

Inter-generational Comparison of Social Media Use: Investigating the Online Behavior of Different Generational Cohorts.

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Abstract

Today we cannot imagine our everyday life without the Internet. Some of us do not even remember the times, when we actually had to get outside to buy new clothes or book a vacation. Now, all these tasks can be managed, with the help of the Internet, comfortably from our homes. One of the most booming Internet offerings are the so-called social media. In our study we investigate the divergences in social media usage between different generations. The outcomes of our investigation might be a valuable guide for businesses focusing on online marketing, social shopping, or e-commerce in general, and desiring to reach the right target groups. Once the businesses identified services mostly used by their target customers, they can focus on building a relationship with them through the social network, committing them to the brand and, hence, influencing their decision-making.

1. Introduction

Social media, or social software, are internet-based applications founded on the Web 2.0 allowing the creation and exchange of user generated content, as well as providing the possibility of creating micro-content focusing on social connections between people [1; 20; 24; 37]. It differs from traditional mass media focused on the one-to-many distribution of content from professionals to passive audience. Social software is based on many-to-many networks of active users sharing content among them, which fundamentally changes media user behavior [20, p. 114]. Facing these developments, businesses must adapt their products and services to the changing needs of the consumers, especially because the shifts in media behavior are likely to be more profound in the future [20, p. 114]. Also, considering the increasing amount of available online social media, businesses should focus on the ones involving their target groups in order to be able to build up a high-quality customer relationship.

Despite the names “social networks” or “social media” much of the user activity on social network services (SNSs) appears to be “self-focused” [15, p.

1929]. It appears that the younger generations of online media users exhibit narcissistic features that are either strengthened with (or first evolved due to) the new media like SNSs [6; 22; 41; 42], or the online providers recognize the needs of the youngest users and offer services more and more self-centered. Also, generations growing up with the now ubiquitous communication technologies rely to a great extent on their mobile devices and the Internet to cultivate their social contacts, as well as for educational and professional purposes [35, p. 1393]. This dependence, and in some cases even problematic social media use (nearing an “addiction”) [12], differs from the older generation’s attitude towards digitalization, whose members partially integrated the new media in the later and more advanced stages of their lives.

Different generations, diversely labeled and defined by researchers, have different motivation for and manner of using the online media. These new digital tools are slowly replacing the known, traditional means of communication. For example, key motivation for Generation Y (adolescent in the 1990s and 2000s) to use social media is the need for interaction with others. Apparently, users between 17 and 34 years old are more likely to prefer social media for interaction with friends and family than older age groups [8; 33]. Hence, considering the younger generations, social media replace (and/or complement) the communication by letter, phone, or even email. Their use of text messaging is up while their email usage is down [44, p. 128].

This is our research model (Fig. 1): There are several theories on inter-generational differences as well as research on user behavior characteristics for specific generational groups. In our study, we conduct a broad analysis of social media usage, concerning as many generational cohorts as possible, as well as taking into account the influence of different life stages on user behavior. We theorize that there are three cohorts (Generation X, Y, and Z), but the borders between the generations may be fuzzy (marked grey in the Figure). We class every social media user into one generational cohort by his or her year of birth. Then we examine the users’ information behav-

ior in terms of the adoption of social media (amount of social media subscribed), the usage frequency, and the motivations. Finally, based on our findings, we define whether there are distinct subgroups within the Generation Y and the Generation Z.

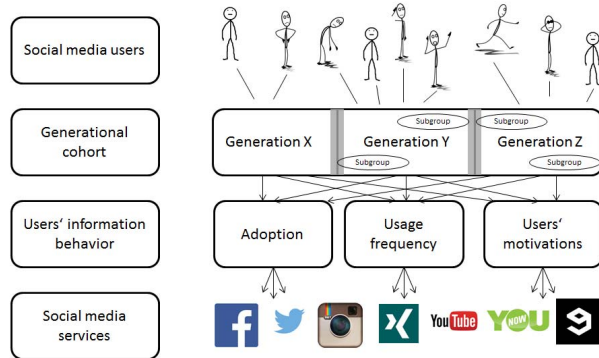


Figure 1: Our research model.

We defined three working hypotheses that we tested through our study:

H1: There are inter-generational differences in social media use concerning the amount of social media adopted, the frequency of use, and the motivation.

H2: There are intra-generational differences in social media use dependent on specific stage of life.

H3: There is a new generation currently reaching legal age that fundamentally differs from previous generations (including Generation Y) concerning the social media use.

2. Defining Generational Cohorts

2.1. Changes in Technology and User Behavior

According to Prensky [34], the arrival and dissemination of digital technology at the end of the 20th century have “changed everything so fundamentally that there is no going back.” This discontinuity is so severe that he describes it “singularity.” Prensky calls the newest generation born and raised in this time the *Digital Natives*. They spend their entire lives surrounded by computers, cell phones, and all other “toys and tools of the digital age.” This terminology is based on his notion that the members of this generation are “native speakers” of the “digital language.” He also turns to the basic approach of cultural migration—kids “born into any new culture learn the new language easily, and forcefully resist using the old.” The older generations, the “adult immigrants,” either accept the changes and let their descendants help them to learn and integrate, or, “spend most of their time grousing about how good things were in the old country” [34, p. 3].

In the last decades not only the technology has changed, but also the attitude and motivation of its users. The consumers transformed from passive *by-standers* (traditional media is controlled by the advertiser in a B2C-monologue) to *hunters* (consumer controls the interactivity), and further to active participants in the media process (consumers create, consume, and share messages) [17; 44, p. 131]. Li and Bernoff [25] investigated the “ecosystem” of social media and recognized five different types of behaviors among the active participants. There are *Creators* focused on publishing, maintaining, and uploading, *Critics* (commenting and rating), *Collectors* (saving and sharing), *Joiners* (connecting, uniting), and *Spectators* (reading) [17, p. 268 f.].

During research on social media it is important to consider the uses and gratifications approach, suggesting that the users actively choose the media that best fulfill their needs, and their choices are further based on past media experiences [7]. There are several factors influencing the choice of social media, like functional, situational and personal ones [16; 20, p. 116]. McQuail [30] distinguishes four main motives for using media and communication technologies, namely information, personal identity, entertainment, and integration/social interaction [20, p. 116]. It is possible that these motivational factors are to some extent shared by the members of a distinct generational cohort. Hence, the motivation is an important aspect in our investigation to differentiate the generations.

2.2. From the Silent to the Net Generation

The generational cohorts occur around shared experiences or events “interpreted through a common lens based on life stage,” rather than being based on social class and geography, hence, each generation shares a common perspective [8, p. 247; 26; 36; 38]. There are many definitions of generational cohorts as well as estimations on the years their members were born in. According to Tapscott [40], the generations should be categorized as follows: *Baby Boomer*, *Baby Bust*, and *Echo Boomer* (also called *Net Generation* or the *Y Generation*). Baby Boomers are people born between 1946 and 1964. Following that period of time, the birth rates fell dramatically in the next decade. This generation, born between 1965 and 1976, was called the Baby Bust (*Generation X* or *Gen Xers*). Apparently, “X” stands for the feeling of exclusion from society and of being less competitive in the job market. The Echo Boomers (labeled by other authors as *Millennials* or *Generation Y*) were born between 1977 and 1997 and can be best de-

scribed as the “first generation bathed in bits” [24, p. 998; 40].

Brosdahl and Carpenter [11] categorized the generations using the following birth dates: the *Silent Generation* (1925-1945), *Baby Boomers* (1946-1960), *Generation X* (1961-1981), and *Generation Y* born after 1981. Bolton et al. [8] defined the Generation Y as people born between 1981 and 1999, regardless their circumstances (i.e., geographical or socio-economic factors etc.). Freestone and Mitchell [14] describe the cohorts as *Matures* (1929-1945), *Baby Boomers* (1946-1964), *Generation X* (1965-1976), and *Generation Y* (1977-1993) [14, p. 123]. McIntosh et al. [28] pursued a little different categorization: *Silent Generation* (pre WWII), *Baby Boom generation* (1946-1962), *Generation X* (1963-1977), and *Generation Y* (1978-1986) [28, p. 240].

As we can see, some of the timespans correspond, whereas other are more fuzzy concepts—especially the deliberations on Generation Y, which is why, in our study, we will try to shed light on the very Generation Y and its (possible) successors.

2.3. The Digital Natives or Generation Y

The most mysterious generation is the Generation Y, also being in focus of our research. The labels for this generation as well as the timeframe for the years of birth of the members differ from researcher to researcher.

The Generation Y is also called the Digital Natives [34], Net Generation [32; 39], Echo Boomers, Net Kids [39], Gen Y [28], or Millennials [19]. The years of birth of this generation proposed in the literature vary between 1977 [24; 40], 1978 [27; 28], 1980 [43], *after* 1981 [8; 11; 44]. The upper limit of the years of birth is also not definite—from 1986 [28] and 1988 [27], through 1993 [14], 1994 [43], 1997 [24; 40], up to 2000 [44].

This Net Generation is very techno-savvy and contradicts the children of Baby Boomers who believed that education is the key to success. For them, the technology is “as transparent as the air, diversity is given, and social responsibility is a business imperative” [27, p. 39]. They are also described as the most visually sophisticated of any generation [44, p. 127]. The Millennials, or Digital Natives, embrace the new media more comprehensively than the older generations [19; 20; 34]. They are often described as self-confident, self-reliant, independent, and goal-oriented [28, p. 242]. For the Generation Y it is characteristic the early and frequent exposure to technology, which may have advantages as well as disadvantages in terms of cognitive, emotional and social

outcomes, for example, when they rely heavily on technology for entertainment, to interact with others or even to regulate their emotions [8, p. 247].

Digital Natives are considered to be more open to change, better learners, more tolerant to diversity and efficient multi-taskers, because of their exposure to rapidly changing technology, accessible education and supportive families [8, p. 252]. They were born “right around the time of a qualitative leap in the nature of communications technologies which brought about the mass-consumer level usage of email, the Internet and the WWW” [35, p. 1393]. Therefore, they feel comfortable with computers and they are more likely to be online consumers and users of social media rather than their parents or grandparents. They are conversant with a “communications revolution transforming business, education, health care, social relations, entertainment, government, and every other institution [23; 24, p. 998].

An interesting diversification was proposed by Palfrey and Gasser [33], who suggested the existence of a third group between the Digital Immigrants and Digital Natives—the Digital Settlers, who adopted the new technology from its beginning. Digital Settlers are not “native” to the digital environment, since they grew up in an analogue-only world, however, helped to shape the digital one and are quite sophisticated in their use of these technologies [33, p. 4]. The Digital Immigrants might have learned how to use email and even joined social networks, but since this occurred in their later stages of life, the digital world remained foreign to them. In contrast, the Digital Natives were born into digital world, and do not remember the analogue-only world in which “letters were printed and sent, much less hand-written, or where people met up at formal dances rather than on Facebook” [33, p. 4; 44].

Kilian, Hennigs and Langner [20] contradicted the notion of Millennials being a homogenous group, as they identified three different groups/clusters within this cohort: (i) the *Restrained Millennials* showing lowest ratings for social media use in both active and passive behavior; (ii) the *Entertainment-Seeking Millennials* showing the highest mean ratings with regard to the passive use of social networks and file-sharing communities, and (iii) the *Highly Connected Millennials*, who are more likely than the representatives of the other groups to actively use social media in order to build social networks [20, p. 117 f.].

Another interesting finding is that the Millennials generation is apparently more narcissistic than the previous ones, which occurred alongside increased usage of social network services [6; 22; 41; 42]. The

question arises, whether there is a connection between these two aspects [6, p. 706]. SNSs appear to provide narcissistic individuals with the opportunity to display vanity, self-promote, gain approval and attention as well as to manipulate their public-image [6, p. 709]. Still, according to Bergmann, Fearington, Davenport and Bergmann [6], the usage of SNSs by the Millennials is not solely about attention seeking or maintaining self-esteem. It is rather a medium supporting communication with peers and family. The new generation simply prefers to connect and communicate via SNSs instead of letter, telephone or email, hence, “this may not be a sign of pathology, but a product of the times” [6, p. 709]. Narcissists strongly desire social contact, which is their source for admiration, attention, and approval, even though they lack empathy and have only few close relationships [6, p. 706; 31]. The motivation for using the social media, i.e. either communication with peers or outlet for narcissistic needs, may therefore be an important aspect to mark the inter- and intra-generational differences.

2.4. Generation Z?

Even though the media have existed from the birth of Generation Y (assuming it to be since the year 1981), they were widely adopted over two decades later (after 2003) [8; 10]. Hence, there are possibly significant differences between members of the generation born in the 1970s, 1980s or even early 1990s, and these born in the late 1990s and 2000s. Assuming the members of Generation Y were born already in 1970s and 1980s, their children, born in the late 1990s and 2000s, were raised in a totally different environment—not only considering the ubiquitous technology, but also the frequent use of technology at home by their parents (being more familiar with digital gadgets as compared to Generation X).

Therefore, voices in the literature suggest the emergence of a subgroup within the Millennials cohort, namely Generation C born after 1990 [9; 44, p. 128]. The members of Generation C are fond of content creating and mashing (*mash up*, i.e., combining content material from several sources in order to create a new content), they have a tendency to form active communities rather than remain passive, they desire to be in control of their own lives, they are content with complexity, desire to work in more creative industries and to be less restricted by rigid social structures [9; 44, p. 128].

According to Booz&Company [9], by the year 2020 an entire generation will have grown in primarily digital world and it will be called Generation C

(for connect, communicate, change, content-centric, community-oriented, computerized). The members of this generation are realists and materialists, they will be culturally liberal and politically progressive; the most social interactions will occur on the Internet. Since they were born after 1990 and lived their adolescent years after 2000, they have owned digital devices all their lives.

The most research on generational disparities is focusing on distinct subgroups (like high school students, college students etc.) that diverge in age and lifecycle stage, which in turn may lead to distinguished social media use as well. People born after 1994 are not always considered as a part of Generation Y, because teenagers use social media unlike the adults [8, p. 257]. The changes in user behavior occur more slowly than technological developments, since the usage patterns are partially habitual and sticky. Hence, the upbringing and education (i.e. socialization) have a profound influence on the future behavior (i.e. media use) as well [20, p. 114]. It is possible, that the Millennials are not a homogenous group, and consists of subgroups with different social media user behavior [20, p. 115].

There is also evidence of intra-generational differences regarding social media users, based on environmental factors (including economic, cultural, technological, and political or legal factors) as well as individual factors, i.e. stable factors (socio-economic status, age, and lifecycle stage) and dynamic or endogenous ones (goals, emotions, social norms) [8, p. 245].

Even though our primary aim is to investigate the possible divergences of social media usage between generations, especially the Generation Y and its potential successor—Generation Z or Generation C, we did not fully refrain from including some socio-demographical factors that may also influence the outcomes.

3. Methods

3.1. Questionnaire

Dominant means of investigating information systems’ usage and users’ motivations to apply such systems are surveys. For our study we created an online questionnaire, which was distributed through several online channels (like social networks, newsletters) as well as “offline” through word-of-mouth advertising. There were two language versions of this questionnaire—English and German. Despite the overall inter-generational discrepancies, the nature and intensity of social media usage can be also shaped by cultural context, like the collective or indi-

vidualistic one [8, p. 250; 18]. However, due to globalization the use of social media by the Generation Y may become more homogenous despite the different cultural roots [8, p. 251]. Therefore, we did not set any geographical or socio-economic restrictions regarding our test subjects.

In the questionnaire we asked about the use of 13 social media services. We did not include further services to avoid frustration of the participants and breaking-off of the survey due to too many questions. We included the popular social network services Facebook, Google+, Twitter and Instagram, as well as the business social network services LinkedIn and Xing. In addition, we asked about further photo and video sharing services like Flickr, Pinterest, Tumblr or YouTube. Finally, we added a service characterized by a high amount of gamification elements—Foursquare, as well as some newcomers to the Web 2.0—the live video-streaming platform YouNow and service for sharing of the so-called “memes” 9gag. Due to the limited space of this article, here we report on 7 (out of 13) social media services: Facebook, Twitter, Instagram, Xing, Youtube, YouNow, and 9gag.

We did not include the typical consumer communication services like WhatsApp, Skype, Viber, or LINE, as it would go beyond the scope of this study (and require integration of too many possible services and, hence, questions about them). We included social network customized for business networking, LinkedIn and Xing, as we assume they will be utilized by most interviewees in certain life stage (most probably after the graduation), however, we excluded more specialized services for smaller target groups dependent on their career rather than age (like ResearchGate for researchers etc.).

Regarding the use of social media we formulated 3 types of questions. The first one was a polar question about the use of certain services, 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 nev-

er”) and “7” meant fully agree (or “I am always online”). Through these two questions we tried to investigate the different types of users introduced by Kilian, Hennigs and Langner [20], including restrained users (rarely using few social media services), passive users (often utilizing several services, however, staying in the background), and finally the “highly connected” users that are active on many services (and seeking for high amounts of “likes” and “followers”). The motivation for using a social media service, for example, the need for sharing personal photos and receiving many “likes”, may indicate some level of narcissistic behavior that could be also a characteristic aspect for certain generational cohorts.

Technically, the quasi interval/metric characteristics of the (7-point) 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 [2].

At the end of the questionnaire we included an open question—*What other services do you use?* This way we were able to partially include other services in our survey. The socio-demographic questions regarded gender, year of birth, country, and education (namely: *still at school, university student, bachelor’s degree, master’s degree, doctoral degree, or others*).

3.2. Statistical analysis

We consider two complementary analytic approaches. First, we use descriptive statistics to examine inter-generational differences in social media use and motivation for selected social media platforms. Therefore, we calculate two-sided *t*-tests for generations X and Y by adapting relevant literature—for Generation X we adapted the birth years approx. between 1960 and 1980 [8; 11; 14; 28; 40], for Generation Y approx. between 1980 and 1996 [8; 11; 14; 24; 40], and for Generation Z, based on our estimation we defined the earliest year of birth to be 1996. Our *t*-tests assessed whether the mean of a certain generation is statistically different from other generations. For instance, our analytic approach examines the differences of the means between Generation X and the pooled observations for Generation Y and Z. We determined the significance of the differences between those three generations in terms of their usage of social media and motivation, followed by a conclusive inter-generational comparison. Furthermore, *t*-tests are used for testing the mean of two popula-

tions when the population variance is unknown, which is almost always the case in practice.

Second, we propose a cluster solution to identify intra-generational differences for social media use, since the cluster analysis is an effective tool in scientific or managerial inquiry. For this study, the K-means clustering algorithm is applied. This method is widely used and it seeks for a nearly optimal partition with a fixed number of clusters. The K-means algorithm has been popular because of its easiness and simplicity for application [21]. Its iterative algorithm searches for a local solution that minimizes the Euclidean distance between our observations and the cluster centers. Furthermore, this approach is less sensitive to outliers than other hierarchical models and the most frequently used segmentation technique among the clustering techniques in the literature.

We can implement the cluster analysis for a segmentation of Generation Y and Z. We do not use this approach for Generation X due to its relatively small number of observations. We believe that this might be a promising opportunity for further research.

4. Results

Our survey on social media usage was conducted from 13th of March to 23rd of May 2015 with the help of the tool *Umfrage Online*. From total 430 participants, 373 completed the study (30.3% were male, and 69.7% female). We identified 47 persons representing Generation X, 221 representing Generation Y, and 90 representing Generation Z. The test persons came from Germany (60%), Poland (21%), Switzerland (4%), United States (4%), Russia (1.3%), Austria (1%), United Kingdom (0.8%) and from other countries (7.9%). 22% of our test persons is still at school, 35% are university students, 17% hold a bachelor's, 17% a master's and 5% a doctorate degree (4% claimed "other" course of education).

4.1. Inter-generational Differences between Generations X, Y, and Z

Table 1 examines inter-generational differences in social media use and sheds light on the motivation for and frequency of using them. By implementing two sided *t*-tests that allow comparing different generations with each other, we find that Generation X is on average less likely to use Facebook compared to younger generations. The negative value of -0.084 indicates the difference between the means of Generation X and the means of pooled Generation Y and Z towards their response to the use of Facebook. The difference is statistically significant at the 5%-level. Similar results can be observed for Instagram and

Table 1. Inter-generational comparison

	Generation X (N = 47)	Generation Y (N = 221)	Generation Z (N = 90)
Variable	Mean Diff.	Mean Diff.	Mean Diff.
Facebook			
Use of Facebook	-0.084**	0.118***	-0.106***
Facebook Frequency	-0.794***	0.774***	-0.514**
Facebook motive: Keep in Touch	0.389	-0.349	-0.336
Facebook motive: Likes	-0.173	0.190	0.426*
Twitter			
Use of Twitter	0.226***	-0.018	-0.165***
Twitter Frequency	1.355***	-0.248	-0.688***
Twitter motive: Many Followers	0.967**	-0.343**	-0.315*
Twitter motive: Likes or retweet	0.845***	-0.237	-0.332*
Instagram			
Use of Instagram	-0.186**	-0.110**	0.325***
Instagram Frequency	-1.167***	-0.614**	1.898***
Instagram motive: Followers	-0.762**	-0.581***	1.449***
Instagram motive: Likes	-0.657**	-0.525**	1.334***
Xing			
Use of Xing	0.105*	0.101**	-0.229***
Xing Frequency	0.442**	0.292*	-0.795***
Xing motive: More contacts	0.302	0.408**	-0.815***
Xing motive: Visitors	0.271	0.395**	-0.710***
Youtube			
Use of Youtube	0.013	0.031	0.051
Youtube Frequency	-0.229	-0.120	0.376
Youtube motive: Subscribers	-0.176	-0.196	0.319**
Youtube motive: Comments	-0.021	-0.173	0.287*
YouNow			
Use of YouNow	-0.025	0.174	0.015
Frequency YouNow	-0.095	0.003	0.051
YouNow motive: Fans	-0.053	0.030	0.071*
YouNow motive: Likes	-0.053	-0.036	0.071*
9gag			
Use of 9gag	-0.172	0.226***	-0.166***
9gag Frequency	-0.778***	1.107***	-0.810***
9gag motive: New friends	-0.200**	0.306***	-0.240***
9gag motive: Upvotes	-0.240**	0.306***	-0.213**

Results for Generation X, Y and Z, drawn from two-sided *t*-tests:

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

9gag. These results are in line with our expectations, since people born before 1980 can be described as digital immigrants, who lag behind with the usage of social media compared to younger generations. Surprisingly, Generation X is statistically more likely to use Twitter than younger generations. We can explain these results with the more practical purpose of this short message service: Users of Twitter aim to share news or opinions about current events with little effort and efficiency [45]. Younger generations might be more likely to use the full scope of more elaborated technical capacities to share information, e.g. via Facebook or YouNow. Also, Twitter is increasingly used for sharing political information, news, or research updates, which means that the user mostly follow and/or share with strangers, whereas the younger generations prefer to use social media to stay in touch with friends and peers [45]. Furthermore, results for Generation X's motive for using

Table 2. Cluster solution for Generation Y

	Cluster 1				Cluster 2				Cluster 3			
	N = 119				N = 66				N = 36			
	Mean	S.D.	Min	Max	Mean	S.D.	Min	Max	Mean	S.D.	Min	Max
Year of birth	1991	2.58	1981	1995	1988	3.36	1980	1995	1986	2.91	1980	1991
Frequency of use												
Use of Facebook	5.83	1.11	0	7	5.48	1.44	0	7	4.94	1.97	0	7
Use of Twitter	1.01	1.90	0	6	0.98	1.92	0	6	1.33	2.01	0	7
Use of Instagram	1.79	2.55	0	7	1.39	2.31	0	7	1.61	2.57	0	6
Use of Xing	0.29	1.00	0	6	0.89	1.58	0	7	1.89	2.05	0	5
Use of YouNow	0.03	0.26	0	2	0.24	1.15	0	7	0.00	0.00	0	0
Use of 9gag	1.66	2.35	0	6	1.09	2.13	0	7	0.75	1.92	0	6
Use of Youtube	4.58	1.75	0	7	4.14	2.02	0	7	3.81	2.11	0	6

Twitter indicate that users born before 1980 are particularly interested in gathering followers and being retweeted. All results are significant at the 1%- or 5%-level.

When considering the results for Generation Y, we can show that individuals born between 1980 and 1995 are more likely to use Facebook. This is in line with our expectations, as Facebook appeared in the mid 2000's and became the first mainstream social media instrument for digital natives [13]. An explanation therefor could be that other generations either deliberately remain aloof to find their own and separate online platforms to communicate (e.g. Generation Z, see Wochnik [45]), or are reluctant due to Facebook's complexity or the associated privacy issues (e.g. Generation X, see Prensky [34, p. 3]). Additionally, we find that Generation Y is statistically more likely to use Xing. This result is significant at the 5%-level and, respectively, at the 10%-level for the frequency of use. A high number of subjects born between 1980 and 1995 might already be employed or actively seeking work. Given this background, the use of a business-oriented social network site appears comprehensible for digital natives. Further, the main motivation of Generation Y users seems to be both to enlarge the number of business contacts and the number of profile visitors. This motivation is more pronounced, in particular compared to Generation Y.

When now considering the results for generation Z, we can show the most significant differences for the use of Instagram and Xing. Individuals born after 1995 are statistically more likely to use Instagram, an online mobile photo- and video-sharing platform, than older generations. Generation Z not only perceives the Internet as a natural element in everyday life (similarly to Generation Y / digital natives), but also the use of digital mobile devices. Therefore, the latest generation can be described as *mobile natives* and significantly differs from former ones with regard to mobile social networking [29]. Moreover,

individuals born after 1995 are on average statistically less likely to use Xing, which is a logical consequence of the fact that most of them are still at school.

In sum, we verified the H1, as our statistical analysis has revealed inter-generational differences in social media use and motives. Hence, our results serve to better understand the user's intention to share and acquire content on social networking websites, particularly with regard to age-specific user preferences and behavior.

4.2. Intra-generational Groups in Generation Y

When adapting the cluster approach for Generation Y, we find three intra-generational groups with regard to different ages interpreted as different stages of life. The results are summarized in Table 2. The first cluster is on average the youngest (born around 1991). It exhibits, on the one hand, the highest frequencies of usage for Facebook, Instagram, 9gag and Youtube. On the other hand, this cluster is less frequently using Twitter. Overall, this group is highly connected and uses various kinds of social media channels regularly. Kilian, Hennigs and Langner [20] called this type Highly Connected Millennials (see Section 2.3), who are the most active users of social media with the purpose to build social networks. Furthermore, this cluster exhibits similar traits to Generation C, which is born after 1990 and fond of content creating and actively forming communities [9; 44]. The second cluster is the mid-aged group of Generation Y and on average born in 1988. This cluster shows medium frequency-levels of use for all social media channels except for YouNow, which is a live streaming video website. According to Kilian, Hennigs and Langner [20], we might classify this cluster as the Entertainment-Seeking Millennials. This group is present on social media platforms, however, remains rather passive. Still, they exhibit high usage rates of various kinds of social media. The third clus-

ter exhibits on average the oldest birth dates (born on average in 1986). Moreover, Table 2 shows the smallest frequency of use for Facebook, Instagram, 9gag and Youtube, and the highest frequency for Twitter. Again, according to Kilian, Hennigs and Langner [20], this cluster shows similarities with the Restrained Millennials, who tend to exhibit the lowest ratings for social media use. It also appears that this cluster bears a certain resemblance to the findings for Generation X highlighted on Table 1. Hence, our findings might indicate that different ages interpreted as different stages of life affect the social media use, and a higher on-average age for Generation Y clusters incrementally increases the similarities with Generation X. Overall, we can conclude that the cluster solution indicates considerable intra-generational discrepancies in social media use.

4.3. Intra-generational Groups in Generation Z

It might not only be of interest whether the heterogeneous Generation Y can be clustered, but also whether initial tendencies towards a segmentation of Generation Z can also be observed. When adapting the cluster approach for Generation Z (Table 3), we are able to distinguish between two groups that have similar traits as Generation C (i.e. content creating and forming new communities). The first cluster is on average one year older compared to the second cluster and uses less frequently Facebook, Twitter, 9gag and Youtube. Differences in the use of YouNow and Xing are negligible. However, the first cluster exhibits higher frequency rates of using Instagram. This might be due to the growing trend towards mobile networking. This technological development occurred at the time when Generation Z distinguished themselves from the previous generations considering the Internet use. The higher the frequency of using Instagram, the younger are its users, which indicates the procedural phenomenon to strive for inter-generational differentiation [45].

Table 3. Cluster solution for Generation Z

	Cluster 1				Cluster 2			
	N = 79				N = 11			
	Mean	S.D.	Mn	Max	Mean	S.D.	Mn	Max
Year of birth	1998	2.17	1996	2006	1997	2.68	1996	2005
Frequency of use								
Use of Facebook	4.71	2.55	0	7	6.09	0.83	4	7
Use of Twitter	0.48	1.44	0	7	1.73	2.61	0	6
Use of Instagram	3.43	2.78	0	7	2.64	3.11	0	7
Use of Xing	0.01	0.11	0	1	0.00	0.00	0	0
Use of YouNow	0.14	0.81	0	6	0.00	0.00	0	0
Use of 9gag	0.13	0.76	0	6	1.36	2.46	0	6
Use of Youtube	4.52	2.28	0	7	5.64	1.21	4	7

5. Implications for Social Commerce

In this paper, we examined whether differences occur for the motivation for and frequency of social media usage from both inter- and intra-generational perspectives with regard to the heterogeneity of users' life stages. Our examination contributes to previous literature in two main ways. First, we shed light on the developmental process of social media usage for different age groups and we are able to contribute to sociological theories of generational change. And second, our outcomes enrich the theories of Internet development and social media usage, which might be particularly relevant for marketing insights and social shopping to better assess online target groups and to improve online products.

We conducted a broad analysis to compare social media usage for Generations X, Y, and Z. The results indicate that social media users born between 1980 and 1995 and also before 1980 are more likely to use business-oriented networking services, which might be due to the facts that they found employment and are familiar with online networking. Their main motive to increase their contact numbers emphasizes their capability and willingness to use platforms such as Xing. Particularly for Generation X, older users are more likely to use social media for sharing business and political information, news, or research updates with strangers. Generation Y, on the other hand, is more likely to use a traditional networking platform, such as Facebook, in order to communicate and share information with friends. The youngest generation born in 1996 and later tries to find own individual path in social media use when turning back on Facebook and moving towards more recently appeared social media platforms and channels, in particular the mobile photo-sharing network Instagram.

The differences in the tendencies of social media use from an inter-generational perspective are also observable on a smaller intra-generational scale, indicating evidence for an incremental development of social media use. When clustering Generation X and Y into subgroups, we cannot only see a heterogeneous overall picture, but also a diverse insight into the development of intra-generational changes. Strong similarities between the early Generation Y and Generation X are observable. Further, a slow and incremental shift away from Facebook towards Instagram can be seen for the late Generation Y and Generation Z.

Additionally, our results show a tendency of how the youngest generation of social media users might develop in the upcoming years and are able to point

out the relevance of mobile networking. We suggest that this trend is gaining momentum and will further increase for the very youngest Internet users that will soon discover mobile social media.

Our findings are particularly interesting for businesses that use the popularity of certain social media platforms to support online transactions and user contributions to enhance the purchase of products or services. The determination of the correct target group for age-specific products or services is crucial for the success of a business. Players in the social commerce sector can focus on services mostly used by their (future) consumers. Knowing the frequency and motivation of their social media usage, they can prepare more suitable incentives for their products. This knowledge refers to the important marketing concept of relationship quality, indicating that an increase of relationship strength has a positive long-term impact on the business relation between service/product provider and customers.

6. Limitations and Future Work

After the online survey was completed, it came to our attention that the demographical aspects might indeed significantly influence the outcomes, especially, when the use of social media based on concrete services (like Facebook) is being investigated. A large number of participants indicated their use of further services being only popular in their respective countries or regions. This does not distort the results when the usage of a specific service, like Facebook, is intended. However, when assessing the usage of certain kind of services (e.g. social network services or video-sharing platforms in general), the regional differences and the possibly resulting *standard-dependent user blindness* [3; 4] should be taken into account.

Considering the fact that the social network services market is full of *imitators* [5], some regionally prevalent *standards* can be easily clustered into groups of similar services, e.g., *Facebook* and its Russian equivalent *Vkontakte* are objectively very similar, however, due to the standard-dependent user blindness they are used alternatively rather than cumulatively [3; 4].

Hence, the limitation of our study is that given the broad demographical range of our investigation, we did not consider the regional standard services. For further studies of this kind we would advise to cluster services that objectively offer substitutable contents, e.g. *Do you use Facebook and/or VKontakte?* As for social commerce sector, we would advise not to un-

derestimate “local” social network standards as platforms for exchange and consumer acquisition.

Since our empirical examination pursues the objective to holistically investigate different generations and various social media platform, we believe that a more focused investigation of a certain generation, a social media platform or a motivation might be a promising opportunity for further research. Additionally, an examination of the interdependencies between applications of different social network services might also add to previous literature.

In our future studies we will include these lessons learned as well as pursue a more in-depth analysis of online behavior of Generations Y and Z.

7. References

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