

Digital Communication Patterns In Families: Generational and Country of Origin Effects

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Abstract: Motivation: The expansion of the European Union in 2004 and 2007 significantly augmented freedom of movement and employment opportunities. This led to the fragmentation of family structures, as countless young individuals embarked on journeys in pursuit of better prospects, leaving their families behind. Consequently, digital communication emerged as the predominant means of sustaining familial connections.

Objective: This study aims to scrutinize the attitudes and communication patterns within family units, leveraging data from the European Social Survey, Round 10. Emphasis is placed on discerning variances across countries and generations.

Methods: The Visegrad4 nations (Hungary, Czech Republic, Slovakia, and Poland) as sending countries, and Germany, Austria, and the United Kingdom as the principal recipient nations were the focal points of this investigation. Comparative analyses were conducted on attitudes and communication preferences.

Findings: Sending countries generally express a stronger belief in the efficacy of digital communication in fostering familial closeness. Germans and Austrians, as well as Slovaks and Hungarians, tend to exhibit similar attitudes and communication patterns. Conversely, Poles often lean towards alignment with Western nations. Respondents in Western countries display a preference for traditional communication modes like phone calls and face-to-face interactions, while Easterners favor messaging platforms.

Implications: Our findings underscore the profound impact of EU expansion on family dynamics. Understanding these nuances is crucial for policymakers, social scientists, and families alike, as they navigate the evolving landscape of transnational relationships.

Value Added: By delving into the intricacies of familial communication across European nations, this research contributes valuable insights into the socio-cultural ramifications of EU enlargement. Moreover, it sheds light on the interplay between technological advancements and familial bonds in an increasingly interconnected world.

Keywords: digital communication; family; generations; attitudes; transnationalism; migration; East-West

1 Introduction

Between 1990 and 2012, after the fall of the Iron Curtain, some 20 million young and skilled Eastern Europeans, representing 7% of the workforce, left their country in search of better opportunities [1]. The expansion of the European Union in 2004 and later in 2007 has further expanded freedom of movement and employment opportunities [2]. At the same time, the departure of these young people has led to an even more fractured family structure. Digital communication was often the only option left for most of these families to keep in touch. Thus, physical proximity was replaced with virtual proximity through digital means, which helped satisfy the desire to maintain a family unit across distance. Cross-border digital communication, with its digital networks of connectivity sometimes referred to as “cybertransnationalism” affords new possibilities for cooperation and conflict between generations [3].

Understanding the dynamics, limitations, and opportunities for transnational families also requires an understanding of generational differences. The first wave of Eastern European emigrants was Generation X. They have just started to learn to use the Internet and email. While the next wave, Millennials and Gen Z, are both considered digitally savvy. Generation Z is the first generation to be born into a world that is globally interconnected. The older generations, left behind, were especially hard hit, as although they might not have migrated, they did end up engaging in transnational grandparenting and parenting. Additionally, digital communication was not something they were born into. While studies often highlight a generational gap in the use of ICT, recent research has emphasized that the need to give and receive support and share everyday experiences with children and grandchildren abroad could provide a powerful incentive to learn how to use the Internet and other diverse technologies of communication [3] [4].

Using European Social Survey data Round 10 (2020-22) [5], our research intends to contrast attitudes and usage of communication types within the family unit. Our main focus will be the Visegrad4 (Hungary, Czech Republic, Slovakia, and Poland) and the three main receiving countries (Germany, Austria, and the UK). These countries stood as the main destination countries, representing about 75-85% of the total number of emigrants leaving Eastern Europe, and at the same time, also representing between 50-65% of all incoming immigrants in the receiving countries (Table 1).

Table 1
Main EU destination for the V4 countries, 2016 (thousand people) (based on [6])

Source Countries	Receiving Countries					
		Germany	UK	Austria	%	Total
	Czech Rep.	51.7	45.4	12.4	79%	138.1
	Hungary	171.2	83.4	63.3	85%	375.4
	Slovakia	47.9	94	35.4	81%	217.9

	Poland	703.8	928.3	57.6	73%	2325.2
	% of Total	48%	66%	47%		
	Total	2036.7	1738	362.2		

Previous research has addressed transnational families in the context of children's mental health and well-being, elderly-care, parenting and grand-parenting and gender practices. In the area of communication, the main focus was on ICT adoption among the older generations, distant care, or digital inequalities. Researchers have examined some Eastern European nations, mostly Poland and Romania; however, to our knowledge, no comprehensive comparison has been made between Eastern European and Western European countries. Our paper endeavors to fill this research gap. We aim to address the following research questions:

- What are the generational differences in attitudes toward digital communication, and are they different based on country of origin?
- Do communication patterns vary between receiving and donor countries?

The rest of the paper is organized as follows: First, the general theoretical research background is presented; this is followed by the Materials and Methods section, research findings and analysis, and finally the conclusions.

2 Literature Review

2.1 Generations

In the context of this topic, the concept of generations needs to be clarified. The traditional definition of a generation is “the average time interval between the births of parents and their offspring” [7]. According to Mannheim, social generations are cohorts of people born in the same date range and who share similar cultural experiences [8]. In this study, generations were defined according to the Strauss-Howe delimitation [9]. According to Strauss and Howe, a social generation is the collection of all people born within a span of about twenty years with specific behavior patterns. Generations are grouped together by looking for cohorts that meet the following criteria:

- age location in history
- have some shared beliefs and behaviors
- a sense of common perceived membership [9].

The time frame for each generation is not uniform in the literature. Gen Z, for example, is sometimes counted from as early as 1991 [10], while some only include those born after 1995 [7] [11]. The Pew Research Center has designated

1997 as the starting year for Gen Z based on their experiences with new technology, socioeconomic advancements, and growing up in a post-9/11 world [12], whereas Howe and Strauss count the “Homeland” generation from as late as 2005 [13]. The authors in this article will use the following five generations: Pre-War (Silent) generation, Baby Boomers, Generation X, Generation Y, and Generation Z with the cutoff dates used by [7] [11] [14]. The characteristics of each generation are presented in terms of their internet usage and communication patterns, which is the focus of this research. According to some research, generations choose certain media usage patterns early in their childhood and stick with them throughout their lives [15] [16]. The 2009 Pew Research Center study distinguishes five generations and focuses on the attitudes, characteristics, and behaviors of each group with regard to Internet use [17].

The oldest generation is the Silent Generation (1925-1945), who first encountered the internet in old age. Their primary media growing up was the written press [15]. They find it difficult to cope with the challenges of a digital society, and for them using the Internet is already a major challenge [18]. Members of the Silent generation are less likely to own smart phones or tablets or subscribe to broadband access at home [19]. Data shows that this generation turns to technology mostly to stay in touch with family. They are also sometimes referred to as the “Traditionalists” or “Veterans” [20], as they have remained deeply connected to family norms and traditions. According to a study by the AARP (American Association of Retired Persons), traditionalists primarily use phones to keep in touch with others, and most of them do not use social media sites at all [21].

The generation of Baby-boomers (1946-1964) was introduced to the internet as adults. Their primary media was television. They may use technology and have grown up with its advancements, but they may not find all the gadgets to be to their tastes [22]. In Hungary, the baby boom between 1950 and 1956 (due to the criminalization of abortion and the implementation of childless tax laws) is called the Ratkó era.

Generation X (1965-1979) was the first generation to have home computers. As they joined the workforce, they became the first to have internet access. They met in chat rooms and sent emails, even though initially they were using dial-up connections. They grew proficient in technology both out of curiosity and need [22]. This generation is also known as the “latchkey” kids generation, or “forgotten” generation [23], or the ‘13th generation’ [24]. The GenXers are called the Husak’s Children in the Czech Republic and Slovakia [20].

While the Silent Generation, Boomers, and GenX are considered digital immigrants, Generation Y (1980-1994) already met the internet as children. They can be considered the first wave of the digital generation. They have grown up with cell phones, PCs, and the Internet. This generation is also referred to as the Millennial Generation [22] [25]. Their ability to concentrate is weaker compared to previous generations, while simultaneously handling several information-communication devices [24]. In Eastern Europe, Generation Y is characterized by

an openness to opportunities generated by globalization, and prospects to work overseas are considered a typical component of job experience [20].

While baby boomers grew up during the dramatic rise of television, Generation X grew up during the computer revolution, and millennials came of age during the explosion of the internet, Gen Z (1995-2010) were all born into an internet-enabled society, meaning that they did not live in a society without the internet [12]. This generation is known by several names. Some call them digital natives [26], or post-millennarists; others zappers, Zoomers, "instant online" generation, "Facebook generation", "dotcom" kids, net generation, or iGeneration [20] [24] [27-28]. They are also commonly referred to as "Homo Globalis", which refers to them as the world's first global generation, whose members share the same fashion, places, and food preferences, can connect with each other from all over the world on different internet platforms and social networking sites and, due to their global nature, use terms that other generations do not use and often do not understand [7] [29-32]. Zoomers lack interpersonal skills and are not good listeners. They have difficulty concentrating, and "their focus skips from one bit of information to another within a few seconds" [33]. Their communication with others is generally limited to the use of the Internet [34]. In cyberspace, one can have many acquaintances without actually meeting anyone face-to-face [20]. Gen Z is by far the unhappiest and least satisfied of the five generations [35].

2.1 Communication among Generations

This research is built on the concept of intergenerational solidarity within families which according to research by Bengtson & Roberts [36] is determined by six factors:

- 1) Association: frequency and patterns of interaction (contacts or encounters). Measured by frequency of intergenerational interaction (face-to-face, telephone, e-mail and other digital means)
- 2) Consensus: Degree of agreement on values, attitudes.
- 3) Affection: the emotional closeness between people over the course of their lives. Measured by ratings of affection, or closeness.
- 4) Functional: Degree of helping and exchange of resources.
- 5) Normative: Strength of commitment to perform familial roles, meet obligations.
- 6) Structural: opportunity structure for intergenerational relationship. Measured by the number of family members, residential proximity [36].

When describing different verbal interactions, most communication models place great emphasis on the characteristics, skills and background knowledge of the conversation partners. These are also the factors that can significantly influence

the effectiveness and efficiency of communication between generations [37]. Berlo's Source-Message-Channel-Receiver (SMCR) model [38] lists both on the Source and Receiver side the following characteristics: Communication skills; Attitudes (towards the audience, subject and towards oneself); Knowledge (of the subject) and Social-cultural system. As an extension on this model, Wacha [39] stated that the situational context depends on: common reality, common language, shared history, common knowledge base, and the speaking situation itself.

Today, it is not the older generation that is more knowledgeable in the context of digital communication; it is the younger generation that has the maximum knowledge of the digital world. Research shows that the proportion of older generation interested in and using the internet is increasing (20-25%) [40]. Research by Jankovics [41] among Hungarians found that with the exception of the age group over 55, every generation typically spends several hours (2-3 hours a day) on the Internet. He also found that respondents under the age of 45 spend more than two hours in direct, personal communication, thus face-to-face communication is still one of the most important forms of communication in Hungary. At the same time, there is agreement between generations that the over 60 age group communicates much more effectively than the under 20 group [41]. According to a study by Dobos [40] among university students, intergenerational conversations are time-consuming, slow and lengthy, and at the same time not very common. Communication takes place primarily over the phone and only secondarily in person. Intergenerational communication within families is 'poor' as family members talk to each other only for 4-5 minutes a daily [40].

2.1 Long-Distance vs. Transnational Families

Over the past few decades, there have been substantial changes to the family structure. Nuclear families are no longer the only types of families that reside under one roof [42] (Mortelmans *et al.*, 2016). The formation of Long-Distance Families can be traced back too many factors. Among these, there are special cases that do not usually involve a change of country, but family members are still far from each other. Families may encounter separations because of divorce, military deployment, or imprisonment [43]. Stafford defines long-distance relationships "when communication opportunities are restricted in the view of the individuals involved because of geographic parameters, and the individuals within the relationship have expectations of a continued close connection" [43].

Transnational families occupy a special place in this palette (Fig. 1). A transnational family is one whose members live in different countries for a longer or shorter period, which often entails a change of country, nationality, and culture. Transnational families are defined by Bryceson and Vuorela [44 pp. 3)], as relational, multigenerational, multisite entities that possess the capacity to "create something that can be seen as a feeling of collective welfare and unity, namely 'familyhood', even across national borders." Transnational families are a

group embedded within various national, political, and institutional realities, in which different forms of care are exchanged nationwide [44]. The way of life of transnational families develops a double bond that ties them both to their temporary residence and to the homeland they left behind [45]. A common feature of transnational families is that their members live geographically far apart [46] [47]. This is a huge challenge for families, especially those where the whole family has not moved to another country.



Figure 1

Long-distance and transnational families, model created by authors

2.1 Communication of Transnational Families

The focus of research on transnational families has so far been mainly on Asia and Latin-America, with few studies on South-East Europe. These studies are mostly small sample studies of an anthropological nature [48] [49]. In a meta-study by Abel et al. [50] on literature about long-distance/transnational families and social media use between 2010-2019, it was found that out of the 51 studies, 23 was focusing on the geographic area of Asia, 14 on North America, 7 on Western Europe, and only 5 on Eastern Europe, namely Poland and Romania.

Thanks to ICT, transnational families are able to co-exist both in the country of transition and in the home country. Kubra et al. referred to the relationships established through various computer-mediated environments as “platform contacts” and found that these relationships helped provide informational, emotional, and instrumental support to the expatriate [51]. In her research Metyakova [52] found that mobile phones and computers with broadband Internet connections were the most commonly used media among Eastern European immigrants living in the UK. It seems that the lack of children going abroad with

their parents primarily tests the IT competences of grandparents [4]. Transnational grandparents, even in good health, generally find it more difficult to get by in the digital age [46]. At the same time, bridging communication gaps can be a means of filling transgenerational relationships with new content [53-55]. Nedelcu focused on the parents and grandparents of Romanian migrants living in Canada and Switzerland. The study revealed that grandparents are making considerable efforts to improve the quality of their interactions with their children and grandchildren living abroad by acquiring a wide range of technological skills [46]. From the children's perspective it is also important to know what it means to have parents working far away in another country, to be with an ailing, aging grandparent in the homeland [56]. The Commission defines "EU orphans" as children left behind in the country of origin by parents who have gone to work abroad [57-58]. The term old "Euro-orphans" was coined by Krzyżowski referring to elderly parents left behind by their migrating adult children [59]. Kędra [60] in her study of Polish immigrants in Finland has found that the driving force behind the frequency of digital communication is also motivated by their wish for their children to learn and practice the Polish language. In addition, it is the children who introduce novel methods of distant communication by adopting new ICT solutions.

3 Materials and Methods

3.1 Data

The analysis uses data from Round 10 integrated file edition 3.1 of the ESS survey conducted between 2020 and 2022 [5]. This multi-country representative comparative survey has been providing information biannually on a variety of subjects, such as the demographics of European nations, people's preferences in politics and public life, and their defining beliefs, values, and attitudes. In this ESS edition the rotating module addressed "Digital Social Contacts in Work and Family Life". Thirty questions on the topic were included out of which this research utilizes six questions on attitudes toward digital communication, and four questions relating to the type of communication within the family. The sampling data, which is representative of all residents of private households who are 15 years of age or older, regardless of their nationality, citizenship, or language, is based on a strict random probability method in all participating nations [5]. For general statistical analysis the whole dataset was used consisting of 18786 participants from Poland, Slovakia, Czech Republic and Hungary as a representation of Eastern Europe and Germany, Great Britain and Austria as receiving countries. To analyze communication patterns, the number of useable responses were 10876 for the communication with parents and 9744 for the communication with children group. In the digital communication module of ESS,

there were two categories relevant for this study: communicating with children aged over 12, and communicating with parents. There were four types of communication options on a scale of 1 to 7. How often do you:

- speak in person? (personal)
- speak so you can see each other on a screen? (screen)
- speak using a phone or other device? (phone)
- communicate in writing, via text, email or messaging apps? (text)

A section was dedicated to address the attitude of respondents toward digital communication (a total of six attitude questions; three expressing positive and three negative feelings toward digital communication). Online/mobile communication:

- makes people feel closer to one another (close)
- makes work and personal life interrupt each other (interrupt)
- makes it easy to coordinate and manage activities (coordinate)
- undermines personal privacy (privacy)
- communication exposes people to misinformation (misinform)
- makes it easy to work from home or place of choice (workeasy)

Characteristics of the study population are presented in Table 3.

Table 3

The Sample Characteristics (N = 18786) Source: Own calculations based on ESS data

Characteristics	Mean (SD) or % (Frequency)
Age (15 to 90)	50.27 (18.56)
Prewar	7.6% (1434)
Boomer	32.8% (6155)
GenX	24.8% (4662)
GenY	21.5% (4043)
GenZ	13.3% (2492)
At least one parent is living	57.9% (10872)
No	39.3% (7386)
Has children over the age of 12	51.9% (9744)
No	44.3% (8318)
Country	13.18% (2476)
CZ	9.84% (1849)
HU	10.50% (1972)
SK	7.29% (1369)
GB	6.08% (1142)
AT	10.03% (1885)

3.2 Method

According to Kutner et al. [61], ANOVA models can withstand some types of deviations from the model, such as when the data are not perfectly normally distributed. On the other hand, an elevated type I error rate could result from unequal variances with normally distributed data [62]. Although Kruskal-Wallis does not assume normality in the data, it does assume that the distributions of the various groups are the same. If the data are heteroscedastic and there are more than two groups to compare, Welch's ANOVA is a better option [63]. Therefore, to compare if there are significant differences in attitudes toward digital communication among generations and country of origin and communication patterns between countries, Welch's ANOVA was used since the groups had unequal variances (Levene's test was significant for all categories, $p < .000$) and unequal sample sizes.

3.3 Limitations of the Study

Due to the rather broad subject of transnational families and digital communication, the authors of the article relied on their own defined aims as stated in this article; therefore, not all possible approaches were analyzed in this article. Due to space constraints this study only presents partial results. Future research is planned to include additional parts of the model developed, such as the effect of social capital on communication patterns and attitudes. Additionally, the data are characterized by the fact that due to COVID-19, fieldwork was carried out over a longer period of time than usual (between 2020-22), and some countries (notably, in this sample Poland, Austria and Germany) were forced to adopt a self-completion approach. In addition to its strict sampling technique, the released ESS data also include sophisticated post-stratification weights to reduce sampling error and potential non-response bias in the data that were used during the statistical analysis [64].

4 Results and Analysis

4.1 Attitudes toward Digital Communication

4.1.1 Generational Differences

In Table 4, the attitude scores by generations are presented. The highest score was received for Coordination, while the lowest was for Interruption. Welch's test was significant ($p < .000$) for all categories except Misinformation ($p = .186$). For the

category of Misinformation, the null hypothesis that population means are equal was rejected, that is, there was no significant difference in attitude between generations.

Table 4
Attitude scores by generations, Mean (SD) (N = 18786) Note: 0 Not at all- 10 Completely

	Close	Coordinate	Wrkeasy	Privacy	Misinfo	Interrupt
PreWar	5.20 (3.09)	6.75 (2.60)	4.16 (3.59)	5.81 (2.95)	6.99 (2.59)	5.14 (2.93)
Boomer	5.53 (2.87)	7.32 (2.25)	5.61 (3.61)	6.21 (2.63)	7.04 (2.28)	5.43 (2.71)
GenX	6.04 (2.69)	7.71 (1.93)	6.13 (3.44)	6.43 (2.41)	7.08 (2.12)	5.70 (2.56)
GenY	6.37 (2.58)	7.95 (1.89)	6.49 (3.28)	6.47 (2.36)	7.13 (2.16)	5.90 (2.54)
GenZ	6.90 (2.38)	8.19 (1.79)	5.81 (3.43)	6.19 (2.5)	7.13 (2.26)	5.73 (2.57)
Total	6.00 (2.77)	7.64 (2.10)	6.10 (3.44)	6.29 (2.53)	7.08 (2.23)	5.62 (2.64)

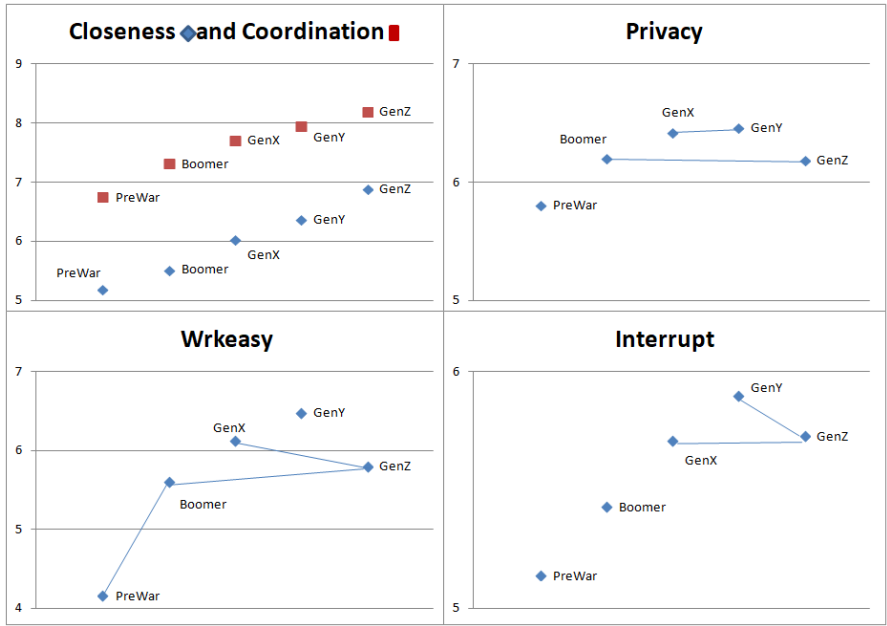


Figure 2

Mean differences of attitudes by generation (based on the results of the Games-Howell test)
Note: Solid lines represent those pairs where attitudes between countries did not differ significantly

For all other categories, a Games-Howell post-hoc test was ran to determine which pairs are significantly different from each other¹ (Fig. 2). For Coordination and Closeness, all pairs were significantly different and subsequent generations had increasingly higher scores. For Interruption, Gen Z did not differ significantly from either Gen Y or X; whereas Pre-war and Boomer generations both differed significantly from each other and from the younger generations in that they felt less interrupted by digital communication (most likely since they use this mode of communication less frequently). For the matter of Privacy, two subgroups were identified: GenZ and Boomer, and GenX and GenY. The fact that GenX and GenY are close in their opinion is not surprising; however, we would not normally expect Boomers and Zoomers to think alike. The Pre-war generation again differed significantly from all other groups. In the category Workeasy, pre-war and GenZ responses were lower in number (43 and 931, respectively) since these generations are either not working yet or already retired. Only GenY was significantly different from all other groups, with the highest mean score of 6.49.

4.1.2 Differences between Countries

In Table 5, the attitude scores by country and by region are presented. The biggest difference between East and West could be seen in Closeness, where the sending countries feel stronger that digital communication brings people closer to each other.

Welch's test was significant ($p < .000$) for all categories, therefore, a Games-Howell post-hoc test was run (Fig. 3). Germany and Austria did not differ on any of the attitude questions. Slovaks only agreed with the Czechs on the question of Coordination ($p=0.157$). However, their opinion was close to that of the Hungarians on Interruption, Coordination, and Workeasy.

Table 5
Attitude scores by countries, Mean (SD) (N = 18786) Note: 0 Not at all- 10 Completely

	Close	Coordinate	Wrkeasy	Privacy	Misinfo	Interrupt
CZ	7.41 (2.54)	7.46 (2.17)	5.98 (3.34)	6.25 (2.73)	6.45 (2.59)	6.01 (2.75)
HU	6.48 (2.37)	7.19 (2.01)	4.81 (3.18)	5.97 (2.37)	6.48 (1.95)	5.27 (2.41)
SK	6.81 (2.81)	7.26 (2.47)	5.12 (3.27)	5.61 (2.98)	6.04 (2.68)	5.49 (2.95)
PL	6.05 (2.93)	7.81 (2.30)	6.45 (3.32)	5.72 (2.66)	7.15 (2.38)	4.61 (2.86)
AT	5.39 (2.65)	7.68 (1.99)	6.55 (3.30)	6.41 (2.43)	7.37 (2.03)	5.78 (2.42)
DE	5.29 (2.66)	7.78 (1.96)	6.38 (3.41)	6.57 (2.36)	7.36 (1.98)	5.62 (2.50)
GB	7.07 (2.42)	7.77 (2.20)	6.08 (4.11)	6.50 (2.44)	7.98 (2.00)	6.93 (2.51)
East	6.73 (2.71)	7.45 (2.24)	5.65 (3.35)	5.93 (2.69)	6.56 (2.45)	5.38 (2.79)
West	5.50 (2.69)	7.76 (1.99)	6.38 (3.47)	6.54 (2.38)	7.43 (2.00)	5.79 (2.52)
Total	6.00 (2.77)	7.64 (2.10)	6.10 (3.44)	6.29 (2.53)	7.08 (2.23)	5.62 (2.64)

¹ Detailed results of the Welch's ANOVA and subsequent post-hoc testing are available upon request

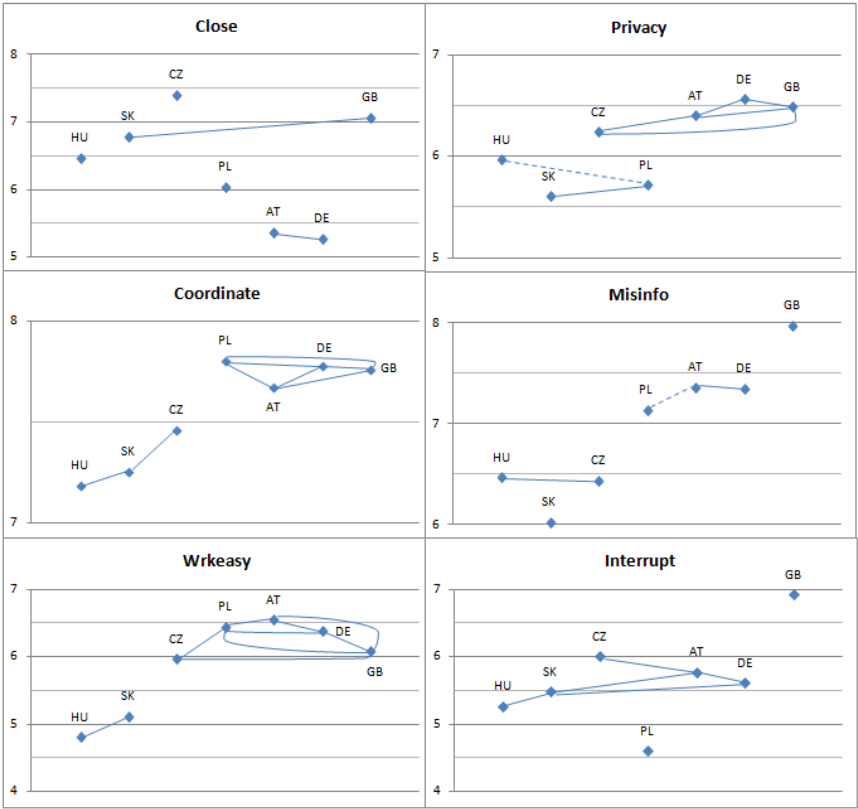


Figure 3

Mean differences on attitudes by country (based on the results of the Games-Howell test)

Note: Solid lines represent those pairs where attitudes between countries did not differ significantly (dotted lines are where the mean difference was close to the 0.05 level)

The British had significantly different opinions only on Interruption and Misinformation, for both of these, they had the highest Mean score in the sample. For Coordination, Privacy and WorkEasy, their attitudes were grouped with those of the other receiving countries. The Poles differed in Interruption, having the lowest mean score, and Closeness. They grouped together in Coordinate and Wreasy (to a lesser, non-significant extent on Misinformation) with the Western countries and only on Privacy with the Slovaks.

4.2 Communication Patterns

In Table 6, the mean frequency of the type of communication can be seen by country (both with parents and with children above the age of 12). The Brits scored the highest in personal communication, both with their children and their

parents, compared to other countries. Email and other types of messaging were an especially popular mode of communication with children among the Eastern Europeans. The Hungarians and Slovaks even used this quite frequently with their parents (accordingly, have the lowest score for in-person, face-to-face communication). Patterns in telephone usage were quite uniform. Poles and Hungarians both have an aversion to talking on the phone. Using live video was most popular among Czechs, both for parents and children.

Table 6

Type of Communication by country, Mean (SD) Note: 0 Never- 6 Several times a day

	Children N=9744				Parents N=10876			
	Speak	Text	Screen	Phone	Speak	Text	Screen	Phone
CZ	3.08 (1.69)	4.40 (1.76)	6.14 (1.49)	3.58 (1.58)	3.18 (1.61)	4.56 (1.76)	6.26 (1.33)	3.57 (1.53)
HU	2.76 (1.73)	5.20 (1.95)	5.83 (1.67)	3.27 (1.52)	2.77 (1.54)	5.48 (1.83)	5.98 (1.59)	3.30 (1.5)
SK	2.86 (1.74)	4.82 (2.01)	5.70 (1.90)	3.50 (1.83)	2.78 (1.51)	5.20 (1.98)	5.96 (1.77)	3.77 (1.93)
PL	2.63 (1.78)	4.04 (2.12)	5.41 (1.93)	2.98 (1.45)	3.03 (1.73)	4.57 (2.16)	5.67 (1.86)	3.29 (1.49)
GB	3.53 (1.90)	3.89 (2.04)	5.50 (1.8)	3.57 (1.64)	4.13 (1.87)	4.43 (2.09)	5.48 (1.79)	3.78 (1.67)
AT	3.07 (1.64)	3.80 (1.76)	5.88 (1.59)	3.47 (1.40)	3.45 (1.60)	4.70 (2.03)	6.13 (1.54)	3.84 (1.50)
DE	3.12 (1.76)	3.84 (1.82)	5.90 (1.50)	3.79 (1.47)	3.50 (1.71)	4.60 (1.97)	6.07 (1.45)	4.03 (1.49)
East	2.85 (1.74)	4.60 (2.00)	5.80 (1.75)	3.34 (1.60)	2.99 (1.63)	4.87 (1.97)	5.98 (1.64)	3.46 (1.59)
West	3.16 (1.77)	3.84 (1.84)	5.85 (1.56)	3.71 (1.49)	3.55 (1.71)	4.60 (2.00)	6.03 (1.50)	3.97 (1.51)
Total	3.03 (1.76)	4.16 (1.95)	5.83 (1.64)	3.55 (1.55)	3.33 (1.70)	4.70 (1.99)	6.01 (1.56)	3.78 (1.56)

Welch's test was significant ($p < .000$) for all categories, therefore, a Games-Howell post-hoc test was run (Fig. 4). As we can see in Fig. 4, Germans are significantly different from all of the other countries in that they like to talk on the phone both with their parents and children. On the other hand, the British prefer to talk in person. Talking on the phone is not as popular among Hungarians and Poles; Poles especially do not like to use phones to talk with their children. Talking on the phone with parents was the only type of communication where Slovaks and Hungarians were different, with Slovaks having significantly higher scores. In person, face-to-face conversation is rather unpopular among Eastern Europeans, especially with their parents. For on-screen conversations, Poles and British were quite similar, being on the lower end, while Czechs and Austrians had high scores in using screen time with parents. Texting and other messaging

could be broken down into two groups. The Slovaks and Hungarians have a high preference for this type of communication, both with their parents and offsprings. Texting with children also included the Czechs in this group. While everybody else grouped at the lower level.

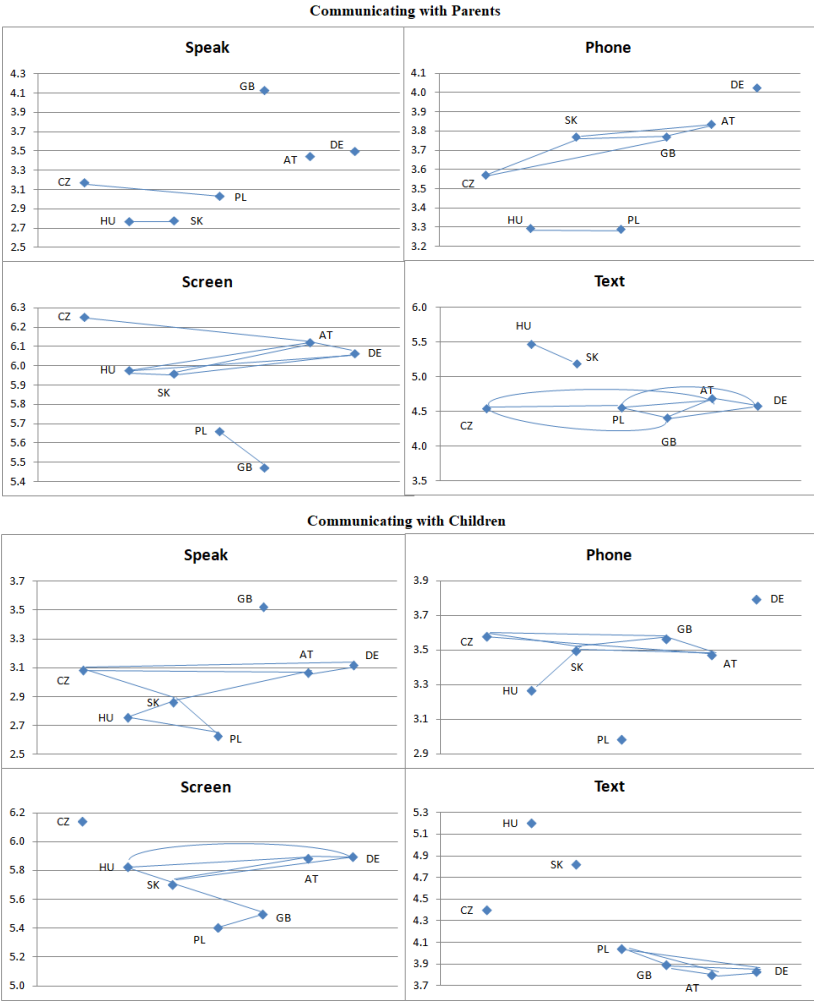


Figure 4

Mean differences by communication types by country (based on the results of the Games-Howell test)

Note: Solid lines represent those pairs where attitudes between countries did not differ significantly

Conclusions

This paper has sought to examine how communication patterns and attitudes toward digital communication differ based on country of origin and generations. Since migration from Eastern Europe happened in several waves and transnational

family life often entails generations living far apart, it was also important to understand generational differences in attitudes. Younger generations feel more strongly that digital communication makes work and personal life interrupt each other. At the same time, subsequent generations had increasingly higher scores when appraising the effects of online communication on coordination and managing activities, and the emotional proximity of people. Attitude differences among countries have shown some interesting patterns. Some countries (Germany-Austria, Slovakia-Hungary) often clustered together and did not differ significantly from each other. Eastern Europeans have a stronger belief that digital communication brings people closer; accordingly, in communication type, they are often more likely to use texting or other messaging. Westerners, on the other hand, prefer face-to-face communication. The Czechs scored high in their preference for video, while the Germans favored the more traditional phone conversations when talking with their parents.

The findings of our study contribute to a better understanding of generational and regional differences in digital communication, especially as it pertains to transnational families that have arisen from migration within (and outside) the European Union. As newer and newer generations embark on the journey of leaving home for a foreign country, it remains to be seen whether this virtual proximity will be sufficient to maintain family ties and the fabric of our society.

References

- [1] N. Ilahi, A. Ilyina, and D. Zakharova, 'Emigration Slows Eastern Europe's Catch up with the West', IMF, 2016, <https://www.imf.org/en/Blogs/Articles/2016/07/20/emigration-slows-eastern-europes-catch-up-with-the-west> (Last accessed: 2023.10.24)
- [2] M. Simionescu, Y. Bilan, and S. Gedeck, 'Migration Determinants and Potential Impact of Brexit on Migration from the CEE Countries to the UK', *Acta Polytechnica Hungarica*, Vol. 16, No. 7, pp. 95-113, 2019, doi: 10.12700/APH.16.7.2019.7.6
- [3] L. Baldassar, R. Wilding, B. P., and M. L., 'Aging in place in a mobile world: New media and older people's support networks', *Transnational Social Review*, Vol. 7, No. 1, pp. 2-9, 2017, <https://doi.org/10.1080/21931674.2016.1277864>
- [4] L. Ivan and M. Fernández-Ardèvol, 'Older people and the use of ICTs to communicate with children and grandchildren', *Transnational Social Review*, Vol. 7, No. 1, pp. 41-55, 2017, <https://doi.org/10.1080/21931674.2016.1277861>
- [5] European Social Survey European Research Infrastructure (ESS ERIC). ESS10 integrated file, edition 3.2 [Data set]. Sikt - Norwegian Agency for Shared Services in Education and Research, 2023, https://doi.org/10.21338/ess10e03_1

- [6] Z. Darvas, U. Batsaikhan, and I. G. Raposo, 'People on the move: migration and mobility in the European Union', Bruegel Blueprint Series, Vol. 28, 2018
- [7] M. McCrindle and E. Wolfinger, 'Generations defined', Ethos: Social Education Victoria, Vol. 18, No. 1, pp. 8-13, 2010
- [8] K. Mannheim, *Essays on the Sociology of Knowledge*, 1st ed. London: Routledge and Kegan Paul, 1952
- [9] N. Howe and W. Strauss, *Generations: The History of America's Future, 1584 to 2069*, 1st ed. New York: William Morrow and Company, 1991
- [10] G. P. Yadav and J. Rai, 'The Generation Z and their Social Media Usage: A Review and a Research Outline', *Global Journal of Enterprise Information System*, Vol. 9, No. 2, 2017, doi:10.18311/gjeis/2017/15748
- [11] E. J. Cilliers, 'The Challenge of Teaching Generation Z', *PEOPLE: International Journal of Social Sciences*, Vol. 3, No. 1, pp. 188-198, 2017, <https://doi.org/10.20319/pijss.2017.31.188198>
- [12] M. Dimock, 'Defining generations: Where Millennials end and post-Millennials begin'. Pew Research Center, Washington, DC, USA, 2019, <https://www.pewresearch.org/short-reads/2019/01/17/where-millennials-end-and-generation-z-begins/> (Last accessed: 2023.11.24)
- [13] Life Course, 'Neil Howe's Life Course Associates Website'. 2016, <https://www.lifecourse.com/about/method/def/homeland-generation.html> (Last accessed: 2023.11.24)
- [14] R. Machová, T. Zsigmond, K. Lazányi, & V. Krepszová, 'Generations and emotional intelligence a pilot study'. *Acta Polytechnica Hungarica*, Vol. 17, No. 5, pp. 229-247, 2020
- [15] G. Bolin and O. Westlund, 'Mobile generations: The role of mobile technology in the shaping of Swedish media generations', *International Journal of Communication*, Vol. 3, pp. 108-124, 2009
- [16] M. J. Van der Goot and J. W. J Beentjes, 'Media use across the life-span', in *The concise encyclopedia of communication*, W. Donsbach, Ed. Oxford: Blackwell, 2015, doi: 10.1002/9781405186407.wbiecm055.pub2
- [17] S. Jones and S. Fox, 'Generations Online in 2009'. Pew Research Center, Washington, DC, USA, 2009, <https://www.pewresearch.org/internet/2009/01/28/generations-online-in-2009/> (Last accessed: 2023.11.24)
- [18] B. Ali and P. Szikora. 'The relationship between Generation Y and the Internet', *Vállalkozásfejlesztés a XXI. században VII. tanulmánykötet*, Budapest, Óbudai Egyetem, pp. 11-24, 2017
- [19] A. E. Vogels, 'Millennials stand out for their technology use, but older generations also embrace digital life'. Pew Research Center, Washington,

- DC, USA, 2019, <https://www.pewresearch.org/short-reads/2019/09/09/us-generations-technology-use/> (Last accessed: 2023.11.24)
- [20] J. Bejtkovský, 'The employees of baby boomers generation, generation X, generation Y and generation Z in selected Czech corporations as conceivers of development and competitiveness in their corporation', *Journal of Competitiveness*, Vol. 8, No. 4, pp. 105-123, 2016, doi: 10.7441/joc.2016.04.07
- [21] AARP., 'Connecting Generations'. Washington D.C, p. 58, 2012, <https://www.aarp.org/technology/social-media/info-02-2012/connecting-generations.html> (Last accessed: 2023.11.24)
- [22] J. McIntosh-Elkins, K. McRitchie, and M. Scoones, 'From the silent generation to generation x, y and z: strategies for managing the generation mix', in *Proceedings of the 35th annual ACM SIGUCCS fall conference*, 2007, pp. 240-246, <https://doi.org/10.1145/1294046.1294104>
- [23] R. L. Zorn, 'Coming in 2017: A new generation of graduate students-the Z generation', *College and University*, Vol. 92, No. 1, pp. 61-63, 2017, <https://www.proquest.com/scholarly-journals/coming-2017-new-generation-graduate-students-z/docview/1901673866/se-2> (Last accessed: 2023.11.24)
- [24] E. R. Pais, *Basics for the science communication of generation Z*. Pécs: Pécsi Tudományegyetem, 2013
- [25] N. Howe and W. Strauss, *Millenials Rising: The Next Great Generation*. New York: Vintage Books, 2000
- [26] M. Prensky, 'Digital Natives, Digital Immigrants Part 1', *On the Horizon*, Vol. 9, No. 5, pp. 1-6, 2001, <https://doi.org/10.1108/10748120110424816>
- [27] D. Oblinger and J. Oblinger, Eds., *Educating the Net Generation*. Washington, D.C: EDUCAUSE, 2005
- [28] G. Hammill, 'Mixing and managing four generations of employees', *Fairleigh Dickinson University - FDU Magazine*, 2005, <http://www.fdu.edu/newspubs/magazine/05ws/generations.htm> (Last accessed: 2023.11.24)
- [29] V. S. Cook, 'Engaging generation z students'. 2015, https://sites.google.com/a/uis.edu/colrs_cook/home/engaging-generation-z-students. (Last accessed: 2023.11.24)
- [30] E. P. Májer and B. Tóth, 'Communication challenges of generations Y and Z in higher education and the labor market', in *Reisinger Adrienn*, Vol. június 15, Ifjúság - jövőképek: Kautz Gyula Emlékkonferencia, 2017
- [31] P. Redmond, 'Talkin' 'bout my generation!', in *Generation Y and the challenge of graduate employability*, GEES Conference, Edinburgh, 2008
- [32] A. Tari, *Generation Z*. Debrecen: Tericum Kiadó, 2011

- [33] A. Tick, 'Research on the Digital Learning and E-learning Behaviour and Habits of the Early Z Generation', *2018 IEEE 22nd International Conference on Intelligent Engineering Systems (INES)*, Las Palmas de Gran Canaria, Spain, 2018, pp. 000033-000038, doi: 10.1109/INES.2018.8523906
- [34] A. Kolnhofer-Derecskei, R. Z. Reicher, and A. Szeghegyi, 'The X and Y generations' characteristics comparison', *Acta Polytechnica Hungarica*, 14(8), pp. 107-125, 2017
- [35] Z. Deák, "Internet Use Social Support and Sense of Well-Being from a Generational Perspective", *SISY 2023 IEEE 21st International Symposium on Intelligent Systems and Informatics*, pp. 559-564, 2023
- [36] V. L. Bengtson and E. L. Roberts, 'Intergenerational Solidarity in Aging Families: An Example of Formal Theory Construction', *Journal of Marriage & Family*, pp. 856-870, 1991, <https://doi.org/10.2307/352993>
- [37] K. Mikael and T. Roman, *The Communication Book - 44 ideas for better conversations every day*. Penguin Books Ltd, 2018
- [38] D. K. Berlo, 'The Process of Communication: An Introduction to Theory and Practice'. Holt, Rinehart and Winston, 1960
- [39] I. Wacha, *A korszerű retorika alapjai (The foundations of modern rhetoric)*. Budapest: Szemimpex Kiadó, 1995
- [40] C. Dobos, 'Peculiarities of intergenerational communication and knowledge transfer', *Alkalmazott Nyelvészeti Közlemények*, Vol. 11, No. 1, pp. 29-39, 2016
- [41] F. Jankovics, 'Generációk közötti kommunikációs különbségek (Communication differences between generations)', *Hadtudományi Szemle*, Vol. 8, No. 1, pp. 450-465, 2015
- [42] D. Mortelmans, K. Matthijs, E. Alofs, and B. Segaert, 'Introduction: A view through the family kaleidoscope', in *Changing Family Dynamics and Demographic Evolution. The Family Kaleidoscope*, Edward Elgar Publishing Ltd, 2016, pp. 1-10
- [43] L. Stafford, 'Romantic and Parent-Child Relationships at a Distance', *Annals of the International Communication Association*, Vol. 28, No. 1, pp. 37-85, 2004, <https://doi.org/10.1080/23808985.2004.11679032>
- [44] D. Bryceson and U. Vuorela, Eds., *The transnational family: New European frontiers and global networks*. Oxford: Berg Press, 2002
- [45] D. Wastl-Walter, M. M. Váradi, K. Rácz, P. Tátrai, B. Filep, and Á. Erőss, 'Educational migration, migrant life situations: Vojvodina students in Hungary', *Tér és Társadalom*, Vol. 25, No. 4, pp. 3-19, 2011
- [46] M. Nedelcu, 'Transnational grandparenting in the digital age: mediated co-presence and childcare in the case of Romanian migrants in Switzerland

- and Canada', *European Journal of Ageing*, Vol. 14, No. 4, pp. 375-383, 2017, <https://doi.org/10.1007/s10433-017-0436-1>
- [47] Z. Blaskó, 'Transnational families, children left behind in Southern and Eastern Europe', *Socio. hu Társadalomtudományi Szemle*, Vol. 6, No. 1, pp. 71-88, 2016. doi:10.18030/socio.hu.2016.1.71
- [48] V. Mazzucato and J. M. D. Schans, 'Transnational families, children and the migration-development nexus', *Social Science Research Council conference on Migration and Development*, Vol. 20, 2008
- [49] N. N. Sørensen and I. M. Vammen, 'Who Cares? Transnational Families in Debates on Migration and Development', *New Diversities*, Vol. 16, No. 2, pp. 90-108, 2014, https://newdiversities.mmg.mpg.de/wp-content/uploads/2015/02/2014_16-02_NewDiversities.pdf#page=91 (Last accessed: 2023.11.24)
- [50] S. Abel, T. Machin, and C. Brownlow, 'Social media, rituals, and long-distance family relationship maintenance: A mixed-methods systematic review', *New Media & Society*, Vol. 23, No. 3, pp. 632-654, 2021, <https://doi.org/10.1177/146144482095871>
- [51] S. C. Kubra, C. Basak, and B. Tuba, 'Social support for expatriates through virtual platforms: exploring the role of online and offline participation', *The International Journal of Human Resource Management*, 2020, <https://doi.org/10.1080/09585192.2020.1752283>
- [52] M. Metykova, 'Only a mouse click away from home: transnational practices of Eastern European migrants in the United Kingdom', *Social Identities*, Vol. 16, No. 3, pp. 325-338, 2010, doi:10.1080/13504630.2010.482418
- [53] C. Gonzalez and V. S. Katz, 'Transnational Family Communication as a Driver of Technology Adoption', *International Journal of Communication*, Vol. 10, pp. 2683-2703, 2016
- [54] I. E. Hossu, 'Are we still a family? Transnational families - Romanian perspectives'. *Korunk*, Vol. 31, No. 4, pp. 80-91, 2020
- [55] T. De Winter and H. A. G. de Valk, 'Intergenerational Contact in European Transnational Families', *Journal of Comparative Family Studies*, Vol. 49, No. 1, pp. 73-92, 2018, <https://doi.org/10.3138/jcfs.49.1.73>
- [56] K. Németh, 'Transnational migration from children's perspective: being a stranger and taming space', *Tér és Társadalom*, Vol. 31, No. 3, pp. 103-124, 2017, <https://doi.org/10.17649/TET.31.3.2869>
- [57] I. Trapenciere, 'Deformed Family Communication in Case of Euro-Orphan Families', in 3rd International Scientific-practical Conference, Minsk, 2012
- [58] A. White, *Polish families and migration since EU accession*. Bristol: Policy Press, 2011

- [59] Ł. Krzyżowski, 'Old "Euro-Orphans"? Migration of adult Children and Social Security of their Elderly Parents', *Kultura i Edukacja*, Vol. 6, No. 92, pp. 235-251, 2012
- [60] J. Kędra, 'Virtual proximity and transnational familyhood: a case study of the digital communication practices of Poles living in Finland', *Journal of Multilingual and Multicultural Development*, 2020, doi: 10.1080/01434632.2020.1839084
- [61] M. H. Kutner, C. J. Nachtsheim, J. Neter, and W. Li, *Applied Linear Statistical Models*, 5th ed. Analysis of Variance, 2005, pp. 690-699
- [62] K. Moder, 'How to keep the Type I Error Rate in ANOVA if Variances are Heteroscedastic', *Austrian Journal of Statistics*, Vol. 36, No. 3, pp. 179-188, 2007, <https://doi.org/10.17713/ajs.v36i3.329>
- [63] J. H. McDonald, 'Handbook of biological statistics'. New York, 2014
- [64] O. Kaminska, 'Guide to using weights and sample design indicators with ESS data', *European Social Survey*, 2023, https://stessrepublicprodwe.blob.core.windows.net/data/methodology/ESS_weighting_data_1_2.pdf