

## Independence and Interdependence Values in Changing Societies: A Three-Generation Comparative Study in Estonia, Germany, and Russia

Pirko Tõugu\*, Tiia Tulviste, Kairi Kasearu, Kairi Talves, Isabelle Albert

### Abstract

Independent and interdependent self-construal values of three generations and the intergenerational similarity of self-construal was compared in three countries. The participants were 837 adolescents, their mothers (227 from Russia, 311 from Germany, and 299 from Estonia) and 293 maternal grandmothers. In Germany, all three generations displayed higher scores on independence than participants from other countries. Russian participants had higher scores on interdependence compared to participants from other countries. Adolescents scored significantly higher on the interdependent self-construal than the two older generations, and higher than the mothers' generation on the independent self-construal. Grandmothers' self-construal was related to mothers' in all three countries. In Germany and Estonia, mothers' interdependent self-construal was related to adolescents' interdependent self-construal. Grandmothers' (but not mothers') independent self-construal predicted adolescents' independent self-construal. The results are discussed in light of the Family Change Theory and the different roles the participants have.

**Key words:** independence, interdependence, self-construal, intergenerational value similarity, cross-cultural comparison

### Introduction

Independence and interdependence as value dimensions for the self show cross-cultural variability, and the value attached to the dimensions is influenced by the social context and, therefore, susceptible to change across generations (Boehnke, 2001; Kağitçibaşı, 2007). At the same time, intergenerational value transmission and similarity are important mechanisms for socialisation and cultural continuation. The present study focuses on the independent and interdependent dimension of the self-construal in three generations in three countries that have faced significant societal changes over the decades and traces the intercultural and intergenerational differences, as well as the intergenerational similarity in independence and interdependence values. Transition from socialism to liberal capitalism has strengthened the orientation to hedonism and the safety of close relationships (affiliation), on the one hand, and individual self-development towards competence, autonomy, and individualisation, on the other (Kalmus & Vihalemm, 2004, Raudsepp, Tart, Heinla 2013). The societal and cultural transformation has led to a growing gap between the mentality of young and old generations (Raudsepp, Tart, Heinla 2013). However, the question remains open as to whether this increasing gap is a consequence of social change.

### Independence and Interdependence

As first defined by Markus and Kitayama (1991), the independent self characterises a separate distinct person, whose behaviour is organised and regulated by the inner attributes of the person. In the interdependent view of self, the self is made meaningful in connectedness with other persons, whereas the inner attributes of the person are considered context specific. In later

\* E-mail of corresponding author: [pirko.tougu@ut.ee](mailto:pirko.tougu@ut.ee)

studies, an understanding of independence and interdependence as two dimensions of self has evolved (Greenfield, Keller, Fuligni, & Maynard, 2003; Killen & Wainryb, 2000; Kitayama, Park, Servincer, Karasawa, & Uskul, 2009). The dimension of independence has been conceptually related to individualism and interdependence to collectivism (Triandis, 1995; see Matsumoto, 1999, for discussion). Individualism and collectivism are cultural values that are enacted in self-development or mediated in the independent and interdependent dimension of the self-construal and both dimensions of the self exist in all cultural contexts (e.g., Kim, et al., 1996; Kolstad & Horpestad, 2009; Markus & Kitayama, 2010; Raeff, 2000).

The majority of cross-cultural studies on independence and interdependence have concentrated on the differences between the self-construal of Euro-Americans and Asians, whose self has prototypically been considered more independent- and interdependent-oriented, respectively. People from the US have a higher independence score than Japanese (Kiuchi, 2003) and Korean participants (Kashima, et al., 1995; Kim, et al., 1996). Chinese participants have been found to be more interdependent than the Canadian ones (Li, Zhang, Bhatt, & Yum, 2006), and Hawaiian people more interdependent than participants from Japan and Korea (Kim, et al., 1996). A few studies have also involved European contexts: for example, Kolstad and Horpestad (2009) have determined that the Norwegians are not more independence-oriented than the Chileans; instead, their participants from Chili rated both independence and interdependence higher than the Norwegians. Differences between Northern American, German, and UK students have also been detected (Kitayama, et al., 2009).

### Intergenerational Value Similarity

Value transmission is an important mechanism of socialisation and cultural continuation and one's family is one of the most important socialisation agents. Value agreement between parents and children has been used as a proxy for successful intergenerational value transmission, and there is general agreement in the field that several values, beliefs, and attitudes are transmitted to children from parents (Barni, Ranieri, Scabini, & Rosnati, 2011; Grønhøj & Thøgersen, 2009; Knafo & Schwartz, 2001; Phalet & Schönplflug, 2001; Pinguart & Silbereisen, 2004; Roest, Dubas, & Gerris, 2010; Sabatier & Lannegrand-Willems, 2005; Yi, Chang, & Chang, 2004). Studies including grandparents as socialisation agents are fewer (Bengtson, 1975; Copen & Silverstein, 2007; Sabatier & Lannegrand-Willems, 2005), and they imply that the transmission of values from grandparents to adolescents is often mediated by the middle generation (Bengtson, 1975; Sabatier & Lannegrand-Willems, 2005).

Several other characteristics of the transmission process have been identified. Min et al. (2012) show that different values are being transmitted at different periods of development. In a similar vein, Barni et al. (2013) have shown that while value agreement between adolescents and parents is small to moderate, it is considerably higher between parents and emerging adults. Yet, they also point out that this effect is at least partially socially derived as the correlations between value judgments weaken when the specific cultural stereotypical component is taken into account. Some values, beliefs or attitudes have stronger intergenerational transfer effects (Boehnke, 2001; Grønhøj & Thøgersen, 2009; Min, et al., 2012; Sabatier & Lannegrand-Willems, 2005). The intergenerational agreement is higher for the less preferred values by the parent generation than for the more preferred values (Boehnke, 2001), and most noteworthy, collectivistic or family relatedness values are more readily transmitted than individualistic values (Phalet & Schönplflug, 2001; Schönplflug, 2001).

Value transmission is sensitive to the wider socio-cultural contexts as immigration seems to increase the value distance between parents and children (Knafo & Schwartz, 2001; Phinney, Ong, & Madden, 2000). Several researchers have indicated that the value agreement between parents and children is not the result of intergenerational transmission only: ideas and values prevailing in the social context of the time or *Zeitgeist* (Boehnke, 2001) could be partially responsible for the measured value agreement between generations (Barni, et al., 2013; Barni, Knafo, Ben-Arieh, & Haj-Yahia, 2014; Vedder, Berry, Sabatier, & Sam, 2009).

## Value change

Value transmission and value change are two different processes, and due to societal change differences in values between parents and adolescents can be expected (Boehnke, 2001). Values are dynamic systems, structured in certain ways and influenced by individual experience during individual development in a socio-cultural context (Trommsdorff, Mayer, Albert 2004).

Individual values develop in interaction with the person's environment, and thus are a product of bi-directional processes, not only being influenced by others but also affecting the social interaction partners and the wider socio-cultural context (Trommsdorff & Komadt, 2003). Differences in self-construal between age cohorts have been reported. For example, Watkins, Mortazavi, and Trofimova (2000) found that college students in Russia, Iran, and Hong Kong attach more importance to independence values than adults from the same countries. The self-construal is embedded in the cultural and societal context, which suggests that it could change along with societal and cultural changes. The idea of change in self-construal is also put forward by Kagitçibasi's Theory of Family Change (2007). She proposes that traditionally interdependent families in recently urbanised contexts, who have gained better access to education, face changes in the self-construal of its members. She suggests that the dimension of interdependence or relatedness remains important, but the dimension of independence or autonomy gains new importance in the young generation due to the changing demands of the developmental context.

At the same time, adolescence could be a specific time period when the dimension of independence is in focus. Adolescence is the formative period when values and beliefs are acquired (Rokeach, 1973). At this life stage, children are seeking independence from their parents while at the same time striving to remain connected to them (Youniss & Smollar, 1985). Due to the similar tasks that adolescents face all over the world, the picture of cultural differences in self-construal may become blurred or disappear altogether. Kitayama et al. (2009) have found college students to display value judgments on explicit self-construal that may be considered unsystematic and atypical for their cultural environment. They explained it by the universal spread of popular culture carrying mainly independence related values. Zaff, Blount, Phillips, and Cohen (2002) found that there were no differences in the self-construal of Caucasian American and African American seventh-graders, although the groups differed in other aspects, most importantly in their ethnic identity. Yet, some cultural differences may remain or become especially predominant during adolescence. Pomerantz et al. (2009) found that while adolescents' self-construal included the relationship with their parents, the importance of this relationship over the formative years decreased in the US, but not in China.

## The Present Study

Most studies focusing on differences in independence and interdependence have included samples of young adults from contexts where either independence or interdependence is stereotypically prominent (e.g. Asian countries vs the US and other English speaking countries). Such studies fail to recognise possible intergenerational differences. Moreover, value transmission studies have been carried out in stable Western countries that provide good grounds for the continuity in values across generations, like the US (Min, et al., 2012), the Netherlands (Roest, et al., 2010), France (Sabatier & Lannegrand-Willems, 2005), Denmark (Grønhoj & Thøgersen, 2009), and Italy (Barni, et al., 2013). In order to shed light on the universality of generational differences and similarities in self-construal, changing societies displaying new demands for the individuals of different generations should also be studied. Moreover, people who are in formative years of their value system – in adolescence and young adulthood – are more sensitive toward societal changes than the others (Inglehart, 1997). The intergenerational similarity and difference of values central to self-construal have not been studied before and could be particularly interesting in contexts facing substantial societal change.

The present study focuses on the similarity of independence and interdependence values in three generations in Estonia, Russia, and Germany, countries that have all undergone a fair amount of

change (political, economic, and societal) in the last decade of the past century. Estonia and Russia faced the collapse of Soviet Union, and Germany underwent the reunification. Three generations in each cultural context are included in order to provide a more comprehensive picture of independence and interdependence values held by different generations and the similarity of values in the different generations. Country variation is included as countries with a different socio-political history place different demands on the self and may show cultural differences in the self-construal of different generations and in the intergenerational similarity of the values attached to self-construal. Country and generation effects are studied by contrasting mean scores of independence and interdependence values; value similarity is studied using Structural Equation Modeling in order to determine how the latent constructs of independence and interdependence of older generations are related to those of the younger generation. The present study could thus provide important information about value change and the consensus between different generations when societies change, and its results are applicable to Western Europe, on the one hand, and Eastern Europe on the other.

Germany, Estonia, and Russia were chosen for cultural-historical reasons and for the similarities and differences they have displayed in their history and development. Historically, both Germany and Russia have had a major influence on the culture of Estonia. Estonia and Russia also share the recent common historical background of belonging to the Soviet Union. The Soviet context was characterised by high secularisation, relative economic security, and state subsidised child care. All individualistic norms were kept in check by the official collective ideology and a strong censorship of alternatives (Gerber & Berman, 2010). After the collapse of the Soviet Union, there was a change towards Western values in Estonia: rising individualism, self-actualisation, autonomy, self-reliance, etc. (Lauristin, 1997). At the same time, in Germany individualisation started already in the 1970s and increased in the mid-1980s, (Keller & Lamm, 2005).

In 1990s, all three countries faced changes in the economic sphere, Germany due to reunification, Estonia and Russia had to rebuild a market-based economic system. In Estonia, two decades of extensive socioeconomic changes have led to joining the EU and the euro zone. Russia has also gone through major reforms during the past two decades after the fall of the Soviet Union, but has not reached a similar stability. The large differences that remain between the countries can also be indicated by the differences in GDP levels. According to CIA World Factbook, the GDP per capita in 2010 in Germany was \$35 700, in Estonia \$19 100, and \$15 900 in Russia in PPP (CIA, TheWorld'sFactbook, 2012).

Concerning values and beliefs, Germany is a country which has been characterised by individualistic value orientation (Hofstede, 2001). Although the general view has been that Estonia and Russia are collectivistic countries (Triandis, 1995), in regard to social relations, Estonian students are less collectivistic than Russian and American students (Realo & Allik, 1999). Realo (2003) has also indicated that Estonians display both, individualistic and collectivistic tendencies. Studies have shown that differences can also be detected in socialisation values and practices. Estonian parents have been shown to value traditional child-rearing goals more than Finnish and Swedish parents (Tulviste, Mizera, De Geer, & Tryggvason, 2007), likely manifesting the pattern of autonomous-relatedness suggested by Kağıtçıbaşı (2007) in family socialisation (Tulviste, Mizera, & De Geer, 2012; Tulviste, et al., 2007). Estonian mothers value independence similarly, but interdependence more than German mothers (Tõugu, Tulviste, Schröder, Keller, & De Geer, 2011). Russian adolescents represent more traditional family values and family formation plans compared to their German counterparts (Meyer, Kuramschew, & Trommsdorff, 2009). A study about the values of younger and older adults in 7 European countries found that generational differences in values were more pronounced in East European countries such as Estonia and Russia than in Finland and Sweden. The value preferences of Estonian young adults were similar to those of their Finnish and Swedish counterparts (Tulviste, Kall & Rämmel, 2017). Social, political, and economic changes in a society could have an influence on the family sphere, including the values and their similarity. In times of social change, one could expect a growing variance of value orientations that includes the value attached to the dimensions of independence and interdependence (Kağıtçıbaşı, 2007). Due to the similarities and differences in the socio-cultural history, the selected three countries provide a

good opportunity to gain a better picture of the inter- and intracultural differences in the value attached to the dimensions of independence and interdependence by different generations and the intergenerational similarity of values in changing societies.

**Hypotheses.** First of all, a *country effect* is expected. Due to the different socio-political history of the countries included in the study as well as the previously reported differences in the individualism level, it can be predicted that the participants display different scores for independence and interdependence in all three countries. We expect German participants to attach higher value to the independence dimension and lower value to the interdependence dimension than participants from the other countries, and Russian participants to display higher value attached to the interdependence orientation and lower value attached to the independence orientation than Estonian and German participants.

Second, a *generation effect* is expected as generations could display differences in the value attached to independence and interdependence. In particular, adolescents are expected to attach higher value to independence compared to mothers. Third, based on Kağitçibaşı's Model of Family Change (2007) and the different socio-political history of the countries, we can also expect a *country by generation interaction effect*. It can be expected that the values attached to the dimension of interdependence are similar across generations within the particular country. The value attached to the dimension of independence by mothers and maternal grandmothers can also be expected to be similar, but adolescents are expected to display significantly more independence oriented self-construal than their mothers and grandmothers in Russia and Estonia. In Germany, the intergenerational differences can be expected to be less prominent.

Finally, it can be predicted that mothers' dimensions of self-construal are positively related to the respective dimensions of the self-construal of offspring. A larger intergenerational similarity is expected for interdependence values compared to independence values. Due to the country specifics, however, the strength of intergenerational associations may vary.

## Method

The data used in the present study have been gathered during the study Value of Children and Intergenerational Relations (VOC-IR). This study was initiated by Nauck and Trommsdorff and carried out in collaboration with several teams from different disciplines in a large number of countries (overview by Trommsdorff, Kim, & Nauck, 2005; Trommsdorff & Nauck, 2005; 2010). The samples consist of persons from three biologically related generations (maternal grandmothers, mothers, adolescent children) (Trommsdorff & Nauck, 2005). The German data were collected in 2002 in Germany, Russian data in 2006 in Russia, and Estonian data in 2009 in Estonia. The German data were gathered in Chemnitz, Essen and Konstanz, Russian data in Nizhnij Novgorod. In Estonia, the sample includes families from different regions and is geographically representative of Estonian-speaking adolescents aged 14-17. In each country, the sample was stratified according to social, regional (urban/rural) and educational differences. The data were gathered from mothers and maternal grandmothers using face-to-face interviews and from adolescents with a paper-and-pencil instrument.

In case of Russia, the questionnaires were translated and back-translated from German to Russian. In case of Estonia, the translation to Estonian was first made from the English version of the questionnaire and then it was checked on the basis of the German questionnaire. Moreover, the instruments used in the VOC-IR study have already been previously tested in other cross-cultural studies (see Schwarz, Chakkarath, Trommsdorff, Schwenk, & Nauck, 2001).

## Participants

837 families including mothers and teenagers participated in the study (227 from Russia, 311

from Germany, and 299 from Estonia). 293 of the families included three generations (maternal grandmothers as well) (80 From Russia, 99 from Germany, and 114 from Estonia).

375 teenage boys and 455 girls participated in the study (91 boys and 131 girls from Russia; 137 boys and 147 girls from Germany; 147 boys and 150 girls from Estonia), and 720 of them were still attending school at the time of the measurement. The mean age of these children was 15.53 (range 11 - 20,  $SD = 1.14$ ). Univariate ANOVA showed that there were country differences in adolescents' age ( $F(2, 825) = 5.59, p < .01, \eta_p^2 = .01$ ); the Scheffé post hoc test showed that adolescents from Germany were older than adolescents from Russia ( $p < .01$ ). All except 10 adolescents were living in their mother's household.

The mean age of mothers was 42.1 years (range 28 - 62,  $SD = 5.51$ ). The mean number of years of schooling was 11.54 (range 7 - 25,  $SD = 2.72$ ). The mean age of mothers and education in years for each country are provided in Table 1. Univariate ANOVA showed that there were country differences in mothers' age ( $F(2, 831) = 15.55, p < .001, \eta_p^2 = .04$ ); the Scheffé post hoc test showed that mothers from Germany were older than mothers from Russia and Estonia ( $p < .001$ ). Univariate ANOVA showed that there were country differences in mothers' years of schooling ( $F(2, 785) = 281.83, p < .001, \eta_p^2 = .42$ ); the Scheffé post hoc test showed that mothers from Russia had fewer years of education than mothers from Germany and Estonia ( $p < .001$ ) and mothers from Germany had fewer years of education than mothers from Estonia ( $p < .001$ ). 137 mothers were living in rural (65 in Russia, 72 in Estonia) and 700 in urban areas (162 in Russia, 311 in Germany, 227 in Estonia). The mean household size was 4 people (range 1 - 16,  $SD = 1.26$ ); in Russia 4.05, range 1 - 16,  $SD = 1.27$ ; in Germany 3.97, range 2-7,  $SD = .83$ ; in Estonia 4.07, range 1 - 13,  $SD = 1.54$ .

The mean age of grandmothers was 68 years (range 51-88,  $SD = 7.17$ ). Univariate ANOVA showed that there were country differences in grandmothers' age ( $F(2, 289) = 3.82, p < .05, \eta_p^2 = .03$ ); the Scheffé post hoc test showed that grandmothers from Germany were older than grandmothers from Estonia ( $p < .05$ ). 55 grandmothers were living in rural (22 in Russia, 33 in Estonia) and 238 in urban areas (58 in Russia, 99 in Germany, 81 in Estonia).

## Measures

Mothers, teenage children, and maternal grandmothers provided extensive background information concerning the family constellation and socioeconomic status. For an overview of the instruments, see Schwarz, Chakkarath, Trommsdorff, Schwenk, and Nauck (2001). During the original study, they filled in numerous questionnaires, the one concerning independence and interdependence of one's self-construal is of interest here.

### Interdependent/Independent self

All participants completed the Independent/Interdependent Self questionnaire (Singelis, 1994) modified for the VOC study to address family interdependence in particular (see Sabatier, Mayer, Friedlmeier, Lubiewska, & Trommsdorff, 2011, for more details). The inventory contained 5 items, such as "It is important for me to respect decisions made by my family" for the measure of interdependence, and 5 items, such as "I enjoy being unique and different from family members in many respects" for the measure of independence. All items are also listed in Appendix A. Agreement with each item was evaluated on a 5-point Likert-type scale ranging from (1) *strongly disagree* to (5) *strongly agree*. Cronbach's  $\alpha$  for the interdependence subscale of five items was computed for each sample: Russia  $\alpha = .73$  ( $\alpha = .76$  for adolescents,  $\alpha = .69$  for mothers, and  $\alpha = .65$  for grandmothers), Germany  $\alpha = .75$  ( $\alpha = .74$  for adolescents,  $\alpha = .74$  for mothers, and  $\alpha = .77$  for grandmothers), and Estonia  $\alpha = .75$  ( $\alpha = .79$  for adolescents,  $\alpha = .72$  for mothers, and  $\alpha = .70$  for grandmothers). For the independence scale the Cronbach  $\alpha$ 's for each sample were: Russia  $\alpha = .59$  ( $\alpha = .60$  for adolescents,  $\alpha = .65$  for mothers, and  $\alpha = .20$  for grandmothers), Germany  $\alpha = .40$  ( $\alpha = .30$  for adolescents,  $\alpha = .52$  for mothers, and  $\alpha = .60$  for grandmothers), Estonia  $\alpha = .46$  ( $\alpha = .57$  for adolescents,  $\alpha = .53$  for mothers, and  $\alpha = .45$  for grandmothers).

## Results

### Overview of Data Analyses

General Linear Model analyses with Scheffé post hoc tests were used to investigate the country effect, the generation effect, and the country by generation interaction effect on the interdependence and independence dimension of the self-construal. The interaction effect was further investigated by using the Univariate General Linear Model analysis. The results are presented for both dimensions separately. Self-construal similarity between generations was studied using SEM modelling.

### Country effect, generation effect and country by generation interaction

The mean scores for independence and interdependence for each generation of each country are provided in Table 1.

**Table 1:** Descriptive Statistics and Self-Construal Scores for Three Generations in Three Countries

	Russia M (SD)	Germany M (SD)	Estonia M (SD)
<b>Adolescents</b>			
Age	15.30 (1.23) <sup>a</sup>	15.70 (1.07) <sup>b</sup>	15.50 (1.12) <sup>ab</sup>
Independence score	3.55 (.58) <sup>a</sup>	3.87 (.45) <sup>b</sup>	3.66 (.54) <sup>a</sup>
Interdependence score	3.62 (.58) <sup>a</sup>	3.45 (.58) <sup>b</sup>	3.44 (.63) <sup>b</sup>
<b>Mothers</b>			
Age	41.30 (5.25) <sup>a</sup>	43.50 (4.89) <sup>b</sup>	41.30 (6.03) <sup>a</sup>
Education in years of schooling	9.70 (.84) <sup>a</sup>	10.80 (1.53) <sup>b</sup>	13.80 (3.02) <sup>c</sup>
Independence score	3.22 (.59) <sup>a</sup>	3.76 (.49) <sup>b</sup>	3.52 (.53) <sup>c</sup>
Interdependence score	4.18 (.45) <sup>a</sup>	4.03 (.54) <sup>b</sup>	3.94 (.55) <sup>b</sup>
<b>Grandmothers</b>			
Age	67.50 (7.38) <sup>ab</sup>	70.00 (5.92) <sup>a</sup>	67.00 (7.82) <sup>b</sup>
Independence score	3.29 (.44) <sup>a</sup>	3.94 (.46) <sup>b</sup>	3.60 (.45) <sup>c</sup>
Interdependence score	4.20 (.41) <sup>a</sup>	4.26 (.41) <sup>a</sup>	3.96 (.45) <sup>b</sup>

Means having the same superscript are not different; means with different subscripts differ significantly at least at  $p < .05$ . Means without any subscripts do not differ across contexts.

A Multivariate General Linear Model analysis with country and generation as fixed factors and self-construal dimensions (independence and interdependence) as dependent variables. This yielded a significant effect of country with Wilks's  $\lambda = .88$ ,  $F(4, 3786) = 65.56$ ,  $p < .001$ ,  $\eta_p^2 = .07$ , a significant effect of generation with Wilks's  $\lambda = .75$ ,  $F(4, 3786) = 145.38$ ,  $p < .001$ ,  $\eta_p^2 = .13$ , and a significant country by generation effect with Wilks's  $\lambda = .98$ ,  $F(4, 3786) = 3.82$ ,  $p < .001$ ,  $\eta_p^2 = .008$ .

### Interdependence dimension

Univariate ANOVA showed significant country effect ( $F(2, 1902) = 19.5$ ,  $p < .001$ ,  $\eta_p^2 = .02$ ), generation effect ( $F(2, 1902) = 255.14$ ,  $p < .001$ ,  $\eta_p^2 = .21$ ) and a country by generation interaction effect ( $F(4, 1902) = 2.94$ ,  $p < .05$ ,  $\eta_p^2 = .006$ ) on the interdependence score. The Scheffé post hoc test for

country variation showed that the mean score for interdependence differed significantly ( $p < .05$ ) for all three countries ( $M_{\text{Germany}} = 3.92$ ,  $M_{\text{Russia}} = 4.00$ ,  $M_{\text{Estonia}} = 3.78$ ). The Scheffé post hoc test for generation variation showed that the mean interdependence score for adolescents ( $M_{\text{Adolescent}} = 3.5$ ) was significantly lower than that of mothers and grandmothers ( $M_{\text{Mothers}} = 4.05$ ,  $M_{\text{Grandmothers}} = 4.14$ ), which did not differ from each other.

The interaction effect was further investigated by running separate univariate ANOVAs with generation as the fixed effect and interdependence as the dependent variable for each country separately. In the Russian sample, the generation effect was significant ( $F(2, 523) = 82.26$ ,  $p < .001$ ,  $\eta_p^2 = .24$ ), and the post hoc Scheffé test indicated that adolescents ( $M_{\text{Adolescent}} = 3.61$ ) had a lower mean score ( $p < .001$ ) on interdependence than both mothers and grandmothers ( $M_{\text{Mothers}} = 4.18$ ,  $M_{\text{Grandmothers}} = 4.20$ ), whose scores did not differ significantly. In the German sample, the generation effect was significant ( $F(2, 702) = 122.87$ ,  $p < .001$ ,  $\eta_p^2 = .26$ ), and the post hoc Scheffé test indicated that the mean scores for all generations differed from each other ( $M_{\text{Adolescent}} = 3.45$ ,  $M_{\text{Mothers}} = 4.03$ ,  $M_{\text{Grandmothers}} = 4.26$ ,  $p > .01$ ). In the Estonian sample, again, the generation effect was significant ( $F(2, 695) = 67.59$ ,  $p < .001$ ,  $\eta_p^2 = .16$ ), and the post hoc Scheffé test indicated that adolescents ( $M_{\text{Adolescent}} = 3.44$ ) had a lower mean score ( $p < .001$ ) on interdependence than both mothers and grandmothers ( $M_{\text{Mothers}} = 3.95$ ,  $M_{\text{Grandmothers}} = 3.96$ ), whose scores did not differ significantly.

In order to investigate the country differences in the generation scores, univariate ANOVAs with country as the fixed effect and interdependence as the dependent variable were run for each generation. In the adolescent sample, the country effect was significant ( $F(2, 809) = 6.34$ ,  $p < .01$ ,  $\eta_p^2 = .02$ ), and the post hoc Scheffé test showed that Russian adolescents had a higher score ( $M_{\text{Russia}} = 3.62$ ,  $p < .01$ ) than German and Estonian adolescents ( $M_{\text{Germany}} = 3.45$ ,  $M_{\text{Estonia}} = 3.44$ ), whose scores did not differ. In the mothers' sample, similarly, the country effect was significant ( $F(2, 828) = 13.12$ ,  $p < .001$ ,  $\eta_p^2 = .03$ ), and the post hoc Scheffé test showed that Russian mothers had a higher interdependence score ( $M_{\text{Russia}} = 3.62$ ,  $p < .01$ ) than German and Estonian mothers ( $M_{\text{Germany}} = 4.03$ ,  $M_{\text{Estonia}} = 3.95$ ), whose scores did not differ. In the grandmothers' sample, the country effect was significant ( $F(2, 285) = 14.34$ ,  $p < .001$ ,  $\eta_p^2 = .09$ ), and the post hoc Scheffé test showed that Estonian grandmothers had a lower score ( $M_{\text{Estonia}} = 3.96$ ,  $p < .01$ ) than German and Russian grandmothers ( $M_{\text{Germany}} = 4.2$ ,  $M_{\text{Russia}} = 4.26$ ), whose scores did not differ.

### Independence dimension

Univariate ANOVA showed significant country effect ( $F(2, 1902) = 106.67$ ,  $p < .001$ ,  $\eta_p^2 = .1$ ), generation effect ( $F(2, 1902) = 26.14$ ,  $p < .001$ ,  $\eta_p^2 = .03$ ) and a country by generation interaction effect ( $F(4, 1902) = 4.99$ ,  $p < .01$ ,  $\eta_p^2 = .01$ ) on the independence score. The Scheffé *post hoc* test for country variation showed that the mean score for independence differed significantly ( $p < .05$ ) for all three countries ( $M_{\text{Germany}} = 3.85$ ,  $M_{\text{Russia}} = 3.36$ ,  $M_{\text{Estonia}} = 3.6$ ). The Scheffé *post hoc* test for generation variation showed that the mean independence score for adolescents ( $M_{\text{Adolescent}} = 3.7$ ) was significantly higher than that of mothers ( $M_{\text{Mothers}} = 3.51$ ), but did not differ from grandmothers' independence score ( $M_{\text{Grandmothers}} = 3.61$ ). Mothers' independence score was also significantly different from grandmothers' independence score.

The interaction effect was further investigated by running separate univariate ANOVAs with generation as the fixed effect and independence as the dependent variable for each country separately. In the Russian sample, the generation effect was significant ( $F(2, 523) = 19.44$ ,  $p < .001$ ,  $\eta_p^2 = .07$ ), and the *post hoc* Scheffé test indicated that adolescents ( $M_{\text{Adolescent}} = 3.55$ ) had a higher mean score ( $p < .01$ ) on independence than both mothers and grandmothers ( $M_{\text{Mothers}} = 3.23$ ,  $M_{\text{Grandmothers}} = 3.29$ ), whose scores did not differ significantly. In the German sample, the generation effect was significant ( $F(2, 706) = 6.47$ ,  $p < .01$ ,  $\eta_p^2 = .02$ ), and the *post hoc* Scheffé test indicated that mothers had a lower mean score ( $M_{\text{Mothers}} = 3.76$ ) on independence than both adolescents and grandmothers ( $M_{\text{Adolescent}} = 3.87$ ,  $M_{\text{Grandmothers}} = 3.94$ ,  $p > .05$ ), whose scores did not differ. In the Estonian sample, again, the generation effect was significant ( $F(2, 692) = 4.87$ ,  $p < .01$ ,  $\eta_p^2 = .01$ ), and the *post hoc* Scheffé test indicated that adolescents ( $M_{\text{Adolescent}} = 3.66$ ) had a higher mean score ( $p < .01$ ) on independence than mothers ( $M_{\text{Mothers}} = 3.52$ ), but not grandmothers ( $M_{\text{Grandmothers}} = 3.59$ ). The scores of mothers and grandmothers did not differ significantly.

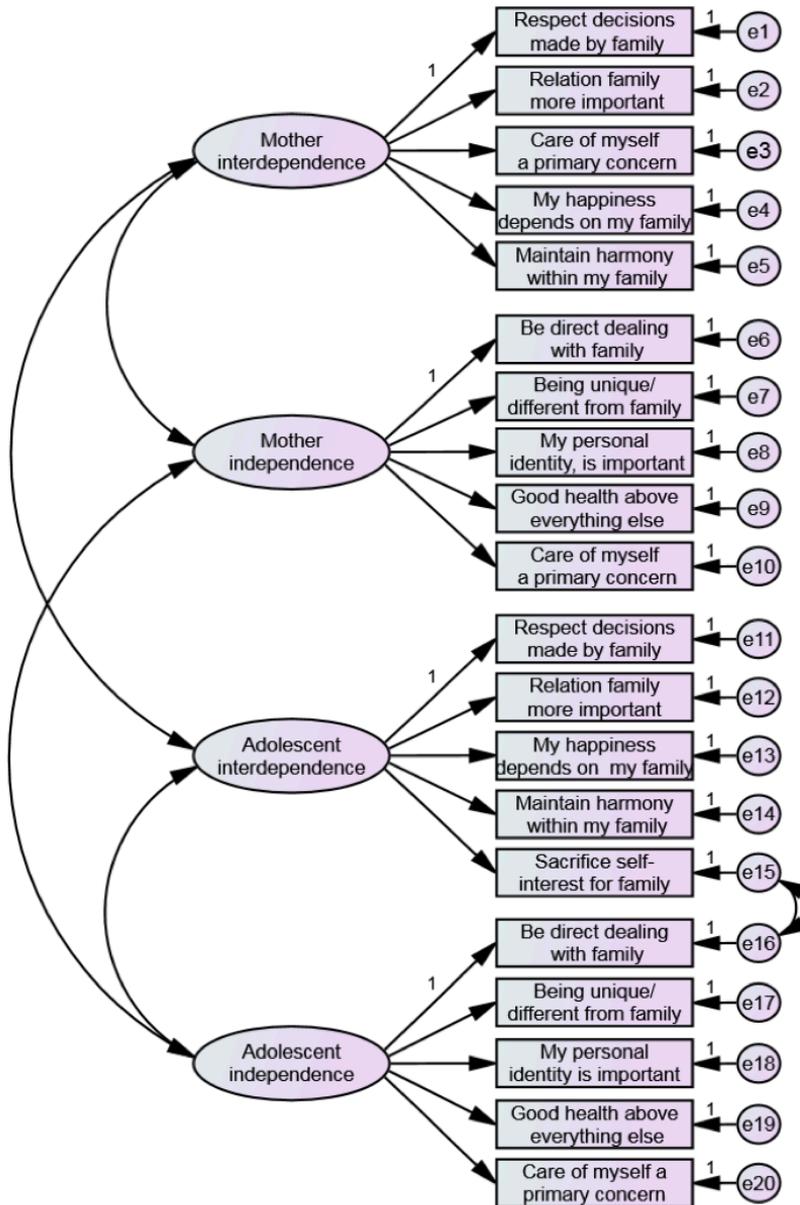
In order to investigate the country differences in the generation scores, univariate ANOVAs with country as the fixed effect and independence as the dependent variable were run for each generation. In the adolescent sample, the country effect was significant ( $F(2, 811) = 25.43, p < .001, \eta_p^2 = .06$ ), and the *post hoc* Scheffé test showed that German adolescents had a higher score ( $M_{\text{German}} = 3.87, p < .001$ ) than Russian and Estonian adolescents ( $M_{\text{Russian}} = 3.55, M_{\text{Estonia}} = 3.65$ ), whose scores did not differ. In the mothers' sample, similarly, the country effect was significant ( $F(2, 825) = 66.35, p < .001, \eta_p^2 = .14$ ), and the *post hoc* Scheffé test showed that mothers from the three countries had significantly different scores on independence ( $M_{\text{Russia}} = 3.22, M_{\text{Germany}} = 3.76, M_{\text{Estonia}} = 3.52, p < .001$ ). In the grandmothers' sample, the country effect was significant ( $F(2, 285) = 41.99, p < .001, \eta_p^2 = .23$ ), and the *post hoc* Scheffé test showed that grandmothers from the three countries had significantly different scores on independence ( $M_{\text{Russia}} = 3.29, M_{\text{Germany}} = 3.94, M_{\text{Estonia}} = 3.6, p < .001$ ).

### Intergenerational similarity of the dimensions of self-construal

The intergenerational associations between the self-construal dimensions were assessed using Structural Equation Modeling. All estimations are conducted with the AMOS package using the Maximum Likelihood method.  $\chi^2$  values are presented for evaluating the models. To aid in our interpretation, we used the Root Mean Square Error for Approximation (RMSEA) index. This index reveals a good fit if it is close to zero, whereas Hu and Bentler (1999) recommend RMSEA values below .06.

A model for interdependent and independent self-construal was estimated (Figure 1). In figure 1 we present a part of the theoretical model of independent and interdependent of three generations, as an example. The associations between mothers' and grandmother's as well grandmothers' and adolescents' interdependence and independence were constructed in a similar way. Due to the sample restrictions (only about 100 grandmothers participated in each country), a general model to identify cross-generational associations in independence and interdependence in the three generations was constructed including participants from all three countries. In order to eliminate the effect of country variation, all used values were standardised within each country sample. In Table 2, the modified model is presented, in the first model (not shown here) all items of independence and interdependence were included and the RMSEA value was .061.

**Figure 1.** Theoretical Structural Equation Model of adolescents' and mothers' interdependence and independence in Estonia, Germany and Russia.



The RMSEA value for the modified model was .048,  $\chi^2=409$ , indicating a good fit of the model. The covariance coefficients between (standardised paths) dimensions of self-construal are presented in Table 2.

**Table 2:** SEM Path Analyses Co-Variance Coefficients for the Independence and Interdependence Dimension of the Self-Construal for Three Generations Across Three Countries

	Independence dimension		Interdependence dimension	
	Estimate	<i>p</i>	Estimate	<i>P</i>
Grandmothers - mothers	.295	< .01	.067	< .01
Mothers - adolescents	.029	NS	.035	< .1
Grandmothers - adolescents	.090	< .05	.020	NS

Note: Df=246; NS signifies nonsignificant results.

The covariance coefficients indicate that there is a significant relationship between the grandmothers' and mothers' scores on both dimensions of self-construal (estimate for independence .295,  $p < .01$ ; estimate for interdependence .067,  $p < .01$ ). There is also a significant relationship between grandparents' and adolescents' scores on the dimension of independence (estimate .09,  $p < .05$ ) and a trend-level relationship between mothers' to adolescents' scores on the interdependence dimension (estimate .035,  $p < .1$ ).

Second, in order to study the possible country variation in the intergenerational association of the values of self-construal, we conducted separate models with mother and child estimations for each country. The results are presented in Table 3. Table 3 includes  $\chi^2$  values, RMSEA fit index, and the covariance coefficients between (standardised paths) dimensions of self-construal for each country.

**Table 3:** Models Estimated, Their Fit Index, and Covariance Coefficients Between Mothers' and Adolescents' Independence and Interdependence Dimension for Each Country

Model	Df	$\chi^2$	<i>p</i>	RMSEA	Estimate for independence	Estimate for interdependence
Estonia	168	357	<.001	.061	.004	.029*
Germany	168	312	<.001	.053	.000	.019**
Russia	168	342	<.001	.068	.013 <sup>T</sup>	.026 <sup>T</sup>

<sup>T</sup> $p < .1$ , \*  $p < .05$ , \*\*  $p < .01$

Table 3 shows that there is a good fit of the model in the case of Germany (RMSEA is 0.053), followed by Estonia (RMSEA is 0.061) and Russia (RMSEA is 0.068). In the case of Russia, the model fit is relatively poor. Interdependence self-construal and independence self-construal as latent factors are both associated with five indicators. The strongest relation between latent variables was in case of interdependence in Estonia ( $p < .05$ ). In families where the mother showed higher interdependence level, the children also reported more interdependent self-construal. Also, there is a connection between mothers' and adolescents' interdependent self-construal in Germany ( $p < .01$ ) and a trend-level association in Russia ( $p < .1$ ). There is no relation between independent self-construal of the mother and the adolescent in Estonia and Germany. In Russia, however, a weak trend-level ( $p < .1$ ) association can be observed. In Appendix A, the unstandardised regression weights are estimated. It shows that in the case of mothers' interdependence, the associations between observed variables and the latent factor are the strongest in Germany, followed by Estonia and Russia. German mothers' interdependence dimension of self-construal is most strongly related to the item "My happiness depends on the happiness of my family". Mothers' independence as

a latent variable has the best fit with the Russian data. Regarding children's interdependence, in Germany the latent factor has higher loadings with two items: family happiness and sacrifice of self-interest for the benefit of my family. In all countries, the independence factor of adolescents is most strongly related to the wish to be unique and different from family members and independent personal identity.

Finally, we conducted the multi-group analysis of mothers' and adolescents' independence and interdependence. On the basis of model fit indicators, we can conclude that the unconstrained model adequately fits our data ( $\chi^2=969.3$ ,  $df=495$ ,  $p=0.000$ ;  $\chi^2/df=1.96$ ;  $RMSEA=0.034$ ;  $CFI=0.83$ ). When we constrained the structural covariances of the latent variables to be equal across cultures, then the model yielded a significant  $\chi^2$ -difference to the unconstrained model ( $\Delta\chi^2=968.6$ ,  $\Delta df=88$ ,  $p=0.000$ ), indicating that the variances of the latent variables Independence and Interdependence as well as their covariance differ across cultures.

## Discussion

The present study set out to investigate the inter- and intracultural differences in participants' self-construal in Germany, Estonia, and Russia and the intergenerational similarity of independence and interdependence values. Three generations were included in the study: adolescents, their mothers, and maternal grandmothers. Using Structural Equation Modeling, the intergenerational associations of self-construal values from grandmothers to mothers and from the two older generations to teenagers was identified.

First of all, country variation was expected and the differences that appeared were in the expected direction: German participants of all three generations displayed higher independence orientation of self-construal and Russian participants the lowest. The independence scores of Estonian mothers and grandmothers were in the middle, differing from the scores of their counterparts from both, Germany and Russia. The independence score of Estonian and Russian adolescents did not differ. The intercultural differences regarding interdependence scores were also in the expected direction: Russian adolescents and mothers had higher scores than their German and Estonian counterparts. The only unexpected result was that not only Russian, but also German grandmothers had higher scores on the interdependent dimension than Estonian grandmothers. These findings are mostly consistent with the hypothesis and prior studies involving some of the countries. It is noteworthy to observe the effect sizes of the differences in the independence and interdependence dimension between countries: it can be seen that more variance in the independence dimension could be attributed to country differences as the effect sizes for independence are larger than those for interdependence in all three generations. Kashima et al. (1995) also suggested that the independence dimension is more affected by culture, while the interdependence would be more influenced by the gender of the participants.

In addition to country differences, intracultural variance was studied contrasting different generations. Based on Kağitçibaşı's Theory of Family Change (2007), it was predicted that the value attached to the interdependence dimension of self-construal is not very different across the different generations in Russia and Estonia. Indeed, the interdependence values of mothers and grandmothers in Russia and in Estonia do not differ, whereas the adolescents' interdependence score is significantly lower than that of the older generations. In Germany, one could detect a steady decline in the value attached to interdependence from grandmothers to mothers and from mothers to adolescents. Additionally, it was expected that grandmothers and mothers value independence to a similar extent, while adolescents display a significantly more independence oriented self-construal than the older generations in Russia and Estonia. Adolescents do display higher scores than their mothers in all three contexts. At the same time, in Germany and in Russia grandmothers also display higher independence scores than mothers.

To some extent, the results support the Family Change theory, proposing that families in changing societies undergo value changes towards more independence (Kağitçibaşı, 2007). The theory

also claims that relatedness or interdependence is still held in high regard in the face of social changes. On the one hand, the adolescents do have higher scores on independence than the older generations; on the other hand, they also have lower scores on interdependence, which contrasts the hypothesis. Also, the higher independence scores of grandmothers compared to mothers contrast the hypothesis. An alternative explanation could be that the dimensions of self are tied to a specific age period and the values fluctuate during the life-course according to one's primary roles and goals at the time. Unsystematic and atypical scores on self-construal have been reported in previous studies for adolescents (Kitayama, et al., 2009; Zaff, et al., 2002), and higher value accordance has been reported for grown-up children and their parents than for adolescent children and their parents (Barni, et al., 2013). Adolescents are engaged in an active search for the self and they have an emerging need for more autonomy (Sternberg & Morris, 2001). The lower value attached to interdependence may stem from the fact that the adolescents are still in their formative years, their value priorities have not yet stabilised, and they are struggling with different values. The reference group of the independence and interdependence questionnaire was one's family. Yet, parents are not as important socialisation agents in the adolescent years as they were at a younger age, and the peer group may be the main agent of the social transmission of norms and values (Harris, 1995). Moreover, there could be an important impact of media on adolescents' belief system (Uhls & Greenfield, 2012). The role of grandmothers could also differ according to the cultural context and involve more freedom and less responsibility towards the family, which in turn entails more independence. A longitudinal study would provide invaluable information regarding this matter.

The differences between adolescents and the two older generations on the dimension of independence could also be accentuated due to the gender composition of the groups. The two older generations are all women, while the adolescent group includes both boys and girls; therefore, the difference between the groups could be overestimated.

The intergenerational similarity of independence and interdependence values – to what extent are the values of offspring associated with the values held by their mothers and grandmothers – was the main interest of the study. There was a significant association between grandmothers on mothers' independence and interdependence values. Adolescents' independence values were not related to mothers' independence values and there appeared only a trend-level association with mothers' values on the interdependence values. Grandmothers' values were not related to adolescents' interdependence, but were associated with their independence values. These results stand in contrast with previous studies indicating that parents rather than grandparents influence adolescents' values (Bengtson, 1975; Sabatier & Lannegrand-Willems, 2005), and that interdependence or family relatedness values are the ones that are more likely to be similar across generations than individualistic values (Phalet & Schönplflug, 2001; Schönplflug, 2001). These results could be characteristic of the contexts that have faced substantial changes and, therefore, displayed discontinuities in the demands placed on the individual. Previous studies have looked at immigrant groups who can be considered to face radical changes in the context, yet, their values show conformity to immigrant group value priorities and cultural continuity is provided in value transmission (Phinney, et al., 2000; Vedder, et al., 2009). In the case of the three countries, their whole societies have faced some instability and socio-economic changes, which might have resulted in value dissimilarities regarding the two younger generations. While there was relative stability during the formative years of the mother's generation, value similarities between grandmothers and mothers on both dimensions of the self can be seen. In addition, the different developmental stages of the participants may again play a role here. As mentioned before, adolescents may be more influenced by their peers and media, and they are engaged in an active search for their identity and the internalisation of a personal value system. The value similarity with parents may become more apparent once they are grown-ups, as also indicated by Barni et al. (2013). What is surprising, though, is the association between grandmothers' and adolescents' independence values.

The two younger generations were also studied for the possible country variation in the intergenerational similarity in self-construal values. Here, the model fit is best in Germany, and

there is an association between mothers' and adolescents' interdependence dimension of the self-construal. Germany has also been the most stable of the three contexts, and we can see concordance with previous studies where family interdependence values but not independence values are transmitted (Schönpflug, 2001). In Estonia, the association between mothers' and adolescents' interdependence dimension is observed, but the model fit is poorer; in Russia the association is trend-level, and the model fit is poor. Therefore, it seems that the changes in the society affect the intergenerational similarity of values.

In general, some value similarity, probably attributable to family socialisation, can be observed. At the same time, as the demands of one's socio-economic context change, the intergenerational similarity of the particular dimensions of self seems to lessen or disappear altogether. The possible influence of the changing socio-economic context and the possible age- and role-related changes in one's self construal should be addressed in further research.

Still, the conclusions should be drawn with caution as the particular study only focuses on half of the family (i.e. mothers and maternal grandmothers). Incontestably, fathers and grandfathers influence their children, and singling out women of the family does not represent the whole scope of family influence. In fact, mothers and fathers could influence their sons and daughters in a different manner (e.g., Roest, et al., 2010), and the influence can be mediated by other (e.g. motivational) factors (Schönpflug & Yan, 2012). One should also keep in mind that socialisation is bi-directional (Schaffer, 1999). Therefore, future studies including the whole family and probing additional factors that could enhance transmission would be illuminating. Another limitation of the study is the fact that there is only cross-sectional data of the three generations and no longitudinal data informing us about the possible changes in one's self-construal due to one's life course. It should also be noted that the Cronbach's alpha for independence was unexpectedly low; therefore, the implications based on the scores of independence should be treated with caution. At the same time, the present study is unique in the sense that it is one of the first ones to include three generations to study the intercultural differences in one's self construal in countries that have faced substantial societal changes. Including several generations provides a clearer picture of possible cultural differences and helps to distinguish them from situational similarities or differences. Also, intracultural differences were addressed contrasting different generations. This provided information about the possible variability of independence and interdependence within a context, either due to the societal changes or the differences in the roles of participants. In addition, as the analyses of the intergenerational associations of the dimensions of self-construal revealed, the strength and scope of family influence does not seem to be universal, but is subject to context changes.

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**Pirko Tõugu**, PhD, is research scientist in the Institute of Psychology in the University of Tartu, Estonia. She has specialized in developmental psychology and her main research areas include self and autobiographical memory development with a particular interest in the differences deriving from the cultural context.

**Tiia Tulviste**, PhD, is professor of developmental psychology at the University of Tartu, Estonia. Her research interests include cross-cultural variation in the associations between socialization values and practices and the development of self, speech and conversational skills in children, paying special attention to changing developmental contexts.

**Kairi Kasearu** is Associate Professor in the Institute of Social Studies at the University of Tartu, Estonia. She specializes in the fields of family studies, intergenerational relations, sustainability of human resources, and she has carried out research on social well-being, transmission of values and the evaluation of family policies.

**Kairi Talves** is a PhD student in Sociology at the University of Tartu, Estonia. Her main fields of research are related to gender studies, more specifically to gendered patterns of parental behaviour and their impact on socialization and intergenerational relations.

**Dr. Isabelle Albert** is a research scientist at the University of Luxembourg in the area of generations and development across the life-span. Her main research interests are in the field of life-span developmental psychology with a special focus on intergenerational transmission of values, intergenerational family relations as well as personality and family development in a cross-cultural perspective.