

RESEARCH ARTICLE

Temperament and Living Conditions: A Comparison Study of Poles and Koreans

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Abstract

The present investigation tested the temperament traits of 319 Polish and 315 South Korean students according to the regulative theory of temperament. Poland and South Korea are two countries with a similar rate of economic growth but with distinct cultures; for instance, they differ in terms of individualism and masculinity dimensions as well as living conditions. This means that they have achieved the same goal with different resources but presumably also with different side effects.

The results indicate that the Poles had higher levels of briskness, sensor sensibility and endurance, as well as lower levels of emotional reactivity and perseveration in comparison with South Koreans. The structure of one's temperament determines one's ability to meet environmental requirements and also how one deals with stressful conditions. According to previous empirical data, Poles' temperament profile can be characterized as being less prone to stress perception and therefore more advantageous. It is possible that Koreans, as they have a less adaptive temperament structure, experience higher levels of stress in a more stimulating environment than Poles. Copyright © 2012 John Wiley & Sons, Ltd.

Keywords

Poland; South Korea; temperament; Formal Characteristics of Behaviour–Temperament Inventory (FCB-TI); stress

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Published online 18 May 2012 in Wiley Online Library (wileyonlinelibrary.com) DOI: 10.1002/smi.2426

Introduction

There are several ways to achieve the same goal; however, the side effects might be different. When two countries with distinct cultures and environments achieve dynamic industrial development, the impact on the two societies differs because of interpersonal differences. We examined South Korea and Poland, two countries that have attained remarkable economic growth during the last 50 years. In Korea, the gross domestic product (GDP)¹ grew by 67% in the years 1998–2008, in comparison with the 26% that was achieved on average by the Asia-Pacific Economic Cooperation countries. In Poland, over the same period, the GDP grew by 51% in comparison with the 24% accomplished by 15 European Union countries.

At the same time, Poland and Korea represent disparate cultures, with the greatest dissimilarity appearing on the individualism dimension (Hofstede, 2001). In an individualistic society, people look after themselves, and the ties between people are loose, in contrast to a collectivistic society in which people belong

to in-groups from birth and remain loyal to these groups in exchange for protection (Hofstede, 2001). According to the national culture classification, Poland has a higher level of individualism, ranking 17th on the scale, whereas Korea ranks 43rd (Hofstede, 2001).

Another dimension that differentiates Poland and Korea is masculinity. For the masculine pole, earning, recognition, advancement and challenge are important, whereas for the feminine pole, good relationships with superiors, cooperation, one's living area and employment security are key elements (Hofstede, 2001). According to the national culture classification, Poland has a higher level of masculinity, ranking 11th or 12th, whereas Korea ranks 41st (Hofstede, 2001).

Korea as a region is influenced by Confucianism and therefore represents an entrepreneurial orientation. Such a cultural orientation strongly emphasizes mastery and hierarchy and rejects harmony and egalitarianism (Schwartz, 2006). Equality among people is one of the characteristics of Catholicism, the dominant religion in Poland. It is believed that the Confucian work ethic has a positive effect on economic development (Kim *et al.*, 1997), whereas in Catholicism, work is not a tool to create wealth, as the only justification for wealth is charity and that is why the only aim of work is to survive

¹The Conference Board and Groningen Growth and Development Centre, Total Economy Database, June 2009.

(Tilgher, 1930). When comparing Confucian Korea with Catholic Poland in terms of working time, people in Poland tend to work less: 1,969 h per year in comparison with 2,256 h per year worked by Koreans.²

If we define culture as the responses and solutions used by people to satisfy their basic needs (Boesch, 2003), the factors of geography, climate, the availability of natural resources (Behrensmeier, 2006), population density, technological development, political system, history and religion (Matsumoto & Juang, 2008) would all exist in a reciprocal relationship with culture. Culture depends on these factors but also changes them, creating new ways of satisfying people's basic needs. Seoul National Capital Area, second largest metropolitan area in the world, encompasses half of Korea's population (app. 24.5 million out of 48.7 million, Korea National Statistical Office). Seoul is the biggest city in the metropolitan area with app. 10.2 million, wherein people commute on a daily basis and create unacceptable levels of traffic and air pollution. According to an Organisation for Economic Co-operation and Development (OECD) report (2006), Korea has the fourth highest geographic concentration of population in the OECD, with a density of 17,219 persons per square kilometre in Seoul, whereas in Warsaw, the population density is only 3,300 persons per square kilometre.

To sum up, Poland and Korea are two countries with remarkable economic growth that differ in terms of culture and living conditions. This implies that they have achieved the same economic goal with different means and different psychological costs. In this investigation, we are interested in psychological and health-related costs, which depend, amongst other things, on temperament. The way people experience their environment and react to stimuli depends on their temperamental constitution. Temperament is defined as behavioural characteristics that are relatively stable over time, determined mainly by biological mechanisms (Strelau, 2008). However, the environment (e.g. culture) can modify individuals' temperaments to some degree.

In this paper, we refer to the regulative theory of temperament (RTT) (Strelau, 2008). On the basis of psychometric studies, six dimensions have been distinguished in RTT: briskness (BR; the tendency to react quickly and to shift easily from one reaction to another); perseveration (PE; the tendency to continue and to repeat emotional states after the cessation of stimuli); sensory sensitivity (SS; the ability to perceive weak sensory stimuli); emotional reactivity (ER; the tendency to respond intensively to emotion-generating stimuli); endurance (EN; the ability to react adequately in situations demanding long-lasting or exhausting behaviour) and activity (AC; the tendency to undertake behaviours providing intense stimuli).

Strelau (2008) assumes that the structure of one's temperament determines one's ability to meet environmental requirements. The most adaptive type of temperament involves high potential for processing stimulation (high EN and low ER), accompanied by a high level of traits providing high stimulation (AC, BR and SS) and a low arousal-reduction trait (PE). Many studies support Strelau's hypothesis. For instance, a subject with such a configuration of temperament traits as characterized earlier will cope better with stress (Strelau & Zawadzki, 2005). A maladaptive temperament structure is a result of the influence of unfavourable and demanding environmental conditions, which are responsible for the asymmetry between external requirements and the psychological constitution of the individual in question (Strelau, 2008).

Considering the different environments, living conditions and cultures in South Korea and Poland, we expect the two countries to differ in terms of temperament. We assume that people in these two countries with dissimilar types of temperament will presumably bear different psychological costs of adjusting to rapid economic changes. Moreover, we also expect some sex differences, as it has been shown that women and men from different countries differ in terms of temperamental characteristics and that these differences can be due to cultural gender socialization (Schmitt, 2003, Schmitt *et al.*, 2008).

Method

A total of 319 Poles (54% women and 46% men) and 315 Koreans (42% women and 58% men) participated in the study. The mean age of the Poles was 21.65 [standard deviation (SD) 1.35] years, and the mean age of the Koreans was 23.45 (SD 3.38) years. The participating students were recruited from the following universities in Korea:

- Korea University Business School in Seoul, South Korea—approximately 80% of the Korean sample;
- The Social Science Department of Soongsil University in Seoul, South Korea—approximately 20% of the Korean sample.

and in Poland:

- Warsaw School of Economics in Warsaw, Poland—the whole Polish sample, but among the students who took part in our investigation, approximately 15% were also psychology students at University of Warsaw.

The Formal Characteristics of Behaviour-Temperament Inventory (FCB-TI) was used to measure six temperament traits, in accordance with RTT (Strelau, 2008). The psychometric quality of the inventory has been investigated in several studies (Strelau, 2008). The inventory was adapted for use in Poland and South Korea (Zawadzki *et al.*, 2001). The FCB-TI consists of 120 items

²The Conference Board and Groningen Growth and Development Centre, Total Economy Database, June 2009.

Table I. Intercorrelations between Formal Characteristics of Behaviour-Temperament Inventory scales and the internal consistency (Cronbach's alpha) of six temperament traits according to country

Trait	Country	Perseveration	Sensory sensitivity	Emotional reactivity	Endurance	Activity	Internal consistency
Briskness	Korea	-0.128*	0.102	-0.231**	0.190**	0.235**	0.78
	Poland	-0.007	0.113*	-0.234**	0.185**	0.199**	0.71
Perseveration	Korea	—	0.113*	0.476**	-0.276**	-0.058	0.68
	Poland	—	-0.025	0.553**	-0.385**	-0.172**	0.66
Sensory sensitivity	Korea	—	—	-0.065	0.062	0.198**	0.81
	Poland	—	—	-0.152**	0.217**	0.207**	0.79
Emotional reactivity	Korea	—	—	—	-0.516**	-0.301**	0.78
	Poland	—	—	—	-0.599**	-0.404**	0.84
Endurance	Korea	—	—	—	—	0.227**	0.84
	Poland	—	—	—	—	0.326**	0.85
Activity	Korea	—	—	—	—	—	0.81
	Poland	—	—	—	—	—	0.86

***p*-values < 0.01.**p*-values < 0.05.

with a yes/no response format. Each scale has 20 items with an average reliability coefficient of 0.86 (Strelau, 2008).

Results

Firstly, intercorrelations were computed between the FCB-TI scales in the Polish and Korean samples (Table I). The direction of the relationships was the same in the two countries. The strongest correlations were observed between ER and EN (negative) and PE and ER (positive), which is consistent with the RTT and previous studies (Strelau, 2008). Cronbach's alphas were fairly similar in both countries and were consistent with the original version of the FCB-TI (Strelau & Zawadzki, 1993).

Next, the differences in temperament traits between Poles and Koreans were analysed. As the samples differed in terms of demographic characteristics, 2-way analysis of covariance with age as the covariate and sex and country as the between-subjects factors was performed.³ The mean scores and standard

deviations of temperament traits by country and sex are presented in Table II. (Table III)

As regards BR, the analysis indicated a significant effect of country ($F(1,629) = 81.97$; $p < 0.001$; partial- $\eta^2 = 0.12$), sex ($F(1,629) = 16.92$; $p < 0.001$; partial- $\eta^2 = 0.03$) and the country \times sex interaction ($F(1,629) = 10.60$; $p = 0.001$; partial- $\eta^2 = 0.02$). Age was not significant ($F(1,629) = 0.001$; $p = 0.987$). Further analysis of the interaction showed that in Poland, there were no sex differences, whereas in Korea, men had higher levels of briskness than women.

The analysis of PE revealed a significant effect of country ($F(1,629) = 11.81$; $p = 0.001$; partial- $\eta^2 = 0.02$) and sex ($F(1,629) = 6.18$; $p = 0.013$; partial- $\eta^2 = 0.01$), whereas age was not significant ($F(1,629) = 3.40$; $p = 0.08$).

With regard to SS, a significant effect was found for country ($F(1,629) = 36.40$; $p < 0.001$; partial- $\eta^2 = 0.06$) and sex ($F(1,629) = 15.22$; $p < 0.001$; partial- $\eta^2 = 0.02$). Age was not significant ($F(1,629) = 0.51$; $p = 0.470$).

For ER, there was a significant effect of country ($F(1,629) = 4.26$; $p = 0.04$; partial- $\eta^2 = 0.01$) and sex

Table II. Means and standard deviations of six temperament traits according to sex and country

Trait	Country	Men	Women	Overall
Briskness	Korea	13.16 (3.63)	10.91 (4.48)	12.15 (4.19)
	Poland	14.99 (3.30)	14.72 (3.25)	14.83 (3.30)
Perseveration	Korea	13.04 (3.25)	13.77 (3.26)	13.36 (3.27)
	Poland	12.19 (3.41)	13.05 (3.14)	12.70 (3.28)
Sensory sensitivity	Korea	14.23 (3.96)	16.08 (3.66)	14.61 (3.85)
	Poland	15.75 (3.28)	16.32 (3.44)	16.63 (3.20)
Emotional reactivity	Korea	9.30 (3.87)	11.90 (3.91)	10.46 (4.10)
	Poland	8.73 (4.68)	11.16 (4.84)	10.13 (4.90)
Endurance	Korea	7.90 (4.87)	6.80 (4.40)	7.41 (4.70)
	Poland	10.27 (4.96)	10.00 (5.07)	10.11 (5.02)
Activity	Korea	10.21 (4.33)	9.86 (4.09)	10.05 (4.30)
	Poland	11.03 (5.08)	12.50 (4.98)	11.90 (5.02)

³Because the traits were intercorrelated, we conducted logistic regression as an alternative way to analyse our data. We coded Koreans as 0 and Poles as 1 to examine whether the country variable was related to the scores on each temperament scale. We entered all temperamental traits as well as age and sex as predictors, whereas the country was the dependent variable (see Table III). The analysis showed that there was a relation between temperamental traits, sex, age and country ($-2LL = 618.08$; H&L $\chi^2(8) = 4.28$; $p = 0.83$). In particular, in the model, Poles tended to have higher BR, SS, ER, EN and lower PE than Koreans, whereas AC was not significant. It is worth noting that the regression showed different results than analysis of variance as it comes to ER and AC. In the regression model, Poles had higher ER that was just opposite to the analysis of variance result. Further analysis revealed that it was mainly because this trait was highly correlated with EN. Finally, AC started to be significant after removing BR from the model.

Table III. Results of logistic regression with country as dependent variable and temperament, age and sex as predictors

	B	S.E.	Wald	df	<i>p</i>	Exp(B)	95% CI lower	95% CI upper
Sex	0.11	0.22	0.26	1	=0.60	1.20	0.73	1.71
Age	-0.38	0.05	46.5	1	<0.01	0.69	0.61	0.77
Briskness	0.20	0.03	47.5	1	<0.01	1.22	1.16	1.30
Perseveration	-0.14	0.04	9.8	1	<0.01	0.90	0.83	0.96
Sensory sensitivity	0.20	0.03	15.8	1	<0.01	1.13	1.06	1.19
Emotional reactivity	0.20	0.03	13.8	1	<0.01	1.13	1.06	1.20
Endurance	0.01	0.02	15.2	1	<0.01	1.10	1.05	1.16
Activity	0.03	0.02	1.8	1	=0.18	1.03	0.98	1.08

df: degrees of freedom; S.E: standard error.

($F(1,629) = 45.18$; $p < 0.001$; $\text{partial-}\eta^2 = 0.07$), whereas age was not significant ($F(1,629) = 0.88$; $p = 0.350$).

Concerning EN, there was a significant effect of country ($F(1,629) = 40.14$; $p < 0.001$; $\text{partial-}\eta^2 = 0.06$) and sex ($F(1,629) = 4.28$; $p < 0.039$; $\text{partial-}\eta^2 = 0.01$), whereas age was not significant ($F(1,629) = 2.06$; $p < 0.151$).

For AC, a significant effect was found for country ($F(1,629) = 81.97$; $p < 0.001$; $\text{partial-}\eta^2 = 0.12$), sex ($F(1,629) = 16.92$; $p < 0.001$; $\text{partial-}\eta^2 = 0.03$) and the country \times sex interaction ($F(1,629) = 10.60$; $p = 0.001$; $\text{partial-}\eta^2 = 0.02$). Age was not significant ($F(1,629) = 0.262$; $p = 0.609$). The analysis of the interaction showed that Polish women had higher activity levels than Polish men, whereas in Korea, there were no sex differences. Moreover, Polish and Korean men did not differ significantly with regard to activity.

Discussion

We compared the temperament of Poles and Koreans according to the RTT. Firstly, Poles had higher levels of BR, SS and AC than Koreans. These dimensions are described as providing stimulation (Strelau, 2008). The fact that the scores of the Koreans are lower than those of the Poles on the briskness and activity dimensions needs explanation. It means that Koreans would react more slowly to changes in the environment and would not be as vigorous, which is the opposite of the possible stereotype that might be based, e.g. on the fact that Koreans spend a lot of time at work (OECD report, 2006) and that they are 'workaholics'. The apparent picture of active Koreans might be explained by the fact that they have a tendency to follow what others do which is associated with high collectivism. There is an apparent discrepancy between what the community expects in terms of being active and vigorous and how the Koreans described themselves in the self-report measure in our investigation. Such a discrepancy might be a possible source of stress.

It is worth noticing that the traits that differentiate Poles and Koreans correlate with the intensity of perceived stress and especially with extreme stress and

post-traumatic stress disorder (Strelau, 2008). BR, AC and EN are negatively related to stress perception, whereas high PE and ER are positively tied up with stress. Because of the less adaptive temperamental constitution of Koreans and the fact that their environment is very stimulating, one might assume that such a situation results in higher psychological costs than the Polish equivalent. Koreans may cope less well with stress in comparison with Poles, and our results may shed some light on the fact that more stress-related phenomena are observed in Korea than in Poland. For instance, the predominant type of cancer in Korea, accounting for 20.8% of malignant neoplasms, is stomach cancer (Lee *et al.*, 2002). Among the many causes of this illness is *Helicobacter pylori*, and it seems to be enhanced by psychological stress (Guo *et al.*, 2009).

Another factor in which Poland differs significantly from Korea is the suicide rate. According to World Health Organization data from 2008, this rate is much higher in Korea (21.5 per 100,000 persons) than in Poland (13.2 per 100,000 persons). However, if we consider only the age group of our participants, the data show that there is a significant difference between the rate for teenagers and that of young professionals (one has to bear in mind that the average age of a student in Korea is higher than in Poland, due to the two-year obligatory army service for Korean men). The suicide rate is fairly similar in the 15–24-years age group (Korea = 15.3 per 100,000 and Poland = 11.4 per 100,000). However, in the 25–34-years age group, there is a greater difference: in Korea, the number grows to 30.3, whereas in Poland, it only reaches 13.2. According to Baca-Garcia *et al.* (2007), psychosocial stressors, which increase with age, may be strongly associated with suicide attempts.

On the other hand, it is worth noticing that according to the OECD report from 2007, Poland has one of the highest mortality rates caused by cardiovascular diseases among all of the OECD countries. The rate in Poland (324 per 100,000) is almost twice as high as in Korea (186 per 100,000). Cardiovascular diseases may be related to temperamental profile (Eysenck,

1991). Strelau (2008) assumes that cardiovascular disease is associated with over-arousal. Poles with higher levels of BR, AC and SS are presumably overstimulated by their environment and are unable to process all of these stimuli. Such a situation may create a temperamental risk factor for heart disease.

In our study, we also observed sex differences. The differences within each country were consistent with previous findings on RTT (Zawadzki *et al.*, 2001), as well as similar constructs regarding the Big Five (Schmitt *et al.*, 2008). One interesting fact was that Korean men had higher level of briskness than women, whereas in Poland, there were no differences on this trait. Korea, although a very modern country in terms of economic development, is still under the influence of Confucianism. The distinct positions of men and women in society are closely related to Confucianism. The main obligations of women have been to bear children and take care of the household (Domurat & Zajenkovska,). This may have created an environment for women in which calm reactions and focusing on one task at a time are highly valued. On the other hand, in Poland, women had higher activity levels than men, whereas in Korea we did not observe any such differences. Activity is highly correlated with extraversion (Strelau, 2008). Schmitt *et al.* (2008) found that in Europe; sex differences are bigger with regard to this trait than in Asia. Among others reasons, the authors suggest that in countries where opportunities for gender equality are greater, the differences in personality between men and women are also more significant.

To conclude, we can say that Korea and Poland are in the process of undergoing large trade and industry changes that are strengthening both economies. According to the World Bank database in 2009, Poland and South Korea (along with Australia) were the only OECD countries with a positive GDP growth rate. In both cases, the shift towards a knowledge-based economy makes the countries more attractive for

foreign investment, which can also boost industrial growth. In this situation, people from the two countries bear different psychological costs, partially due to their temperamental constitutions. Koreans, with their temperaments and living conditions, are more vulnerable to stress, whereas Poles, who provide themselves with too much stimulation which they are unable to process, are at risk of overstimulation. What is interesting is that the subjective well-being of Poles and Koreans is very similar in most rankings, and in comparison with other countries, it is fairly low (Diener & Suh, 1999). Apparently, the side effects of these economic changes are different for the two countries, but they have the same impact on subjective happiness.

It is worth noticing that the fact that we exclusively examined students limits our conclusions. More representative samples are necessary to answer the question of whether the differences are widespread and concern these societies in general. In addition, all of our assumptions based on the results regarding Poles and Koreans are relative and can be considered only as a comparison between those two nations.

Furthermore, it was shown that RTT traits influence emotional functioning (Jankowski & Zajenkowski, 2012) and therefore including affective states such as mood from an intercultural perspective might lead to interesting findings. Moreover, because we did not measure psychological distress of participants directly, it would be valuable to include measures of stress perception and health-related behaviours (e.g. General Health Questionnaire [Golderberg & Williams, 1988]) in future investigations.

Finally, the fact that we gathered data based only on the self-report method makes these data very subjective. We believe that it would be highly valuable to compare them with objective measures such as psychological morbidity.

Acknowledgment

The second author was supported by a programme run at the Foundation for Polish Science.

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