SOCIAL MEDIA AND ONLINE BEHAVIOUR AMONG HIGH SCHOOL AND UNIVERSITY STUDENTS

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Abstract
The purpose of this paper is to describe the behavior of young people in the social media environment. The method chosen for data collection was a questionnaire survey on a representative sample of 1,706 valid respondents from Czech Republic. We used chi-square, analysis of variance, and factor analysis to explain relationships in data. Besides social media popularity ranking, our results showed that the more time respondents spend on the internet, the more social media brands they use. We also inspected the applicability of duplication of a purchase law in the social media context. Data showed that popular modes of communication among students include photos and texts followed by a video. Additionally, we found a similar use of social media among students and their parents. Last, with the use of exploratory factor analysis, we concluded that social media varies according to the content users go to it for, which carries implications for marketing communication strategy.

Keywords: duplication of purchase law, social media, social network, marketing communication, media consumption
JEL codes: M31, L82

1. Introduction

Considerable competition exists for students in the marketplace of higher education. Universities around the world are gradually finding popularity in using modern ways of marketing communication towards potential applicants and students. Social media as a rapidly spreading medium is one of these tools. Despite its widespread popularity, there is still a lack of research focusing on the behavior of a group of young people who are potential future students.

The topic of social media is increasingly relevant in all areas of communication management. It is no longer a novelty that social media has caused an alteration in marketing communication, giving organizations a new interactive platform for communication with customers and stakeholders. Kumar et al. (2016), Swaminathan (2016) and Stojanovic et al. (2018) confirmed a positive relationship between the intensity of social media use by companies and brand awareness. Similarly, Schivinski and Dabrowski (2014) found a relationship between social media communications and brand attitude. Tokarčiková (2011) states that professionally oriented social network sites (SNS) offer benefits both for individuals and for companies, industrial enterprises, and organizations of various kinds.

While speaking about social media and social networks, it is worth defining a few basic concepts for the purposes of this study. Kaplan and Haenlein (2010) provide a typology using a set of theories to generate six types of social media, including blogs, social networks (Facebook), virtual social worlds (Second Life), collaborative projects (Wikipedia), content communities (YouTube), and virtual game worlds (World of Warcraft).

There is fruitful research on social media. Many studies have investigated the viability of social media as a marketing medium, while others have explored various aspects of the medium itself, including the risks associated with its use, the value it creates, and the negative stigma attached to it within workplaces (Kapoor et al., 2018). Research on social media as a marketing tool consists of, for example, the role of consumer-brand relationships in the context of effective personalized advertising (Hayes et al. 2021), or the reasons for avoiding the native advertisement on social networks (Chung and Kim, 2021). Some studies focus on specific target market segments and their behaviour. For example, Newman et al. (2021) targeted older adults. Perčić and Perić (2021) were looking for effective promotional media in three age cohorts. They found that for each segment, it is more efficient to invest in a different combination of communication mix tools. Braciniková and Matušínská (2020) found dissimilarities in brand meaning across generations.

In a university context, where research includes students as a research subject, topics emerged around organizational and individual level. Example of the first is the communication via social media between students and university as a brand (Bonilla et al. 2021; Raza et al. 2020; Bamberger et al. 2020; Assimakopoulos et al. 2017; Constantinides and Stagno, 2012; Rutter et al., 2016); the latter evolved around the use of social networks in teaching and communication between teachers and students in general (Cunha Jr at al. 2016; Sánchez et al. 2014; Kozel et al. 2012; Roblyer et al. 2010). Furthermore, we can include individual social media and the use of social networks of university students described in other literature streams focused on motivation, social media behavior and its results (Hussain, 2012; Zavodna and Pospíšil, 2018; Cheung et al. 2011; Pampek et al. 2009).

This study joins efforts to describe students' online behavior on social media. Therefore, we surveyed students in the Czech Republic and examined their behavior on social media, particularly on social networks and content communities. A total of 1,706 respondents to the research declared which social media are most used and what information they expect on the platforms most often. The survey also looked at what content university and high school students create and how many hours a day they spend on social networks.

2. Data and methods

The survey was aimed at students in the Czech Republic aged 17-26 who are interested in studying at a university or already studying one. The aim was to find out how the target group uses the Internet and social media. The questionnaire was distributed among bachelor's students of four Czech universities and among third- and fourth-year high school students. In most cases, the questionnaire survey in secondary schools was carried out in cooperation with secondary school teachers by prior arrangement and with their consent.

It was a self-selection between undergraduate students and third- and fourth-year high school students. 1 852 questionnaires were obtained. 1,706 questionnaires were processed. 112 respondents stated that they did not want to study at university and 28 stated that they did not use social media, therefore they did not meet the requirements of the target group and were excluded from processing. Six responses were eliminated from the sample due to incomplete responses.

Overall, 1,706 respondents were surveyed meeting minimum sample size determined by the following equation (Kothari, 2004) $n = (z2 \cdot p \cdot q) / e2$. Where n is the sample size, z is the standard variate at a given confidence level, p is a sample proportion ($q = 1 - p$), and e is an acceptable error. Then the calculation for 95% confidence level goes as follows: $n = ((1,962) \cdot (0,5) \cdot (1-0,5)) / 0,052$; $n = 0,904 / 0,0025$, $n = 384$. Hence, the minimum sample size for this study is set to 384 respondents. Traditionally representative surveys usually work with a sample of around thousand respondents (with a corresponding composition according to the quota features of the sample (gender, age, and education). The research sample shows signs of representativeness by having characteristics close to the population,

such as gender and school type (Tables 1 and 2). We decided not to limit the data by strata via quota sampling for the sake of ultimate representativeness.

Table 1: Sample distribution by gender

Gender	Absolute	Relative	Population
Male	687	40,4 %	49,1 %
Female	1019	59,6 %	50, 9 %
Total	1706	100 %	100 %

Source: own research data and (Czech Statistical Office, 2020a)

The questionnaire included 24 questions. Of these, 2 were used to filter respondents and 6 were used for personal identification. The entire questionnaire included various types of questions, both closed (yes/no), semi-open, scales, and 3 open-ended questions. The questionnaire was distributed electronically using the Google forms tool.

Table 2: Sample distribution by school type

School type	Absolute	Relative	Population
High school	612	35,8 %	46,1 %
Higher vocational school	30	1,9 %	2,6 %
University	1064	62,3 %	51,3 %
Total	1706	100 %	100 %

Source: own research data and (Czech Statistical Office, 2020b)

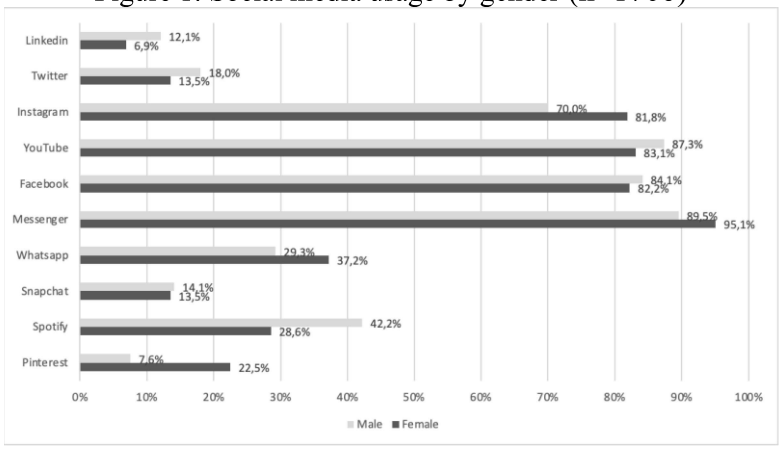
The questionnaire was divided into two main research parts. One examined how respondents use social networks and the other focused on the use of not only social networks but also other communication platforms that young people use on the Internet (blogs, advertising).

3. Results

We start the results section with descriptive statistics. Basics popularity of particular social media in our sample is described in Figure 1. Messenger, YouTube, Facebook, and Instagram are the main social media platforms that attract student attention. If we consider Messenger to be a spinoff app from Facebook, this finding is consistent with previous literature where Facebook and Youtube have been identified as most popular (Singh and Gill, 2015). Likewise, Zavodna and Pospíšil (2018) observed that Facebook, Instagram and Youtube are the most popular among university students.

Messenger as an instant messaging app is dominating WhatsApp. Similarly, YouTube is the dominant content community far from Spotify second and Pinterest third in this category. Moreover, there are differences between genders in the use of social media. The figure also shows a significant deviation in Pinterest and Instagram popularity among women. On the other hand, Spotify seems to be more popular among males, and this also applies, albeit only weakly, to LinkedIn and Twitter.

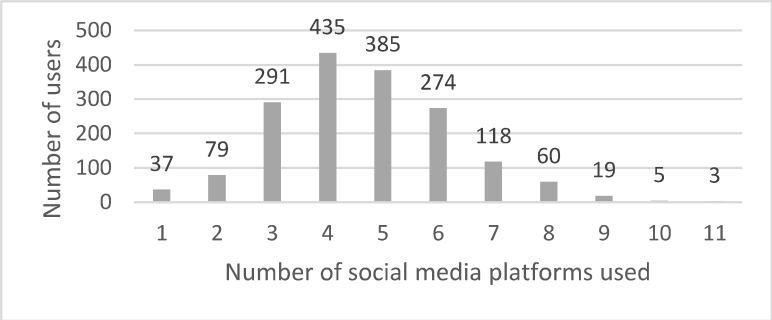
Figure 1: Social media usage by gender (n=1706)



Source: own research data

The most frequent number of social media platforms that students regularly used was four (Figure 2).

Figure 2: Distribution of the number of social media platforms used (n=1706)



Source: own research data

It is obvious from the ranking that students regularly use more than a single social media, violating loyalty to just one platform. Therefore, the question of which platforms are used together will be answered here. Table 3 shows that all social media have the highest cross-use with Messenger. For example, 94% of Youtube users use Messenger or 78% of Youtube users use Instagram. On the other hand, only 6% of Snapchat users have a Twitter account, and so on. This pattern of polygamous media consumption has been observed previously in magazines (Agostini, 1962; Cannon, 1983), television (Goodhart and Ehrenberg, 1969; Headen et al., 1979; Webster, 1985; Jardine et al., 2016), radio (Lees and Wright, 2013), gaming (Lam and Ozorio, 2013) or websites visits (Webster and Lin, 2002) and is called duplication law (the name is always supplemented by the specific area where the duplication occurs, e.g. purchasing, viewing, or listening).

The underlying premise of duplication is that consumers rarely exhibit loyalty to any brand, but select from a repertoire of acceptable choices, favoring these brands in line with each brand's market share (Wilson and Winchester, 2019). The law is also confirmed in the consumption of social media by students here since the top social media brands by penetration would also capture cross-use from other social media in the same ranking order (Table 3). The only exception is that Pinterest has higher penetration than Twitter but lower average cross-use. Overall, the correlation between penetration and average cross-use demonstrates high values (r = 0.99), and the law holds.

Table 3: Cross-usage within social media platforms (n=1706)

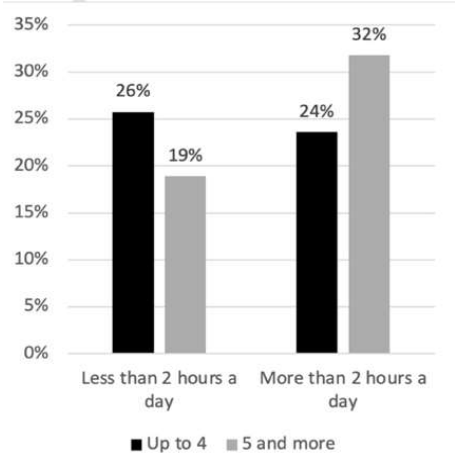
Users of...	% penetration	% who are also users of...										
		ME	YT	FB	IN	SP	WH	PI	TW	SN	LI	TI
Messenger	93		86	85	79	35	35	17	15	15	9	4
Youtube	85	94		86	78	37	35	18	16	15	10	4
Facebook	83	95	88		77	35	36	16	16	15	10	5
Instagram	77	95	86	83		38	36	19	17	17	9	4
Spotify	34	96	92	85	85		38	23	25	20	15	7
Whatsapp	34	95	86	88	83	38		20	18	19	14	7
Pinterest	16	97	92	82	89	48	41		23	21	13	5
Twitter	15	92	89	85	84	55	40	25		25	14	11
Snapchat	14	98	91	89	93	49	47	25	28		6	12
LinkedIn	9	94	90	90	78	56	54	24	24	10		10
Tinder	4	93	86	91	80	58	58	20	39	38	20	
Avarage		95	90	87	84	50	47	28	29	27	20	16

Source: own research data

In addition, we were interested in whether there is any influence of the number of social media platforms used and the time spent with these media. Approximately half of the sample used up to four social media, and the other five and more. We have split the sample and compared the groups with the

average time spent on social media a day. As Figure 3 shows, the cross-tabulation clearly indicated that the more social media platforms students use, the more time they admit spending on social media. The statistical test for the relationship goes as follows $\chi 2$ (1, n=1706) = 37.8, p = 0.0, but with the small effect size of $\varphi = V = 0.15$.

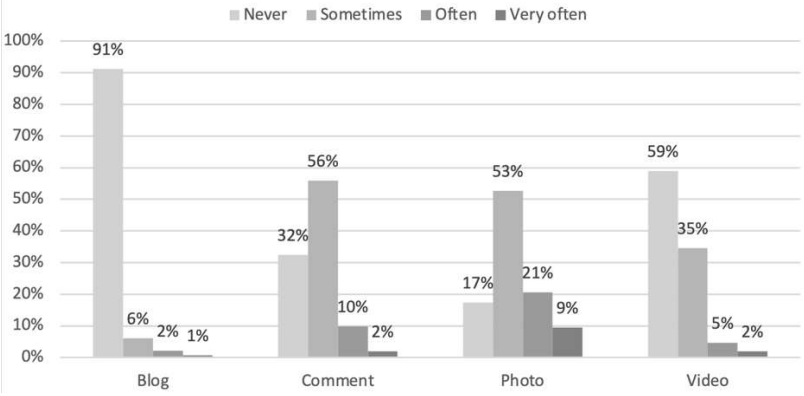
Figure 3: Time spent on social media and number of platforms used (n=1706)



Source: own research data

Next, we were interested in typical forms of communication by its content. Most of the selected items were photos, comments, and videos. Clearly, blogs are out of the interest of majority as a figure 4 shows. Surprisingly, only 2 % of respondents comment on social media very often. In contrast, 9.4 % use a photo as a form of communication extensively. This implies that photos are the most popular form of communication on social media.

Figure 4: Types of content by its frequency of use in communication by users (n=1706)

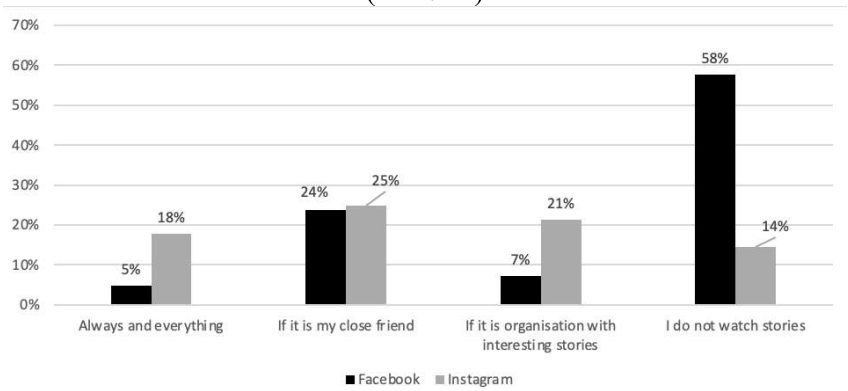


Source: own research data

Our results are consistent with previous studies. Poecze et al. (2018) report significantly higher effectiveness for posts containing photographs. Contrary to these results, Marešová et al. (2020) point out that on Facebook, even top universities, unlike most consumer brands, do not use photos or videos to the same extent as top brands, although photos achieve the highest engagement.

We then explored further the way students consume video content in the form of short videos fading after several hours called stories. We measured the behavior on two popular platforms, Instagram and Facebook, and let students pick as many options as they want to describe their common behavior. As our data show (Figure 5) more than half of users do not watch stories on Facebook at all, contrary to only 14.5 % ignoring this type of communication on Instagram. Interestingly, the willingness to watch stories on Facebook is related to authorship. If the content is created by a close friend, users behave the same on both platforms and around 24 % of them would view the stories.

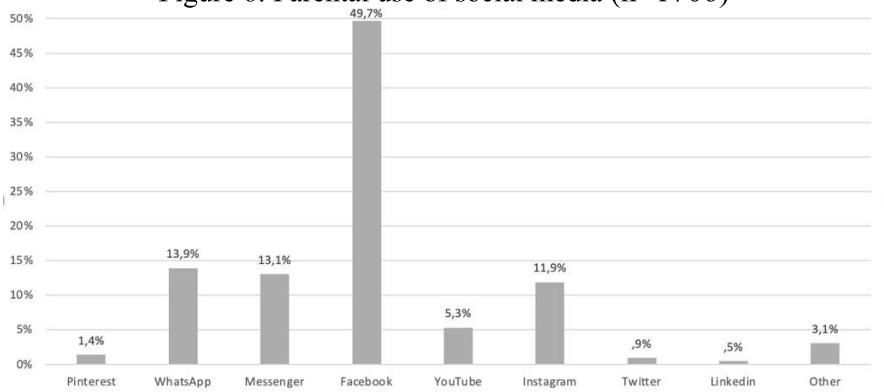
Figure 5: Differences in Stories (short fading videos) consumption on Instagram and Facebook (n=1706)



Source: own research data

Since parents can influence one's decision about university selection, we also asked our respondents about the behavior of their parents on social networks online. Despite the fact that this information is mediated and thus can be distorted, we find dominance of Facebook within the social media used. Follow WhatsApp, Messenger, and Instagram. A complete overview is presented in Figure 6.

Figure 6: Parental use of social media (n=1706)



Source: own research data

In addition, we tested the assumption that students and their parents consume media in an interconnected way. To be precise, the preference for an online social media of a student is influenced by the preference of his or her parents for the media and vice versa. To test this assumption, we performed several statistical tests of the data at hand.

Firstly, we were interested in whether the Facebook use of a parent somehow influences the Facebook use of a student. There were theories presented by social media experts that the young generation leaves Facebook for the reason of parents joining the network and making online behavior of their children exposed. Thus, we used the independence test for two variables, both categorical in nature, Facebook use of students and Facebook use of their parents. A Chi-square test for independence (with Yates's continuity correction) indicated a significant positive association between the use of Facebook by students and the use of Facebook by their parents $\chi 2$ (1, n=1706) = 4.77, p = 0.03, but with a small effect size of $\varphi = V = 0.05$. No cells had expected count less than 5 thus the statistics is not distorted. Results show the relation between Facebook usage of students and their parents exists.

Secondly, in the same manner, we tested Instagram, WhatsApp, and Messenger. The results are as follows. The use of Instagram by students and their parents $\chi 2$ (1, n=1706) = 47.4, p = 0.0, with a small effect size of $\varphi = V = 0.17$. Messenger use by students and their parents $\chi 2$ (1, n=1706) = 8.3, p = 0.02, with a small effect size of $\varphi = V = 0.07$. WhatsApp use by students and their parents $\chi 2$ (1, n=1706) = 88.7, p = 0.0, with a medium effect size of $\varphi = V = 0.22$. In all pairs there has been a statistically significant relationship. The effect size ranges from small for Facebook, Instagram, and Messenger to

medium for WhatsApp. There has been this common belief that young people avoid platforms where their parents are. However, our data suggest otherwise. Students and their parents use social media in parallel.

In our analysis, we moved from describing media usage habits to what specific content young users expect to see on social media. To do that, we had to reduce the complexity of the data by employing exploratory factor analysis (EFA) and inspected the underlying correlations between variables related to themes of social media content. These were measured on scales ranging from never to very often. The variables analyzed were information acquired on social media on fashion, sport, culture, education, health, jobs, and dating. The value of the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy is 0.638. Malhotra and Birks (2006) recommend a minimum KMO value of over 0.5 for this test. This indicates that factor analysis is appropriate as a method for data analysis. Furthermore, Bartlett's sphericity test shows 0.0 significance, and therefore there is a correlation between the values. The number of factors was determined based on Kaiser criterion (Hardy and Brymann, 2004). Components with eigenvalue greater than 1 were included. In conclusion, three underlying factors were identified. The oblique rotation method (Promax) was used to rotate the factors. Matsunaga (2010) suggests that any exploratory factor analysis should employ an oblique rotation for several reasons. Most importantly, almost all phenomena that are studied in social sciences are interrelated to one another, and complete orthogonal (unrelated) relationships are rare. Thus, we use the oblique rotation.

Table 4: Pattern matrix

Pattern Matrix[a]			
	Component		
	1	2	3
News	0.775		
Education	0.724		
Culture	0.690		
Fashion		0.870	
Health		0.706	
Dating			0.746
Sport			0.708
Jobs			0.367
Extraction Method: Principal Component Analysis. Rotation Method: Promax with Kaiser Normalization.			
a. Rotation converged in 5 iterations.			

Source: own research data

One of the weaknesses of exploratory factor analysis is the subjectivity associated with naming factors. To avoid this common problem, we will use only order factor numbers for future analysis and leave the reader with the option to see all the measured variables behind the latent factor (Table 4). Thus, factor one (F1) consists of information about news, education, and culture, factor two (F2) fashion and healthy lifestyle, and last factor (F3) dating, sport, and jobs. Once we have data on social media usage and typical content expected here on the user level, we move on to analysis of social media brands. We were then able to explore the relation between the use of a particular social media and the interest in specific content. We used analysis of variance (ANOVA) to measure the effect of social media use (nominal variable yes or no) and factor loading on the individual level (continuous variable). In Table 5 we can see the results of the statistical test. ANOVA showed significant differences in the means of students using or not using Facebook in all three factors. Moreover, for YouTube, there was no significant difference, and two out of three factors are dependent on Instagram use.

Table 5: ANOVA results (n=1706)

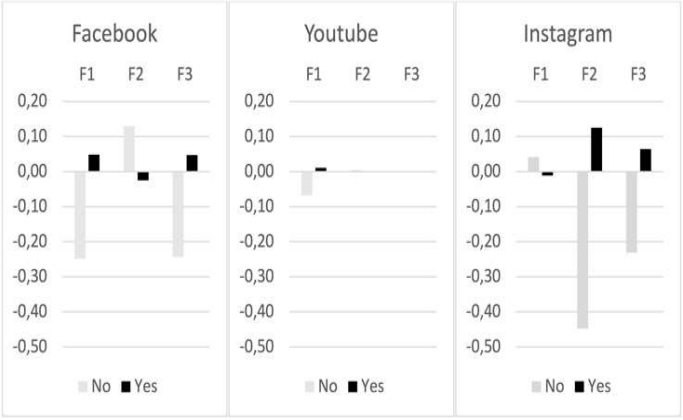
Factors	Facebook		YouTube		Instagram	
	F	p-value	F	p-value	F	p-value
F1: news, education, and culture	18.021	*0.000*	1.114	0.291	0.702	0.402
F2: fashion and healthy lifestyle	4.895	*0.027*	0.005	0.944	88.785	*0.000*
F3: dating, sport, and jobs	17.311	*0.000*	0.000	0.998	22.691	*0.000*

*statistically significant at 0.05

Source: own research data

The following figure 7 illustrates the direction of the relationship visually. First, users who use Facebook most often search information connected with factors 1 and 3 and conversely do not search that much for information about fashion and health (F2) on social media compared to nonusers. Second, YouTube use does not clearly explain any relation to topic of interest and thus does not show significant differences in users and non-users. Third, Instagram users tend to search for more information about fashion and health (F2) and similarly to Facebook users also dating, sports, and jobs (F3).

Figure 7: Facebook, YouTube, and Instagram use and most popular areas of interest searched on social media



Source: own research data

Moreover, we looked at the gender differences in information that is typically consumed on social media. Again, ANOVA has been used to measure the effect of gender (nominal variable male or female) and factor loading on individual level (continuous variable).

Table 6: ANOVA results (n=1706)

Factors	Gender	
	F	p-value
F1	0.883	0.000
F2	348.489	*0.000*
F3	57.510	*0.000*

*statistically significant at 0.05

Source: own research data

The results of the test are shown in Table 6. There are significant differences in factor two and three depending on the gender. The direction of a relationship goes as follows. Females consume much more intensively fashion and healthy lifestyle content, compared to men who are more interested in dating, sports, and jobs. Both genders take the same approach to consuming content about news, education, and culture.

4. Conclusion

The research in this study focused primarily on university students and final-year high school students in the Czech Republic. From the description of online behavior, main beneficiaries can be universities, but also industries that target their product at young people or companies looking for potential employees among graduates of secondary schools and universities. The information is particularly useful for the selection of appropriate communication channels, the form, and content of promotional messages.

The results indicate that young people in the Czech Republic mainly use Messenger, YouTube, Facebook and Instagram. But there are differences in gender. Women are more in favor of Pinterest and Instagram. Men are more likely to use Spotify than women. For example, design schools with a higher prevalence of female applicants can use Pinterest very effectively, to showcase their students' work, and thus attract new applicants. The same applies to businesses working in the fashion industry.

We also dealt with the question of loyalty to a particular platform among students and observed rather polygamous consumption user behavior. This tendency is explained by the duplication law. Duplication of social media use in this case. Social media platforms share more of their users with larger competitors and fewer users with smaller competitors. This finding is in accordance with previous research in mass media (Agostini, 1962; Goodhart and Ehrenberg, 1969; Cannon, 1983; Webster, 1985; Lees and Wright, 2013; Jardine et al., 2016).

Further, we examined the association between the number of social networking sites used and the time spent on SNSs. For example, Ashley and Tuten (2015) reported that engagement scores consider the number of social media channels used. Our research confirms a similar fact. This is an important finding that supports the idea of using multiple types of social media and focusing on creating interesting and original content on each channel. Universities often do not create their own content but share it. If they create their own content and have multiple social media channels, then they share the content on their channels. Again, this does not encourage students to follow multiple channels (the content is almost identical). As a result, colleges lose followers' time and their engagement scores. This was also confirmed by Marešová et al. (2020). This fact leads to a recommendation for universities not only to focus on one social media network, but also to use other SNSs and adjust the content on each platform to its users. This will become more important as SNS users spend more and more time online. Of course, the fact that it is necessary to generate interesting, useful or entertaining content for the target audience also applies.

On the topic of content, or rather its form, the research found that young people do not use blogs in their communication, but welcome to produce mainly photos and video content. Hence, encouragement to share a photo (e.g., a competition for the funniest photo with our product) is better than encouraging verbal comments. Moreover, students follow short fading stories more often on Instagram than on Facebook.

For colleges and universities, an important piece of information may be to refute the common assumption presented by the media experts that young people are leaving Facebook for their parents. We found that this social media site is used by students and their parents simultaneously. Yang (2016) points out that Facebook is where parents meet their children who are leaving home and adapting to a new school environment, and the connection with parents through SNS is perceived positively. Therefore, our recommendation is to use this SNS for promotion that will target both students and their parents. They still have influence on the decision-making process when choosing a university.

Variances and similarities have been identified on different social networks regarding the typical information consumed by students. Instagram users tend to search more information about fashion and health, and similarly to Facebook users, also dating, sports, and jobs. Besides, Facebook users consume information about news, education, and culture and neglect the fashion and health lifestyle information. Gender also comes into play. Not surprisingly, women consume much more intensively fashion and healthy lifestyle content, compared to males being more interested in dating, sports, and jobs.

The obvious limitation is the use of one nation sample only, thus the intercultural or cross-national comparison and overall generalization of a results is limited. Furthermore, the cross-sectional and longitudinal approach of the study could provide deeper insights into tendencies and provide data for prognosis. The emerging social networks such as Clubhouse and TikTok have not been included, and thus further studies could incorporate them in the questionnaires. The last limitations lay in self-

reported data collection since this method is limited by the fact that it rarely can be independently verified.

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