Jumping the digital divide: How do "silver surfers" and "digital immigrants" use social media?

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ABSTRACT

For a long time, a digital divide was given between young Web users and older population, which out of anxiety or incapability restrained from using the new technologies. Recently, the so-called "Silver Surfers" and "Digital Immigrants" tend to use the Web not only for sending emails but also increasingly for socializing on social media services (e.g., Kübler 2009; Frees & Koch 2015). This paper aims to discuss the differences in use and adoption of social media platforms between different generations. An online questionnaire was created and distributed among social media users of all ages. The results indicate that the older generations represented a not insignificant part of social media community. They often use Facebook to keep in touch with friends and family, some apply Twitter and are fond of new followers and many re-tweets, and others just enjoy new videos on YouTube. There indeed appear to exist inter-generational differences in social media usage. In addition, data analysis leads to the conclusion that there are intra-generational gender-dependent particularities as well.

KEYWORDS
ageing, social Media use, "silver surfers", "digital immigrants", "digital natives"

Introduction

The rapid changes in technology and extensive digitalization laid a foundation for broad research on the so-called digital divide, i.e., the individual's (specific groups or entire societies') lacking facility or lacking skills to make use of this new advancement. In general, we can distinguish different types of divisions: (a) the global divide between industrialised and developing countries based on the Internet access; (b) the social divide between the "information rich" and "information poor" within a nation; and (c) the democratic divide between people who choose to use digital resources and the ones who do not (Choudrie, Grey & Tsitsianis 2010; Norris 2001). Indeed, the focus lies in the skills and adaptation rather than the physical access. The questions that arise are: 'In what ways can we make the technology usable and accessible, especially for older people, who are labelled as "Digital Immigrants" (Prensky 2001), with the purpose of bridging the gap between different generations?' and 'What happens after the digital divide is actually overcome by some individuals from this generation, who now regularly surf the Web?'

Social media services have taken human interaction to the next level. The exchange between users and their communication is almost as real as in the analogue world. The focus of current research lies primarily on younger users already growing up with (mobile) Internet, Facebook and Google, the so-called "Digital Natives" (Prensky 2001). Their (presumed, but not really verified) highly developed information literacy often comes with the cost of actual social interaction without the Internet as an intermediary. Apparently, they are always online and have nothing to hide; some are (becoming) narcissists, whose social media profiles do not really reflect their real lives and personalities (Bergman et al. 2011; Carpenter 2012; Ong et al. 2011). In this research, we turn from these 'Digital Natives' and take a closer look at the 'Digital Immigrants', especially the so-called 'Silver Surfers' (born before the 1960s). These populations grew up without the Internet and faced the rapid development of new technologies in their teenage and adult lives. Some of them did not bypass the digital divide—either because of the lacking information literacy, maybe out of fear, or just out of scepticism (Smith 2014). However, more and more Internet users over 50 do not only use the Internet in everyday life, but even sign on to a number of social media services, which initially appeared to be rather a domain for the teenage surfers and young adults (see figure 1).

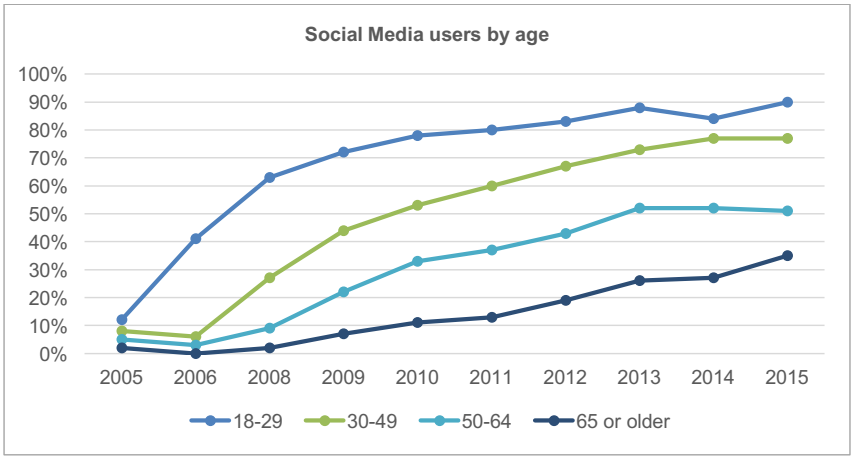

Figure 1 Social Media users in the USA by age since 2015. Source: Perrin 2015.

The current study is based on a survey conducted among social media users. An online questionnaire was designed to investigate: 1) the use of different social media services; 2) the frequency of social media use; and 3) the motivation for using social media, all for diverse age groups and additionally differentiated by gender. Overall, the results highlight the different uses of social media amongst 'Silver Surfers' (those born between the 1930s to 1950s) and 'Digital Immigrants' (1960s and 1970s), and offer an area for comparison with the usage by the 'Digital Natives' (the so-called 'Generation Y', 1980s and 1990s) and the youngest generation sampled (those born in the mid to late 1990s, also called 'Gen Z' or 'Generation C' or the 'Millennial Generation'). The

focus of this study lies in the following social media services: Facebook, Twitter, Instagram, and YouTube. For some interviewees, the digital divide is already in the past as social media like Facebook or YouTube appear to be very popular in all age groups, including the 'Silver Surfers'. Interestingly, Twitter is more popular among the older Web users rather than the younger generations, who prefer Instagram. Further outcomes from this study show differences between investigated age groups regarding the motivation for applying social media and their expectations from them, as well as the gender-dependent differences in social media usage frequency.

Age as a dividing factor

The Internet and other technological innovations replace, or at least complement the traditional means of human interaction (Killian, Hennings & Langner 2012). However, not everyone keeps up with the newest trends. Some groups of people, or even whole countries, are "marginalized from these benefits and are regarded as being digitally divided or excluded" (Choudrie, Ghinea & Songonuga 2013, 419). In the 90s, the digital divide was characterized as a gap in technology access that led to inequalities in "educational, economic, social and civic opportunities among sectors of the population" (NECRL 2012, 17). The access to the Internet alone does not necessarily have to be enough to ensure bridging the divide. In particular, the access itself is not beneficial when the individual is not computer literate or simply hesitates to use it (Choudrie, Ghinea & Songonuga 2013, 419). One of the decisive aspects influencing the willingness to use the Web and its applications is the usability, "an important factor for the quality of web-based projects" (Choudrie, Ghinea & Songonuga 2013, 420). Further conditions fostering the acceptance of new technologies are the perceived ease of use as well as perceived usefulness of the services (Davis 1989).

The access to the Internet is thus only the first step necessary to bridge the divide. Equally important are "the readiness of individuals to use technology, communication networks, and information efficiently, effectively, and productively" (NECRL 2012, 7) and the individuals' motivation to use an Internet service (Linde & Stock 2011). Recent surveys have shown a growth in accessibility and usage of the Internet by people of all ages, including older adults, until now rather excluded from web communities (Statista 2016; Choudrie, Ghinea & Songonuga 2013, 419). Thus, as opposed to stereotypes of older people being unable to adapt to the technological changes, "many seniors have embraced the Internet revolution" (Wood 2003; Choudrie, Ghinea & Songonuga 2013, 418). The older group that does take advantage of the new technology have been labelled 'Silver Surfers' (Choudrie, Ghinea & Songonuga 2013, 418). The market segment for 'Silver Surfers', also referred to as "grey netters", is called the "grey market" (Graeupl 2006, 238).

'Silver Surfers' are Internet users aged 50 and older (Bitterman & Shalev 2004; Oppenauer 2009; Stallman 2012). According to Kübler, they can navigate through the Internet, send and read emails, some of them also share pictures via the Internet, partici-

pate in chat rooms and forums, or do online shopping, online banking and information retrieval (Kübler 2009, 105f.; Stallmann 2012, 218). Frees and Koch (2015) sum up the results of an online study conducted by ARD/ZDF in Germany in 2015, which showed that there are considerable changes in the Internet usage among older people—especially considering the user behaviour of 70-year-olds. There is a notable increase of daily usage in this age group (by 0.8 million people, which constitutes 44%). When comparing the age structure of the Web community with the general population, the most daily active user groups are the ones aged 20-29 and 40-49. However, the biggest age groups within the general population are the 40-49 and 50-59 year-olds, so the biggest growth potential for Internet usage is given for the silver surfers (Frees & Koch 2015, 366).

Regarding the situation in Germany, the significance of the Internet is rising, also among the users over 60 years old. Around 26% of over 60-year-old people access the Web daily (Frees & Koch 2015, 370). In terms of their online activities, communication with other people via the Internet is mostly limited to sending and receiving e-mails (around 73% do it at least once a week). Only 15% of them use instant messaging services (like WhatsApp) regularly, and 11% visit a social network service at least once a week. According to Frees and Koch (2015, 373), micro-blogging services like Twitter or picture sharing websites are not as popular amongst older adult users.

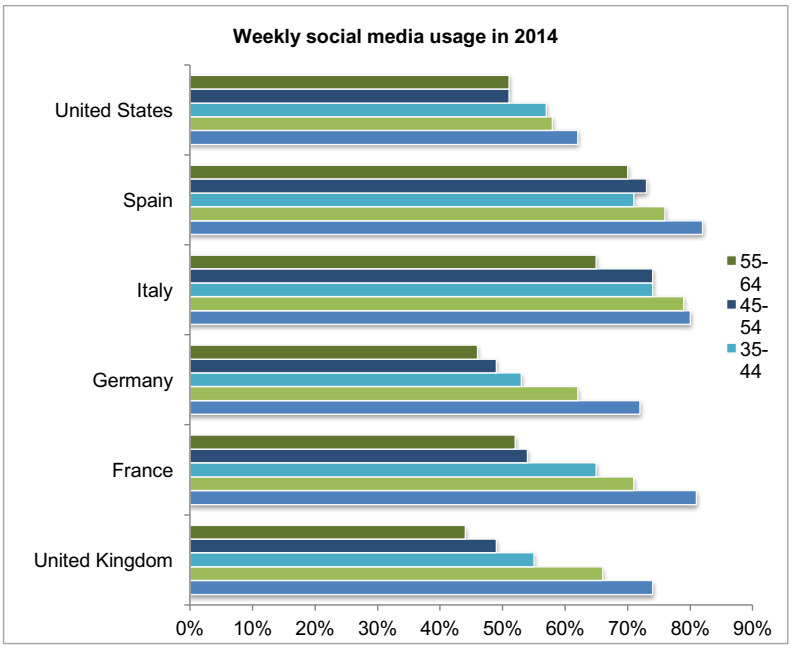

Figure 2 Weekly social media site access in selected countries as of October 2014, by age group. Source: Statista 2016.

According to Statista (2016), the social media usage is lower in older age groups, when comparing with other age groups. As we can see in figure 2, in the investigated countries (Spain, Italy, Germany, UK, France, and the USA), the most active social media users are the ones aged between 18-24, followed by those aged between 25 and 34. The third most active group is the one of 35-44–year-olds, except for Spain, where the 45-54-year-olds are more represented. The oldest group of 55-64-year-olds constitutes the smallest community of social media users in all the investigated countries. The smallest share of active social media users from the group of 55+ is given in the UK (44%) and Germany (46%), followed by the USA (51%) and France (52%). Italy and Spain exhibit higher shares of silver surfers active on social media platforms—65% and 70%, respectively.

Given that the access to the Internet is socioeconomically ensured in those countries, the differences between younger and older generations considering social media usage can be explained either with lacking suitable accessibility and/or usability of the contents and services for older adults, or simply with different information behaviour. Due to the aging process, the human motor functions, sensor and cognitive skills, may be impaired, leading to problems with usage of the new technologies (Oppenauer 2009, 39). Hence, with the increasing share of older social media users, the accessibility and usability of the contents have to be ensured. Further steps are the detection of the information seeking and production behaviour, or the motivation to use certain social media services by different age groups, also partially covered by this study. The conducted comparison of social media usage in this investigation is based on inter-generational differences—between the so-called 'Digital Immigrants', 'Digital Natives', as well as the youngest generation often called 'Gen Z.' In the following section, theories on defining and classification of the different generations will be presented.

The different generations

The new technologies could be seen as a divide between younger and older generations. For the former, it is much easier to learn how to adopt the newest trends, one of them being social media services. Generations growing up with the new communication technologies rely to a great extent on their mobile devices and the Web in order to cultivate their social contacts, as well as for educational or professional purposes (Salajan, Schönwetter & Cleghorn 2010). This dependence, and in some cases even problematic social media use (Cabral 2011) differs from the older generation's attitude towards digitalization, whose members partially integrated the new media in the later or more advanced stages of their lives (Fietkiewicz et al. 2016). It stands to reason, therefore, that different generations have different motivations for using social media as well as a different manner of doing so.

Generations, or generational cohorts, are created around shared experiences or events "interpreted through a common lens based on life stage," rather than being based on social class and geography (Bolton et al. 2013; Mannheim 1952; Sessa et al. 2007;

Simirenko 1966). According to Tapscott (1998), the generations should be categorized as the 'Baby Boomers' (born between 1946 and 1964), 'Baby Busters' (between 1965 and 1976, also called 'Generation X'), and 'Echo Boomers' (also called 'Net Generation', 'Generation Y', or 'Millennials'; born between 1977 and 1997), which can be best described as the "first generation bathed in bits" (Leung 2013; Tapscott 2009). Freestone and Mitchell (2004) describe the cohorts as 'Matures' (1929-1945), 'Baby Boomers' (1946-1964), 'Generation X' (1965-1976), and 'Generation Y' (1977-1993). McIntosh et al. (2007) pursued a little different categorization: 'Silent Generation' (pre WWII), 'Baby Boomer generation' (1946-1962), 'Generation X' (1963-1977), and 'Generation Y' (1978-1986).

All in all, there are more or less congruent definitions of the generational cohorts. In our focus lie the differences between the 'Digital Immigrants' and 'Digital Natives'. Digital Immigrants or Generation X "grew up in an information and technology revolution affecting entertainment, communications, education, and home life" (McIntosh-Elkins, McRitchie & Scoones 2007, 240). According to McIntosh-Elkins, McRitchie and Scoones (2007, 242), this is a generation of cynicism and scepticism, the "Gen Xers are pragmatic," they are "flexible adaptable, and have lived a life of changes." This generation has witnessed great technological advances and was the first one to experience home computers.

Prensky (2001) made a clear distinction between 'Digital Immigrants' and the 'Digital Natives.' He explained that Digital Immigrants learn to adapt to their environment; however, they "still retain some degree of their accent" (Prensky 2001, 3). This Digital Immigrant "accent" is certain information behaviour that cannot be identified among Digital Natives, for example, "turning to the Internet for information second rather than first, or in reading the manual for a program rather than assuming that the program itself will teach us to use it". Other examples of this "accent" include printing out emails, or needing to print out a document written on the computer in order to edit it. There are many factors that differentiate the information behaviour, and possibly the usage of social media, by the 'Digital Immigrants' from the 'Digital Natives', who speak this new language fluently.

The main objective of this study is, therefore, the investigation of differences in social media use between the Digital Natives and the Digital Immigrants or even older generations (i.e Which social media channels do they prefer? How often do they used them? Which aspects are most important for them while applying these platforms? Is it important to stay in touch with friends and family, or is it more in their favour to share own content? Are they concerned with data privacy?). The aforementioned questions could be answered with the help of an online questionnaire distributed within the social media community, specified in the following methods paragraph.

Methods

The online questionnaire created for this study was distributed through different online channels (e.g., Facebook, Twitter, Instagram, or diverse online forums) as well as "offline" through word-of-mouth advertising. There were two language versions of this questionnaire — English and German. The questionnaire featured questions about the popular social network services Facebook, Google+, Twitter and Instagram, as well as the business social network services LinkedIn and Xing. In addition, participants were asked about further photo and video sharing services like Flickr, Pinterest, Tumblr and YouTube. The typical consumer communication services like WhatsApp, Skype, Viber, or LINE were not included. The scope of the study had to be limited to a set of social media channels, otherwise there would be too many question leading to higher break-off rates of the participants. Usage of communication tools like Skype or WhatsApp is, however, an interesting topic for further investigations.

Studies of online population, like in this case the social media users, have led to an increase in the use of online surveys (Wright 2005). There are many advantages of online surveys, including access to individuals from distant locations, automated data collection and analysis (Wright 2005) as well as flexibility for the respondents to answer the question when and where they want to, question diversity, control of question order, and required completion of answers (Evans & Mathur 2005). Even though the internet penetration is greater in industrialized countries and, therefore, in some regions the potential for online surveys is greater (Evans & Mathur 2005), this problem does not affect the recruiting of social media users, since social media use itself requires access to the Web.

For this study the nonprobability sampling was applied, in form of purposive or judgment sampling (social media users), continued as snowball sampling (sharing on social media by participants). Judgment sampling is one of the most common sample techniques, where the researcher actively selects the most productive sample to answer the research question, whereas the subjects may recommend useful potential candidates for study (Marshall 1996). Since this is an exploratory study on potentially limitless population, which makes it difficult to pursue probability sample, no statistical generalization is possible. However, in this case, an analytical analysis can be pursued. One problem of online surveys in general is the self-selection bias, since in any given internet community there are some individuals, who are more likely to complete an online survey (Wright 2005). This leads to limited ability to estimate populations, however, for this study the nonprobability sampling was applied.

Facebook seems to be one of many convenient tools for recruitment of participants (Ramo & Prochaska 2012). Also, thanks to distribution of the survey link through channels like forums or chatrooms, it was possible to reach older web users. According to Wright (2005), researchers can find a concentrated number of older individuals who use computers in the Internet-based community SeniorNet. In contrast, with traditional survey research methods, it may be more difficult to reach a large number of older people

who are interested in computers.

Some disadvantages of online surveys are the tendency that it can be perceived as junk mail, especially when distributed via mailing lists, the skewed attributes of internet population, privacy and security issues (Evans & Mathur 2005). Unwanted emails, security and privacy, are seen as the most problematic ethical issues when conducting online survey (Cho & LaRose 1999). According to Cho and LaRose (1999), the so-called informational and psychological privacy are most sensitive and mostly jeopardized by online surveys. The psychological privacy concerns the content of the information and the degree to which it betrays the psychological or emotional state of the participant. However, the danger of violating psychological privacy is mostly given by surveys dealing with very sensitive topics (which is not the case in current study). The information privacy concerns the desire to control the movement of personal information. Volunteer samples using anonymous replies through webpages, as conducted for this investigation, mostly maintain all four forms of privacy (apart from the informational and psychological, the physical and interactional privacy). The promotion of the survey through different channels could be seen as mild violation of physical privacy, however, it is not as severe as receipt of unsolicited email (Cho & LaRose 1999).

In the questionnaire, 3 types of questions were formulated. The first one was a polar question about the use of a certain service, e.g., 'Do you use Facebook?' Dependent on the answer, two follow-up questions about the concerned service succeeded—about the frequency with which the service is used (e.g., 'How often do you use Facebook?') and about the motivation for using the service (e.g., 'In reference to Facebook, it is important to me that…'). The inquiry about the motivation was adjusted to each service and included three sub-questions, for example, in case of Facebook, 'It is important to me that (i) I have a lot of friends, (ii) I get a lot of "likes", (iii) my personal data is treated as confidential.' The answers for frequency of usage and motivation questions could be marked on a 7-point Likert scale, where "1" meant fully disagree (or in case of frequency — "almost never") and "7" meant fully agree (or "I am always online"). Technically, the quasi interval characteristics of the Likert scale render it appropriate for hypothesis testing of mean responses and cluster approaches. This procedure is a common practice for a scale, since numerical values are assigned to the response categories and, thus, modelling equidistant intervals (Ary et al. 2009). The socio-demographic questions regarded gender, year of birth, country, and education.

The data gathered was statistically analysed. The first part of the investigation regarded the social media usage by the oldest generations that participated in the survey—born between the 1930s and the 1970s. Afterwards, the differences between the Digital Immigrants, Digital Natives and the youngest generation, Gen Z, were analysed. In what follows below, we have included analyses of average social media use frequencies and the probabilities of using certain services, as well as two-sided t-tests for the three generations. The t-tests assess whether the mean of a certain generation is statistically different from other generations. For instance, the differences of the means (of usage fre-

quency or importance of certain motivational aspects) between 'Digital Immigrants' and the pooled observations for 'Digital Natives' and 'Gen Z'. Finally, intra-generational gender-dependent differences are included for the three generations (regarding the probability and frequency of social media usage in relation to gender).

Results

From total 430 participants, 372 completed the study (112 were male, and 260 female). Table 1 presents the general characteristics of the participants. Most of them were from Germany (nearly 60%), followed by Poland (21%), Switzerland and the USA (each 4%). Most of the participants were university students (35.3%) followed by school students (22.3%) and graduates with Bachelor's (17.5%) and Master's degree (17%). Among the participants, Facebook and YouTube are the most popular platforms (92.5% and 86% respectively). Instagram and Twitter seem to be less common, but still adopted by total 37.6% and 29.3% respectively. Pinterest is applied by 13.2% of the respondents.

As table 2 highlights, most of the participants are Digital Natives born between 1980 and 1996 (total 221). The second biggest generational cohort was the youngest one—Gen Z born after 1996 (total 90 participants). Digital Immigrants, born between 1960 and 1980, are represented by 47 test subjects.

General characteristics	
Gender	
male	30.1%
female	69.9%
Age in years (mean)	28.4
Education	
still at school	22.3%
student	35.3%
Bachelor's degree	17.5%
Master's degree	17%
Doctoral degree	4.9%
Country	
Germany	59.9%
Poland	21%
Switzerland	4%
USA	4%
Austria	1.1%
Social media users	
Facebook	92.5%
YouTube	86%
Instagram	37.6%
Twitter	29.3%
Pinterest	13.2%

Table 1 Demographic and social media use characteristic of participants who completed the survey (N=372)

	Year of birth	Subjects
Decade-wise aggregation for older generations	1930s	1
	1940s	2
	1950s	9
	1960s	18
	1970s	29
Digital Immigrants/Gen X	1960-1979	47
Digital Natives/Gen Y	1980-1995	221
Gen Z	since 1996	90

Table 2 Distribution of the participants by age

Firstly, probable differences in social media use between 'Silver Surfers', 'Baby Boomers' and younger generations will be analysed. However, there is no distinction between the generational cohorts as the older participants are grouped by year of birth decade-wise (from 1930s to 1970s). This should give us an impression on probable social media use by 'Silver Surfers' when these 'generations' are thus grouped together. Next, this paper focuses on exploring the differences between 'Digital Immigrants (Gen X)', 'Digital Natives (Gen Y)' and the youngest generation (Gen Z). These outcomes are more significant and give a more accurate picture of inter-generational differences, since the investigated sample was larger.

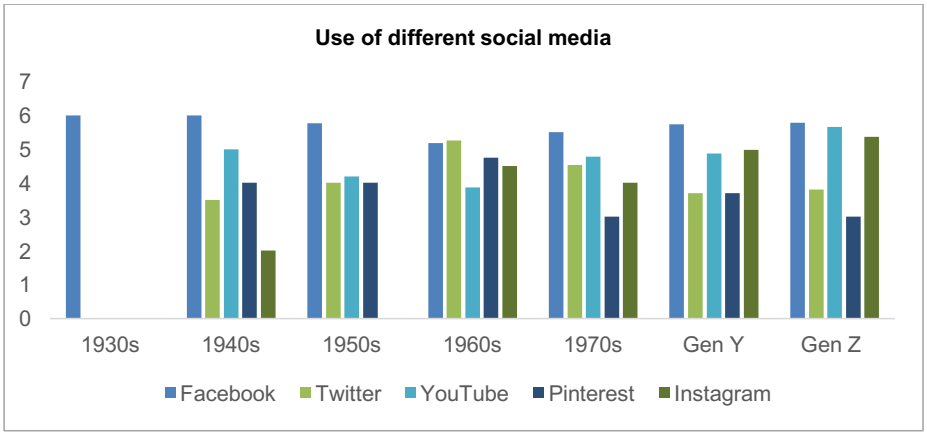

Figure 3 Frequency of use of different social media services by diverse generations

Figure 3 illustrates that Facebook is the one social media service used most frequently by all generations. Only users born in the 1960s apply Twitter slightly more frequently than Facebook. On average the representatives of the oldest generations use Facebook most frequently. One participant, born in the 1930s, reported using only Facebook (from all the inquired social media services) every day. Participants born in the 1940s also use Facebook most frequently, followed by YouTube, Pinterest and Twitter, whereas Instagram is visited rather seldom. Users from the 1950s visit Twitter, YouTube and Pinterest similarly often (around once a week), but not Instagram. The

participants born in the 1960s use Facebook and Twitter most frequently, followed by Pinterest (most frequently of all generations) and Instagram. From all the investigated generations, they reported using YouTube the least often. The users born in the 1970s reported using Pinterest least frequently, whereas they stated they used other services at least once a week. The digital natives (or Gen Y) visit Facebook, YouTube and Instagram most frequently, whereas Twitter and Pinterest are visited less often, rarer than once a week. Finally, the Gen Z participants used Facebook, YouTube and Instagram most frequently (Instagram most frequent from all the generations), whereas Twitter and Pinterest rather seldom.

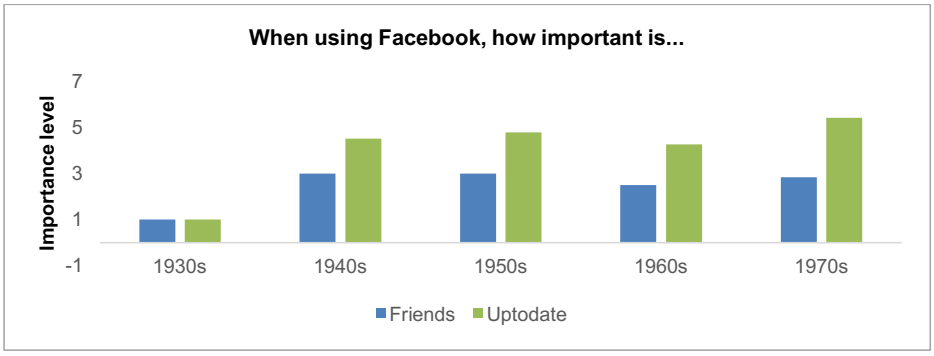

Figure 4 Important factors while applying Facebook

Since Facebook appears to be the most popular social media service (not only among the 'Silver Surfers'), let us take a closer look at factors significant for using the service. Figure 4 shows the importance of two factors while using Facebook—having many friends and being up to date—both factors which were indicated by participants in the oldest generations. Both factors are rather of moderate importance for most of the participants from other age ranges (3-4), whereas for representatives of the oldest generation, they are not important at all (1). Still, being up to date appears to be of higher significance than having a lot of Facebook-friends, especially for users born in the 1970s.

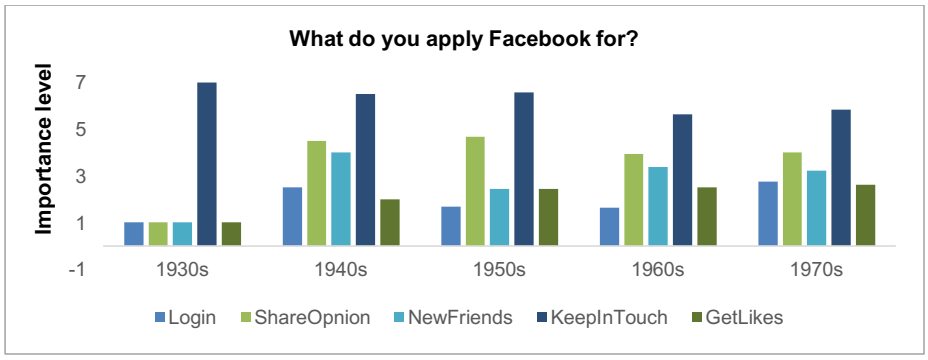

Figure 5 Motives to apply Facebook for the older generations

When asked for more concrete motivational reasons for using Facebook (figure 5), we recognize that "being in touch" with friends or family is the most important aspect (especially, for the 1930s user for whom this is the only reason to utilize this service). The second most important aspect appears to be the possibility to share one's own opinion with the community (especially for users born in the 1950s). There is rather neutral attitude evidenced towards "finding new friends" on Facebook, whereas getting a lot of likes or using the services just as a login tool, is not important (1-3) for all the 'Silver Surfers'.

Next, we turn to investigate the differences between 'Digital Immigrants', 'Digital Natives' and the youngest generation — 'Gen Z'. Figure 6 shows the probability of social media usage by these three generational cohorts. All groups are likely to use Facebook (especially the 'Digital Natives') and YouTube ('Digital Natives' and 'Digital Immigrants'). The most substantial differences can be seen for Twitter and Instagram. Twitter is more likely to be used by Digital Immigrants, followed by 'Digital Natives.' The distribution for Instagram is quite the opposite— 'Gen Z users' will probably use Instagram. The probability is much lower for Digital Natives and even scarcer for Digital Immigrants. Pinterest is not that popular among all three groups, but the usage probability is still the highest for 'Digital Natives' followed by 'Digital Immigrants', whereas for 'Gen Z users' reported usage is closer to zero.

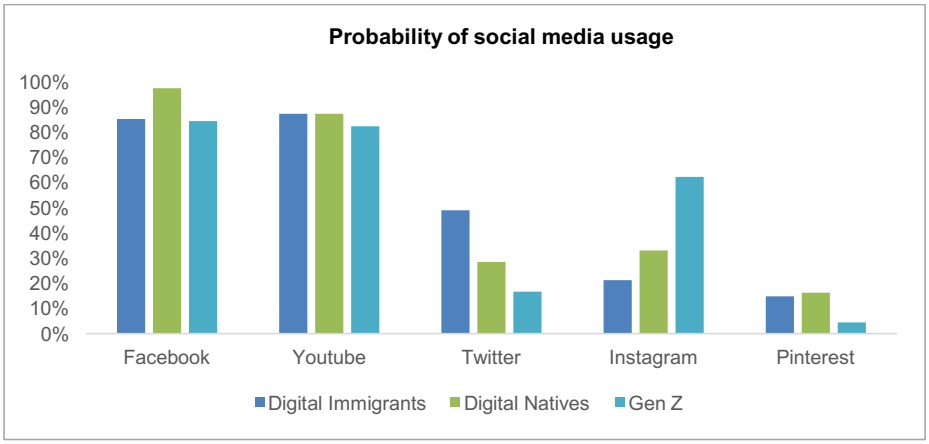

Figure 6 Probability of social media usage for Digital Immigrants, Digital Natives and Gen Z

Figure 7 compares the average usage frequencies for the five social media services and the three investigated generational groups.

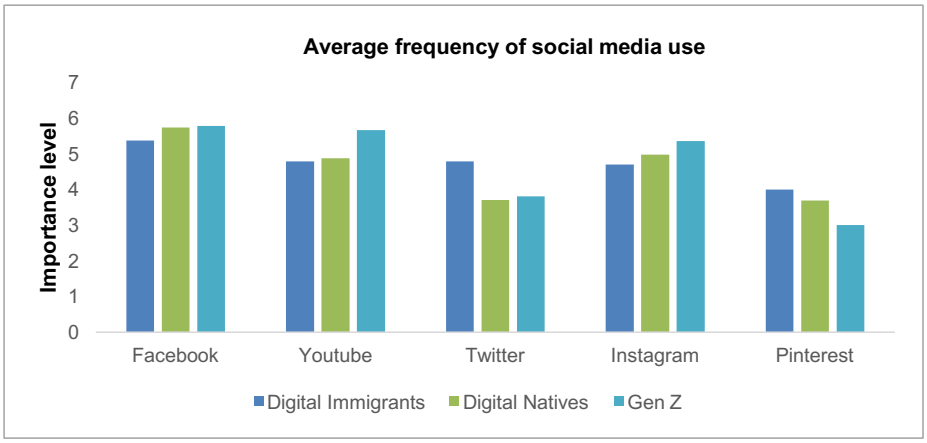

Figure 7 Average usage frequencies of social media services by Digital Immigrants, Digital Natives and Gen Z

Facebook is used most frequently by all three groups, whereas YouTube and Instagram are used most frequently by the youngest generation—Gen Z, followed by Digital Natives and Digital Immigrants (however, they still use the services on average few times a week). Digital Immigrants use Twitter most frequently (several times a week), when compared to Gen Z and Digital Natives (between once a month and once a week). Pinterest is, once adopted, used more frequently by the oldest generation. Indeed, digital Immigrants use it nearly once a week, whereas Digital Natives and Gen Z once a month.

Figures 8 to 11 depict the outcomes of t-tests conducted for usage frequencies and two motivational factors when using Facebook, Twitter, Instagram and YouTube. The values for each generation show the average difference from the pooled mean values for other generational groups.

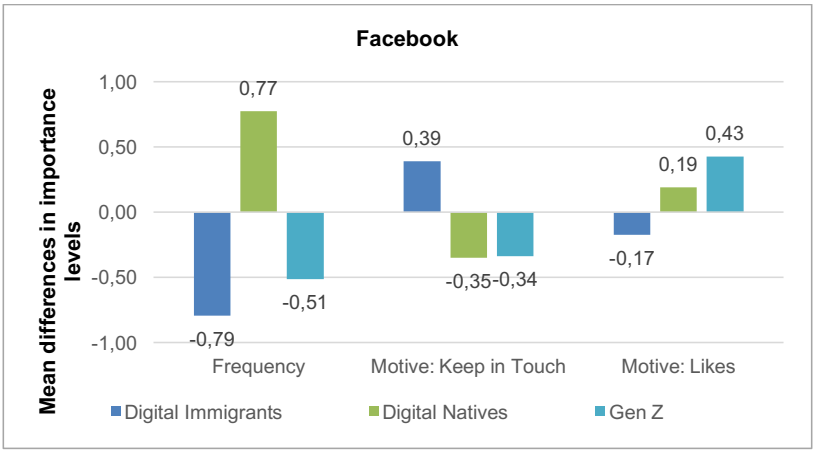

Figure 8 T-test outcomes for Facebook usage frequency and motivational factors of staying in touch with friends or family, and getting many likes

Regarding Facebook (figure 8), the biggest difference is given for the usage frequency. Compared to the average usage frequency, 'Digital Natives' are the ones using Facebook more frequently, whereas 'Digital Immigrants' followed by 'Gen Z' use it less frequently. There is also a clear divergence in the motivation. For Digital Immigrants, it is on average more important to keep in touch with friends and family, whereas getting likes is more important for Digital Natives and especially for Gen Z.

In Figure 9, the t-test outcomes for Twitter are indicated. We can see that this service is definitely more favoured by Digital Immigrants than Digital Natives and Gen Z. Digital Immigrants apply the services more frequently. For them, it is important to have many followers and to get a lot of likes and re-tweets. The younger generations seem to care on average much less about these aspects.

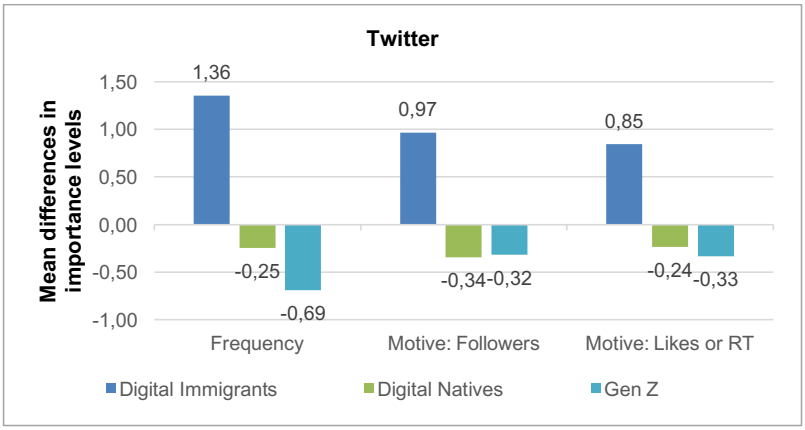

Figure 9 T-test outcomes for Twitter usage frequency and motivational factors of having many followers and getting many likes or retweets

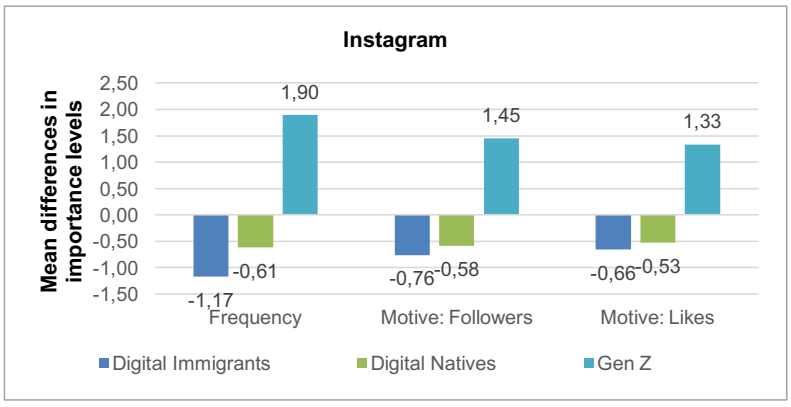

Figure 10 T-test outcomes for Instagram usage frequency and motivational factors of having many followers and getting many likes.

There is a similar tendency for Instagram (figure 10) and YouTube (figure 11), however, the current youngest generation (Gen Z) is the one standing out. The representatives of Gen Z use the service far more frequently than the other two. For them, a high number of followers, as well as getting likes, are more important aspects than they are for Digital Immigrants and Digital Natives. From both older generations, 'Digital Immigrants' are the ones using the service even less frequently than the 'Natives'. They also care less about the attention and rewards in form of followers and likes.

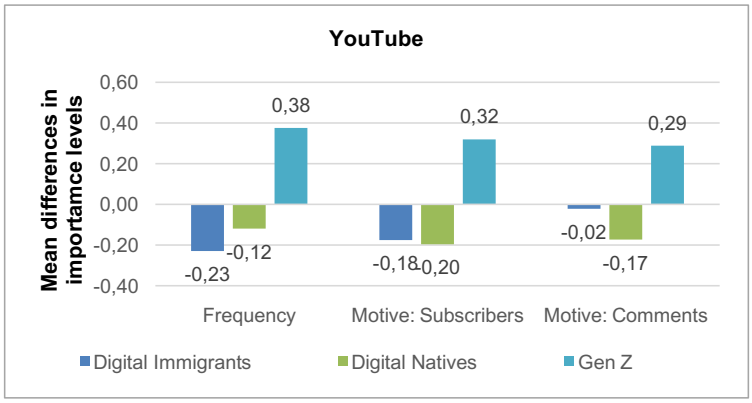

Figure 11 T-test outcomes for YouTube usage frequency and motivational factors of having many subscribers and getting a lot of up votes or comments

Similar results are found for the service YouTube (figure 11). However, here the mean differences are not as profound as for Instagram. On average, users from the Gen Z use YouTube slightly more frequently. Furthermore, they care slightly more about subscribers and getting comments and up votes. Digital Natives are the ones caring least for comments, up votes and subscribers. Then again, Digital Immigrants are the ones using the service less frequently than the remaining average.

There are also gender-dependent intra-generational differences in social media usage. Figure 12 shows the probability of social media use for five services and the three generational groups divided by gender. When analysing the probability of social media usage within the Digital Immigrants, we can see that the male users are more likely to use YouTube than Facebook, whereas female participants reported a preference for Facebook and YouTube. Still, both user groups are likely to use Twitter and less likely to visit Instagram or Pinterest. When analysing the Digital Natives, male and female users are very likely to use Facebook, followed by YouTube. Both groups are far less likely to use Twitter compared to the older generation. Also, female users would choose Instagram over Twitter. For both groups, the least likely service to engage with is Pinterest (however, female users are still more likely than male to use it). Finally, the gender-dependent inter-generational differences are also reported for Gen Z. In this study, the male users prefer YouTube to Facebook. These are the two services they are most likely to use. Far behind, but still quite likely to be used, is Instagram. For Twitter and Pinter-

est the probability is closer to zero. The female users choose Facebook over YouTube and they are also very likely to apply Instagram. Similar to the male users from this generation, they are much less likely to use Twitter and Pinterest.

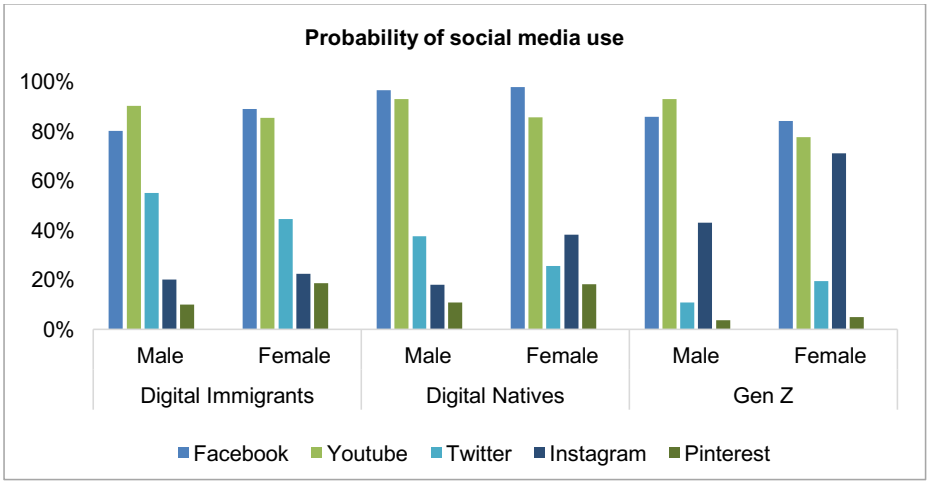

Figure 12 Probability of social media use and gender-dependent differences between Digital Immigrants, Digital Natives and Gen Z

Figure 13 shows the average frequency of social media use of the five services for the investigated three generations divided by gender. For the Digital Immigrants, male and female users use Facebook almost every day.

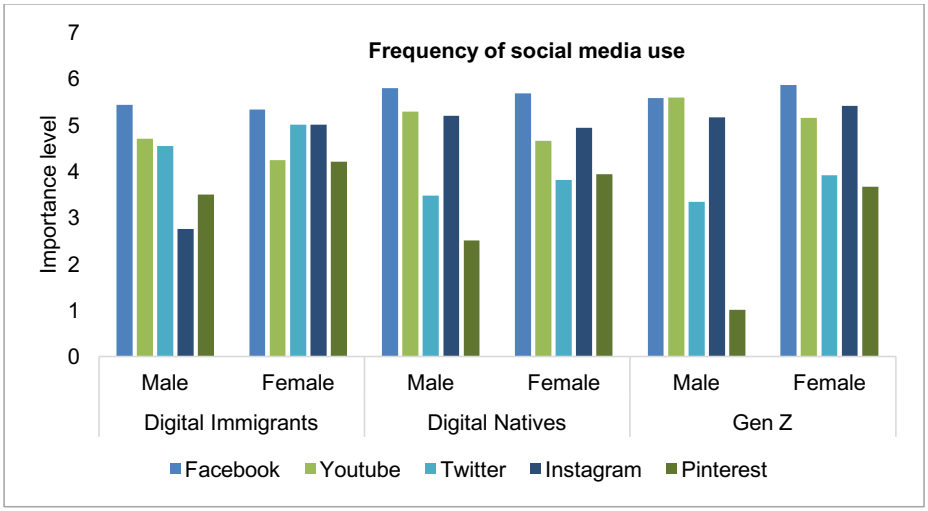

Figure 13 Frequency of social media use and gender-dependent differences between Digital Immigrants, Digital Natives and Gen Z.

Female users also use Twitter and Instagram very often, whereas YouTube and Pinterest are reportedly visited around once a week. Male users use YouTube and Twitter quite often (once to several times a week). However, they use Pinterest only around once a month and Instagram even less often. The male Digital Natives use Facebook, YouTube and Instagram several times a week or even every day, whereas Twitter and Pinterest were visited far less often. Female Digital Natives use Facebook on average every day, Instagram and YouTube several times a week, whereas Twitter and Pinterest were reportedly visited approximately once a week.

Finally, the male representatives of Gen Z apply Facebook and YouTube equally frequently—several times a week to every day, and Instagram only several times a week. They use Twitter less frequently—less than once a week, and Pinterest even more seldomly than every month. The female users from Gen Z use Facebook and Instagram most frequently (between several times a week and every day), followed by YouTube (several times a week). They use Twitter and Pinterest more frequently than male users—between once a week and once a month. In general, female users seem to apply all services more frequently than the male ones. Hence, once a female user (from whichever generation) decides to use a social media service, she uses it quite regularly. Male users, on the other hand, use some services very seldomly, instead of completely opting out.

Discussion

In many developed countries, the digital divide based on technological accessibility has been already bridged. For a long time, age was assumed to be one of the issues restraining some portions of the population from using the Web. With time, older people started regularly using Web and its applications—not only the basics like emails or search engines, but also the Web 2.0 applications like social media services. The Web 2.0 is not anymore solely young people's domain. One important question that arises is 'how do the Silver Surfers and so-called Digital Immigrants apply social media?.' In order to determine the probability and frequency of social media usage by older generations, an online survey was conducted. The outcomes show inter-generational differences in social media use—the probability of social media usage, its frequency as well as some motivational factors regarding which services were being used. Furthermore, gender-dependent intra-generational differences were detected.

The results showed that there are indeed inter- and intra-generational differences. While the older generation, for example, Digital Immigrants, prefer services like Facebook for keeping in touch with friends and family, they also engaged with Twitter and reportedly enjoy getting many followers. Digital Natives prefer Facebook and YouTube, and reported to enjoy the likes they get on Facebook. The youngest generation, Gen Z, prefers YouTube and Instagram. The users from Gen Z, as indicated by our study, do not use Twitter often; they also use Facebook less often than the other older generations. Finally, there are intra-generational differences between male and female users. Female users

are most likely to visit Facebook, followed by YouTube (in turn, male users from the oldest and youngest generation prefer YouTube over Facebook). Furthermore, female users from all generations are much more likely than the male users to apply Instagram. Finally, female users seem to use all services more frequently than the male participants. Hence, once a female user decides to use a social media service, she tends to use it quite regularly. Male users, on the other hand, use some services very seldomly instead of opting-out.

In conclusion, Silver Surfers and Digital Immigrants apply some of the popular social media, especially Facebook, Twitter and YouTube. While Facebook and YouTube are popular among all investigated generations, the most interesting inter-generational divergence is given for Twitter and Instagram. The micro-blogging platform Twitter is mostly applied by older users and gets less and less popular with the younger generations. Instagram, on the other hand, is least applied by the oldest generations and gets more and more favoured with the younger ones. Twitter is a text-based platform often applied for news dissemination (Hornik, Satchi, Cesareo & Pastore 2015; Kwak, Lee, Park & Moon 2010), which is why it might be preferred by older age-groups to image-based platforms like Instagram, often associated with narcissism and self-promotion (Moon, Lee, Lee, Choi & Sung 2016). "An Instagram picture may be worth more than a thousand twitter words" (Pittman & Reich 2016, 155), however, this thought applies only to the young adults and not the Silver Surfers or Digital Immigrants. The most striking gender-dependent difference in social media usage is the preference of the picture-sharing networks Instagram and Pinterest by females of all generations as well as more frequent usage of the platforms they once adapted. It appears that men are fonder of the text-based networks.

The main limitation of the study is its rather superficial, exploratory character. More in-depth questions and possibly a number of quantitative interviews could lead to more complex motivational reasoning for adapting a social media platform or not. A bigger sample of Silver Surfers, especially born between 1930s and 1950s would lead to a more founded conclusion. Finally, since this is a cross-country study, the incorporation of country-specific social media platforms (e.g., vk for Russia, nk for Poland), could result in a bigger sample.

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