shows that certain temperamental traits are more important for shaping satisfaction, while others have no impact on it.

As in the case of overall life satisfaction (*R*² = .15), also in this case, the small determination factor value (*R*² = .09) should be noticed. The prognostic value of the model is rather low (poor fit), although it is statistically significant.

A similar result was obtained by analysing the model of job satisfaction determinants in the emotional aspect. The results of multiple regression (Table 6) show that activity and endurance are significant predictors of the dependent variable. Emotional reactivity turns out to be an

Table 6
Temperamental predictors of job satisfaction in emotional aspect.

N=199	BETA	St. error	B	St. error	t(195)
Intercept			2.73**	.19	13.86
Activity	.26	.07	.06**	.01	3.82
Endurance	0,16	0,07	.03*	.01	2.37

R= .35 R²= .12 Corrected R²= .11; F(2,195)=14,38 p<.00 St. error of estim.: .82
 * p < .01
 ** p < .00

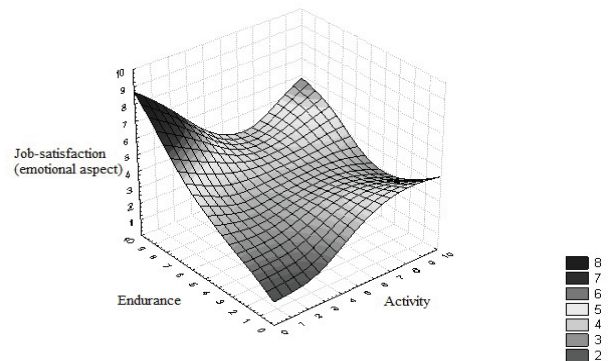


Figure 2. The surface graph of results dispersion of job satisfaction in emotional aspect for activity and endurance.

insignificant predictor.

The average difference between observed values of the explained variable and the theoretical values is .82 points. The value of the *F* statistics and corresponding *p* level confirm the statistically significant linear relationship. The received model can be written as:

$$\text{Emotional job satisfaction} = 2.73 + .06 \times \text{activity} + .03 \times \text{endurance} \pm .82$$

Basing on the regression equation, it can be stated that the increase in activity by 1 point, raises the emotional job satisfaction by .06 points and the further increase in endurance for 1 point increases in emotional job satisfaction by .03 points. Emotional job satisfaction is determined to a small extent (11%) by both the activity and endurance. This relation is accurately illustrated by 3D surface graph (figure 2). It shows the predictors of job satisfaction in the emotional aspect.

Figure 2 shows the recalculated results. The results for activity and emotional reactivity are given in stanins (1 Stanin - low result, 9 Stanins - high result). This chart shows that the greatest emotional job satisfaction characterizes enduring people of low activity, and both highly active and strong (although these results are increased Stanin = 6).

Table 7
Subject predictors of temperament harmonising.

N=199	BETA	St. error BETA	B	St. error B	t(192)
Intercept			-4.16**	.45	-9.23
Endurance	-.40	.05	-.08**	.01	- 7.24
Activity	.67	.05	.16**	.01	11.87
Emotional reactivity	.52	.06	.11**	.01	8.51
Sex	.29	.05	.56**	.09	5.87
Age	.28	.05	.02**	.00	5.53
Life satisfaction(overall aspect)	.11	.05	.02*	.00	2.21

R=0,77 R²= 0,59 Corrected R²= 0,58; F(6,192)=45,77 p<0,00 St. error of estim.: 0,62

* p < .05

** p < .00

Low job satisfaction in the emotional aspect characterizes persons of low activity (1-3 Stanin on the chart) and of low endurance (1-3 Stanin on the chart). Such a distribution of results is not consistent with the assumptions of the RTT and transactional model of quality of life, which assume that the high quality of life characterizes people simultaneously active and strong and unendurable or inactive. The darkest field on the graph depicts people with poorly harmonized temperament structure ($M = -1.12$) which indicates understimulation. The implementation of more complex statistics confirming this picture was impossible due to too small number of people ($N = 4$) of this features configuration. The result of people with low results in endurance and activity who are characterized by poor job satisfaction, proved to be inconsistent with the assumption. The structure of temperamental traits of endurance and activity is harmonized, which should manifest a tendency to positive emotional experiences. Perhaps being passive and not immune maintain the physiological balance and balance of information processing giving general peace and relaxation, but do not allow for feeling joy or pleasure at work. This conclusion would be consistent with Wundt's feelings three factor model, which assumes that emotion can be described in three dimensions of pleasure- displeasure, activity-passivity, strain-relaxation. The average score of 3.3 on a 5 point scale obtained by this group of respondents is not low and is described as having rather positive than negative emotions (although taking into account the asymmetric distribution of the satisfaction the score is rather low).

It is worth to mention the insignificant role of harmonising understood as temperamental type (under-stimulated, optimally stimulated and over-stimulated) or a dimension of temperament. This property does not explain variations in job and life satisfaction in any case. The reason for the lack of dependence may be the loss of information which results from the development of a new theoretical construct, the structure harmonisation, which required the use of transformation formulas (Zawadzki, et al. 2004). In this case, the estimated structure of poles under- vs over-stimulation does not guarantee such possibilities of

interpretation, as single temperamental traits do. Other studies which use different transformation formulas also showed no association with the work efficiency and other psychological variables (Zawadzki, et al. 2004).

Moreover, there may be another reason. As B. Fredrickson (2003) or A. Isen (2002) claim, positive emotions affect the activity, efficiency of actions and gain and loss utility, that is the appropriate behaviour toward environmental challenges and their own body. Fitting activity into the reactivity and endurance is reflected in the trait of harmonisation. We researched variables which affect the harmonisation of temperament structure. The regression equation (Table 7) shows a small part of life satisfaction, along with other factors.

The strongest predictor of harmonized structure of the temperament is sex, then individual temperamental characteristics, and then the age and life satisfaction.

Harmonising (ZH1) = $4.16 + .08 \times \text{endurance} - .06 \times \text{activity} - .11 \text{ emotional reactivity} - .56 \times \text{sex} + .02 \times \text{age} - .02 \times \text{overall life satisfaction}$.

The results show a good model. Variables explain 58% of the variability of harmonized structure of the temperament which is much better than in the previously constructed models. The results allow to conclude that an increase in endurance and age and a reduction in activity, emotional reactivity, and overall life satisfaction at a fixed category of sex, raises the temperament harmonisation. Thus, older men who had low results in activity, emotional reactivity, and endurance develop a more harmonized structure of temperament than young active women who had low results in endurance and emotional reactivity. The share of temperamental traits in the variability of harmonisation is obvious because the dependent variable is the derivative. Sex, age, and life satisfaction are important factors.

Discussion

The aim of this study was to find temperamental determinants of life satisfaction and cognitive and emotional assessments of job satisfaction. Similarly to Zalewska's

works (2003a, 2003b), these studies dispute the belief of “unity of heart and mind” and confirm the assumption of a different biological satisfaction determinants at overall, cognitive and emotional level.

As it has been expected, overall life satisfaction and job satisfaction in the cognitive and emotional dimensions are associated with activity, emotional reactivity and endurance. However, one’s temperamental traits determine life and job satisfaction to different extents. The most important determinant of satisfaction is activity which is always present in the regression model of life and job satisfaction. Thus, activity plays a dominant role in shaping satisfaction. It is a crucial report, as it shows that life and job satisfaction can be shaped through acting matched to other temperamental traits. The kind of a need expressed by a man is not important, but the ways to direct one’s activity to balance the stimulation that is needed. The potential of satisfaction increase lies in activity.

The second trait of temperament, reactivity is present as a determinant of life satisfaction, and endurance as a determinant of job satisfaction in the emotional aspect. No effect of harmonising the temperament structure on life and job satisfaction. This study neither fully confirms the assumption of RTT on the issue of the association and the impact of temperament traits on life and job satisfaction nor our assumptions on the greater role of emotional reactivity in shaping job satisfaction. Especially the assumption of equal determination of all the temperamental traits on satisfaction was not confirmed in our research.

The analysis of the relation between the level of energetic characteristics of behaviour, and the degree of life satisfaction shows a positive relationship of life satisfaction with activity, endurance and a negative relationship with emotional reactivity. Such a configuration of the temperamental traits reflects the match of stimulation need and stimulation achievement.

High activity allows for such intensity and direction to provide an individual with positive emotions and avoid negative events which are not emotionally and rationally favourable. High endurance and low reactivity, in turn, are characterized by high resistance to emotional stimuli, including threats. High emotional resistance protects against behaviour disorders and the loss of self-efficacy in the case of negative events and stress. Therefore, emotionally resistant people perceive their environment as safe and friendly. Consequently, the balance of positive and negative events is more beneficial for highly active and endurable people and at the same time endurable and little reactive than for highly active, reactive and endurable people.

Highly reactive and unendurable people are more sensitive to all life events, both positive and negative, and their behaviour can lead to overloading, stress and tension. However, positive life events and their positive

interpretation could improve welfare. However, it may not happen, when a psychological value of positive experience is smaller than that of the negative ones, according to the negativity effect (Czapiński, 2005). To reduce the sadness caused by a negative event one needs to experience as many as five positive events (Lyubomirsky, 2007).

The analysis of stepwise progressive regression showed that the determinants of overall life satisfaction are activity and emotional reactivity. This is not surprising, when one considers the fact that the activity is shown as the feedback to emotional reactivity. The results distribution embracing activity and reactivity as determinants of life satisfaction, indicates that active people are the most satisfied with life, regardless of their emotional reactivity. Such a result may be caused by the fact that, according to RTT, reactivity and endurance (which is not included in the figure) form processing capabilities of stimulation. This need for stimulation can be adjusted by controlling one’s own activity directed to search for stimulation or to limiting it.

High satisfaction also characterizes the participants who scored low in activity and low or medium in reactivity scales. This result contrasts with the assumptions of RTT. In the case of less reactive and less active people, the temperament structure is not harmonized in the direction of under-stimulating (mean $ZH1 = -1.33$) which does not reduce life satisfaction ratings. It can be assumed that such under-stimulating is not a temperament risk factor (Strelau, 1998) in the environment where those people live and work. However, one should be cautious because the size of this group was very small ($N = 3$). However, it is worth exploring it later, in the future research.

People who are dissatisfied with life are highly reactive and little active, which is confirmed by assumptions about the traits relationships, often reported in the literature (Zawadzki, Strelau, 1997). Moreover, the lowest life satisfaction occurs to: firstly, people with medium results in activity scale and high results in emotional reactivity scale (average life satisfaction = 3.7 to a maximum of 7 points); secondly, to individuals with low results in the activity scale and high results on the emotional reactivity scale (average life satisfaction = 2.2 to a maximum of 7 points). At these individuals emotional reactivity is too high and does not balance activity. This means that people with medium activity and high emotional reactivity may choose actions inappropriate to their capabilities (for example, richly stimulating) of processing stimulation, and consequently may become over-stimulated (average harmonising = .63). People who have low levels of activity and high levels of reactivity have a tendency to under-stimulating (average harmonising = -.24), their need for action may be unmet. In both groups, over-stimulating or under-stimulating situation is not high, because it is assumed that up to one of the deviation from zero the temperament structure is harmonized, but this parameter may be more sensitive

than previously assumed and any deviation from zero should be analysed as diagnostic. The direction of the harmonising deviation from the optimum is consistent with the explanation. Such an unbeneficial level of activity may cause the low life satisfaction.

The analysis of the relationships of temperamental traits and job satisfaction (in both aspects) indicates: a significant positive relationship of job satisfaction in emotional aspect with activity and endurance; and in the cognitive aspects with activity only. In the formation of life satisfaction as a whole, as well as in shaping partial job satisfaction, the most important role plays activity. Job satisfaction as partial satisfaction which is related to one of the spheres of work-life should be similarly determined as life satisfaction as a whole. However, as two of three variables were the determinants of life satisfaction, emotional reactivity and activity, job satisfaction is determined by activity (regardless of the both aspects of job satisfaction analysed) and also endurance for job satisfaction in the emotional aspect. This result reveals a different importance of individual features of temperament. As in the case of life satisfaction, harmonising temperamental traits is neither associated, nor does not determine job satisfaction. It is activity that plays the most important role in shaping life satisfaction as a whole and in partial job satisfaction alike.

Activity proved to be the only determinant of job satisfaction. Comparing or expectation processes are fundamental for cognitive job satisfaction do not require any other support of matched emotional reactivity and endurance but for activity. Because comparison processes are basic in shaping job satisfaction, they require activity only in evoking memories, facts and setting the context for forming current work evaluation. This result should be treated as coherent with the mechanism of shaping job satisfaction in the cognitive aspect. Job satisfaction in the emotional aspect is determined by activity and endurance. The role of activity, as it was mentioned before, depends on balancing stimulation need, seeking the sources of positive emotions and avoid the negative ones.

Endurance and resistance seem to shape job satisfaction regardless of the activity (only the medium level of endurance is not related to job satisfaction). It prevents reduction of emotion and tension at work, physical weakness, exhaustion and fatigue. A person who is stress free, is able to process information accurately, to operate effectively and channel the activity adequately to the needs in order to optimize the conditions and manner of work, so that the profits are higher than labour costs, which is manifested in a positive emotional balance and cognitive assessments of work. While inactive people are more often exposed to the need to operate in situations inadequate to their stimulation processing capabilities which are more likely to reduce efficiency and incur higher psycho-physiological costs. The persistence of such adverse situations can

lead to lower cognitive and emotional evaluations of job satisfaction. Once again, therefore, the thesis of satisfaction ratings depending on the balance of positive emotions and perceived positive events is confirmed (Diener, Sandvik and Pavot, 1991).

The relationship of activity and cognitive and emotional job satisfaction may also be explained by the physiological mechanisms - re-uptake of serotonin (cf. Dragan, 2003) and more frequent dopamine production at active people. Highly active individuals more often in fact, undertake highly stressful actions of increased risk, which favour the production of this hormone. Both hormones raise the mood and give a feeling of satisfaction.

The similarity of emotional and cognitive aspects of job satisfaction is high, but these concepts cannot be identified with each other ($r = .76$). This statement confirms the statistically significant difference between the average emotional and cognitive satisfaction among respondents. Among the participants who were tested, the emotional job satisfaction is higher than the cognitive one. The reason for such assessment configuration is that emotional states can be formed without involving complex (often even the simplest one - recognition) cognitive processes and in other brain circuits and based on the energetic and relational stimulus and not informative and factual. Therefore, one "set" of energetic characteristics determines cognitive satisfaction, and another determines emotional satisfaction (cf. Zajonc, 1980; Zalewska, 2003a, 2003b; Strelau, 2006).

One should take into account that determination coefficients received from life and job satisfaction regression analysis are relatively low. The quantity of potential life and job satisfaction determinants may explain the result. Apart from temperament and other disposable variables like personality, core self-evaluations (Judge, Bono, 2001) or inclination to positive and negative affects (affectiveness) (Ilies, Judge, 2003), work characteristics also influence job satisfaction. Good relationships with supervisors, work contents or salary have a particular meaning (Hu, Kaplan, Dalal, 2010).

Life satisfaction, in turn, according to the newest well-being theory *Human Flourishing* by Martin Seligman (2011), is influenced by positive emotions, engagement, positive relationships, meaning and accomplishment (PERMA). According to *Model of Sustainable Happiness* (Lyubomirsky, Sheldon, Schkade, 2005), inner determinants like personality traits, locus of control and volitional acting, as well as situational determinants like demographic factors are mentioned

Another important conclusion drawn from these studies is the irrelevant role of harmonising the temperament structure in shaping the structure of satisfaction. This variable determines neither satisfaction with life nor work. However, it appears that life satisfaction determines the temperament structure, though to a minor extent.

The literature has not yet pointed to the direction of the influence. This relationship is of major importance for the verification of theoretical statements of RTT. According the assumptions of the RTT a man strives for the optimal level of stimulation. This aspiration is a process that has different consequences, one of them may be life satisfaction. But there may be an inverse relationship that life satisfaction may be provided to optimize stimulation delivery and processing.

According to broaden-and-built theory of positive emotions by Fredrickson (2003), positive emotions associated with the satisfaction give information about opportunities and chances to improve self-effectiveness. It is not only about achieving goals and satisfying current needs but about creating new goals achieved through new strategies of behaviour. Life satisfaction also influences the type, scope and frequency of often new actions, so that it is best for the individual. Consequently, new activities determined by satisfaction and stimuli coming from the environment, may shape temperamental traits and their structure on the long run. A happy person under the influence of positive emotions will choose, seek or create the same environments leading to optimizing the structure of temperament and protect it against over-stimulation and under-stimulation. On the long run, if individual actions are matched to temperament traits, a harmonized structure will be shaped. Negative emotions do not allow broadening awareness of new targets nor do they promote creating new solutions and behaviour. In other words, they do not affect the formation of the temperament structure. Unhappy people who experience negative emotions take action aimed at meeting immediate needs and protection against stress. This theory also explains the small part of endurance and reactivity and strong participation of self-activity in shaping satisfaction. The summary of the regression equation also revealed that the harmonisation of the structure of temperament depends on sex and age. Men have a better harmonized structure than women and older people than the younger ones. Being a man favours harmonising, because men's nature is more active than that of women's (Zawadzki, Strelau, 1997) and the activity is an important regulator of other temperament characteristics. However, a large share of sex in determination may be exaggerated because of quality nature of this variable. The comparisons of differences between women and men did not reveal any statistically significant differences between the average results of harmonisation. However, age appears to reflect a process of learning the optimal management of self-activity and life satisfaction, which together with other variables affect the temperament harmonisation. Besides, older people have a better insight into their own stimulation need and are more able to take care of the physiological and psychological balance their own abilities and needs and the environment.

In summary, the energy characteristics influence overall life satisfaction and cognitive and emotional job satisfaction with different strength. The biggest part in shaping general and partial satisfaction is activity. Other characteristics of temperament determine only life satisfaction (reactivity) or job satisfaction in the emotional aspect (endurance). Although one should keep in mind that the level of activity determines to greater extent satisfaction with life than work. The disproportion of activity influence may result from lower capacity to take volitional activity in the workplace (unless you work at home) than in non-professional spheres, where there is more freedom to take up more actions.

This result seems quite important, because in assumptions of Regulative Temperament Theory and research conducted so far there has not been hypothesized a greater share of one of the features in the formation of overall life satisfaction and cognitive and emotional job satisfaction. Additionally, this research shows the role of life satisfaction in the formation of a harmonized temperament structure. This result should be treated as an inspiration for later exploration of this problem.

The practical conclusions drawn from these studies indicate the necessity of taking into account the energetic characteristics of behaviour when choosing a profession or work environment. When we know them, we may improve the accuracy of educational and vocational decisions. It can also protect an employee against the phenomenon of negative selection. Employees should, therefore, choose professions basing on the need for stimulation and a tendency to seek stimulation and avoiding stimulation determined by the activity. Satisfying this need may be, among other factors, the impact on job satisfaction.

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